User Charges and Locks and Dam 26: The View of the Barge and Towing Industry

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This paper briefly reviews the growth and development of the barge and towing industry and discusses the background of the thrust for the imposition of user taxes on users and beneficiaries of the inland river system. The possible forms and levels of such taxes are discussed as well as the possible impacts on rates and modal shifts of traffic. A discussion of the equity of such taxes includes a review of federal subsidies and assistance to the rail industry. Finally, the role of various groups in attempting to define a national transportation policy is examined, and the future of the barge and towing industry is briefly surveyed in the light of recent developments.

The barge and towing industry today is locked in the heat of battle. We find ourselves having to defend our purpose and our mission with segments of the general public. Many environmentalists would prefer that one of America's greatest natural resources, its inland river system, not be used for purposes of commercial navigation. The U.S. Department of Transportation, presumably an unbiased maker of public policy, seems not to understand the barge and towing industry and the role it plays in the nation's transportation system. To understand the nature and possible ramifications of this controversy, it is necessary to step back into history and examine the role of inland waterways in the development of the United States and to see how the needs of the shipping public were met in a very special way.

BACKGROUND

We are familiar with the flatboats and keelboats of the late 18th and early 19th centuries, which brought American settlers floating down the Ohio River and made the dream of westward expansion come true. The flatboats and keelboats gave way in the early 1800s to the steamboats, which for the next 70 years were the principal means of moving people and goods within the U.S. interior. By 1840, an average of ten steamboats a day called at the Port of New Orleans, some carrying settlers upstream to the far reaches of the Missouri River and up the Yellowstone River into Montana, Wyoming, and Idaho.

By about 1880, the railroads had spread across the interior of our country. Their lines, paralleling the Ohio and Mississippi rivers and extending as far north as Minnesota, spelled disaster for river steamboats. Predatory pricing and the vast financial resources of the railroad industry rang the death knell for river commerce shortly after the Civil War.

Once competition was removed, the obvious occurred. Railroads took advantage of their monopolistic position. As a result, there was a demand from the shipping public for an alternative means of transportation.

In 1910, Congress approved a plan for a 2.7-m (9-ft) channel the entire length of the Ohio River to Cairo, Illinois, from Pittsburgh with 54 low-lift dams. In 1917, the government formed the Inland Waterways Corporation, which was directed to reestablish commercial navigation on America's inland river system. In the 1930s, the upper Mississippi River was made navigable all the way to St. Paul through a series of locks and dams north of St. Louis. During this time, the same program was put into effect on the Illinois River, providing 2.7-m navigation to Chicago. The basic infrastructure of the river was now in place and ready to accommodate a share of the nation's transportation needs.

THE CURRENT WATERWAYS SYSTEM

Today we have a waterways system that consists of thousands of kilometers of waterways running from Brownsville, Texas, on the Mexican border to the state of Florida and north to Tulsa, Omaha, St. Paul, Chicago, Pittsburgh, Chattanooga, and other cities. Additional development has created other waterways far from the heartland of America. These would include the deep-draft sea-level canal that connects the Delaware River to the Chesapeake Bay and shortens the sailing distance between Baltimore and Philadelphia by 460 km (286 miles). The Hudson River in New York, as well as the New York State Barge Canal, carries traffic on a continuous inland route from Miami to Norfolk, Virginia, and is segmented above that to the northeast. On the West Coast, navigation channels afford transportation to Sacramento as well as far inland on the Columbia River system to Washington, Oregon, and Idaho.

In the 1930s, the inland waterways system began to grow. The advent of the diesel engine and a sufficiently high power to weight ratio brought modern engines to river towboats and aided in the growth of traffic. In 1947, only about 5.2 percent of the nation's freight moved on rivers and canals. This compares with 56.1 percent (more than 10 times as much) for railroads and 29.4 percent for trucks. Pipelines, Great Lakes shipping, coastal movements by ship, and air freight constituted the balance.

By 1970, the railroad share had decreased to 31.1 percent; the truck share had increased to 36.2 percent, that of pipelines to 15.6 percent, and that of rivers and canals to only 9.3 percent. These figures indicate that modal shifts occurred primarily between rail and truck, largely because of the Interstate highway program and the inability of the railroads to provide the degree of service and reliability demanded by the shipping public. These figures clearly demonstrate that the reduction in the railroad share of traffic is not attributable to barge competition.

THE BARGE AND TOWING INDUSTRY TODAY

Some 1850 companies currently constitute the barge and towing industry. Total industry revenues, according to the Transportation Association of America, are about $950 million/year compared with rail industry revenues of over $16 billion/year.

Because of the inherent advantages of moving bulk commodities by water, barge rates today average 2.7 to 3.4 mills/Mg·km (4 to 5 mills/ton-mile) compared with more than 12 mills/Mg·km (18 mills/ton-mile) for rail. Since the 1973 Arab oil embargo, rail rates have risen substantially whereas barge rates have gone from an average of 3.4 to 3.5 mills/Mg·km (4.9 to 5.1 mills/ton-mile), according to an analysis of regulated rates by Barloon of Case Western Reserve University. In 1975, barge rates actually dropped slightly and for the first half of 1977 averaged 3.5 mills/Mg·km.

Bulk commodities constitute most traffic on the inland river system. In 1975, commodity percentages of total megagram-kilometers were as follows: petroleum and petroleum products, 40 percent; coal and lignite, 20 percent; sand, gravel, and crushed rock, 11 percent; chemicals, 6 percent; grain and grain

products, 6 percent; and miscellaneous materials, 17 percent. However, on certain segments of the river these figures change dramatically. For example, in 1976, roughly 50 percent of all freight flowing through Locks and Dam 26 at Alton, Illinois, was comprised of grain and grain products.

The industry moves shippers' freight by using some 23 000 dry cargo barges and 4000 tank barges. Tank barges can be very sophisticated. For example, anhydrous ammonia is carried in pressurized and refrigerated barges at -33°C (-28°F). Other barges carry heated products, such as residual fuel and molten sulphur, at high temperatures.

North of Cairo, Illinois, on the Ohio River and north of St. Louis on the Mississippi and Illinois rivers, lock sizes limit tows to 15 barges. Below St. Louis, where there is open river to the Gulf of Mexico, it is not unusual to have an assembled tow of up to 45 loaded barges, each barge carrying approximately 1350 Mg (1500 tons). To put this in perspective, such a tow would have aboard over 22 million bushels of grain and grain products or the equivalent yield of almost 26 000 hm^2 (65 000 acres) of soybean production. This vessel would be 7.5 MW (10 000 hp) and would carry a crew of 11. Total transit time from St. Louis to New Orleans would be approximately 6 days. This illustrates the very significant efficiency of the river system in moving bulk products.

Approximately 85 000 people work directly aboard the vessels, and an equal number are employed in shoreside facilities that provide direct services to the industry.

USER CHARGES

Until the early 1970s there was very little thrust on the part of the executive branch of government, the railroads, environmentalists, and others to impose a user tax on beneficiaries of public investment in waterways. In fact, as recently as 1973, the rail and water industries cooperated in the formulation and passage of the Surface Transportation Act, which afforded significantly more benefits to the rail industry than to the water industry. It would not be untrue to say that there existed a feeling of harmony between the two modes.

However, in August 1974, a suit was filed by the 21 railroads that make up the Western Railroad Association and other suits were filed by the Sierra Club and the Izaak Walton League to enjoin the U.S. Army Corps of Engineers from opening construction bids on the first portion of construction to replace Locks and Dam 26 above St. Louis. Swords were drawn, and since that time railroads and water carriers have been at each other's throats. The replacement of the Alton facility has been a facade. The real issue, of course, has been user taxes.

Although the Congress appropriated several million dollars for design work on the replacement facility during the period between 1968 and 1974, because of an interpretation of the Rivers and Harbors Act of 1903, the replacement project had not been under the jurisdiction of the public works committees of the House and Senate. Congress decided to address the issue once again.

During the process of hearing and debate, it became clear to waterways interests that Senator Domenici of New Mexico was interested in the concept of a user tax. On June 22, 1977, the Senate authorized the replacement of Locks and Dam 26 and coupled with it a user tax designed to recover 100 percent of the federal navigation-related expenditures of the Corps of Engineers on the operation and maintenance of the inland waterways of the United States. The collections would be accomplished on a 5-year, phased-in basis in increments of 20 percent/year beginning on October 1, 1979. As of October 1, 1984, the government would increase these taxes to provide for the recovery of 50 percent of the capital costs of federal navigation-related expenditures on new construction and rehabilitation. These amounts would be phased in over a 5-year period in increments of 10 percent/year.

Under the provisions of S. 790, the Domenici bill, the executive branch would be empowered to establish tolls that would recover these levels of expenditures. These tolls could be in the form of tolls for each segment of the river system on a weight basis, a lockage fee, a congestion fee, a fuel tax, a gross receipts tax, or any system that combined these elements to provide for the specified levels of recovery. An inherent danger in this philosophy is the surrender of taxing responsibility by the Congress to the executive branch as well as the very real prospect that certain newly developed river systems, such as the Arkansas, Missouri, and Kentucky rivers, would be completely shut down because of the high recovery levels. The closure of these rivers would, in turn, decrease the amount of traffic that feeds into the more developed rivers and thus decrease the traffic base and require a greater tax per megagram carried than would otherwise be necessary.

Because of the constitutional question about the origination of tax bills, the leadership of the House of Representatives chose to pursue another route in dealing with the question of user taxes. As a result, on October 13, 1977, the House passed H.R. 8309, which authorizes replacement of Locks and Dam 26 and requires the imposition of a fuel tax on commercial, nonpassenger vessels on inland waterways to take effect October 1, 1979, at a level of $0.01/L ($0.04/gal). On October 1, 1981, the tax would increase to $0.015/L ($0.06/gal). In the interim a study would be undertaken to determine the impact of user charges and to determine the need, if any, to alter the levels imposed by the bill. As a compromise, the barge and towing industry, many shippers, farm groups, and labor supported the passage of H.R. 8309. This support altered a 200-year tradition of toll-free waterways and ensured that for the first time a user tax would come to pass.

It is estimated that the House version would raise some $40 to $50 million/year in additional tax revenues. This may not seem like a significant sum in terms of the overall federal budget, but it is estimated that this figure represents roughly 50 percent of the profits of the barge and towing industry, which would indeed have an impact.

By contrast, the Senate-passed version would impose aggregate recovery levels 10 times those of the House version and result in an increase in barge rates of anywhere between one-third and one-half at the time of full implementation.

There seems to be a wide consensus of opinion that Locks and Dam 26 should be replaced. The present structure, completed in the late 1930s, is not adequate to handle even existing traffic. The annual capacity of upstream rivers is 94.5 million Mg (105 million tons), whereas Locks and Dam 26 can only accommodate some 65.7 million Mg/year (73 million tons/year). Since annual traffic is currently more than 54 million Mg (60 million tons), even a very modest traffic growth will mean increasing delays at the existing facility until the end of the 10-year construction period for replacement facilities. Capacity of the new lock would be equal to or less than the capacity of Lock 27 just south of Alton, which is the lowermost lock in the upper Mississippi system. Below Lock 27, there is open river all the way to the Gulf of Mexico.

In spite of all the charges and countercharges, Congress has made the decision to replace the 40-

year-old Alton facility, and the only question yet to be resolved is the extent to which beneficiaries of the inland river system would be required to repay a portion of the public investment in the system.

Proponents of user taxes have contended that their imposition would have little impact on costs to shippers and, ultimately, to consumers. However, there is little factual information to prove that claim. Certainly we are all aware of the difficulties the steel industry has encountered in competing with imports. To the extent that a user charge is imposed, it will artificially increase the cost of transportation for steel out of the mill areas of Chicago and Pittsburgh to the tremendous markets in the sunbelt and the Gulf Coast areas and thus make imports even more attractive. Does anyone really know what would be the social and economic cost of additional layoffs in the steel industry?

American farmers are at this moment faced with excess supplies and are striking to get government support for at least the cost of production. Today, a quarter of all the land area of farm production goes for export, and a large portion of those export markets are served by barge transportation. The price received by the farmer is the ocean elevator world market price less the cost of transportation back to the farm. The ocean elevator price is determined by world markets over which no one has much control. Low-cost transportation is critical to the maintenance of farm income as well as the ability of the American agribusiness community to compete in world markets. These exports help to earn the dollars so desperately needed to pay for the increasing amounts of oil being imported into the United States.

To those versed in basic economics, it will come as no surpise that the barge and towing industry will in large measure pass on the cost of a user tax to shippers and therefore, ultimately, to consumers. Because the barge and towing industry carries so much of the basic raw materials of American industry, consumers can expect to pay higher prices for electricity, oil, and gasoline and products made from steel, plastics, chemicals, and other natural resources. Such taxes could effect a redistribution of income by taking additional dollars from farmers and consumers and taxing most heavily those who spend the largest percentage of their incomes on the basic necessities of life. In this sense, a user tax would be a very regressive tax.

For years barge contracts have included a provision that clearly stipulates that any user taxes imposed shall be immediately due and payable by the shipper, either as a separate item or through an adjustment in the freight rate. The barge and towing industry, with its thin margins, cannot absorb any level of user tax.

It is axiomatic that the lower the cost of transportation, the wider is the market for certain goods. Clearly, increasing the cost of transportation will impose artificial barriers to the free flow of commerce between various regions of the country.

THE RAILROAD MYTH

Railroad executives have initiated two separate public relations campaigns. The first is aimed at the investing public and the financial community. It paints a relatively glowing picture of the future. For example, the November 1977 issue of Fortune magazine carries a two-page message from the Southern Railway, which says, in part, that, in spite of the public image of U.S. railroads as a dying business, government statistics show that 9 out of 10 of the top railroads are profit-making concerns and that a major growth in the rail share of the freight market is anticipated.

In their other campaign, the railroads place much of the blame for their woes on public investment in waterways. In 1975, Stephen Ailes, then president of the American Association of Railroads, testified before a Senate subcommittee that railroads are losing between $500 and $750 million/year because of competitive barge rates. It seems clear that the principal thrust of the railroads in urging the imposition of a user tax is to inflate the cost of barge transportation artificially so that they may raise their rates proportionately to maintain the same share of the traffic. Thus, shippers and consumers will pay the user tax twice, once in the form of user taxes on the river and in the second instance in the form of higher rail rates.

The fact is that most railroads are very profitable and can look forward to increasing traffic and financial well-being in the future. Those that do not fall into this category must blame their problems on poor management, excess and unprofitable trackage, deteriorated equipment, millions of dollars of deferred maintenance, a burdensome labor situation, and other factors on which the relative prosperity of the barge and towing industry has little impact. It is clear from government reports that there is a significant amount of excess trackage, particularly in the Midwest, and that many of the railroads' problems arise from the inefficient use of a system that was built many years ago and that does not address itself to current shipper demands.

THE QUESTION OF EQUITY

Every mode of transportation in the United States, with the possible exception of pipelines, has received a substantial amount of government assistance during its history. Shallow-draft navigation has benefited from expenditures by the federal government (around $5.3 billion for the period between 1824 and 1976). Highway aid, defined as net public expenditures in excess of trust fund receipts, has been about $8.1 billion. Aviation investment (net of trust receipts) has been $14.2 billion. It is estimated that railroads have received over $21 billion, which includes an estimate of approximately $10 billion for earnings from land grants given during the 1800s. These include significant revenues from oil, minerals, timber, and real estate development during the period of westward expansion.

Railroads contend that they have repaid the federal government for the value of these land grants by charging much lower rail rates to the government than to the general shipping public. It is not difficult to figure that, if the government was getting a favorable rate, the general shipping public was paying the difference in the form of higher rail rates. Therefore, it is not the railroads but their customers who have repaid the government. It is estimated that in 1973 net earnings from land grants of the western railroads amounted to some $500 million/year. Standard and Poors notes that since 1946 the railroad industry has enjoyed over $8.5 billion in net income from nonrailroad operations alone, many of which were made possible by those land grants. For example, the Burlington Northern Railroad is the second largest owner of coal reserves in the United States.

There is a whole laundry list of public aid to railroads, including land grants, assumption of a portion of retirement benefits through the Railroad Retirement Act of 1974, grade-crossing grants, tax write-offs, loan guarantees, and other benefits. Table 1 lists these benefits and their nature. Government aid to railroads is currently at an annual level of $1.3 billion, about three times as much as current aid to navigable waterways.

A recent article in the Wall Street Journal noted

Table 1. Federal aid to the rail industry.

Source	Benefit	Amount ($)
Federal Coordinator of Transportation (1)	Various government subsidies and benefits	1 400 000 000
Lambert (2)	Earnings from land grants	10 000 000 000
Joint Economic Committee (3)	Amtrak funding	500 000 000
Federal Highway Administration (4)	Fundings of grade crossings	2 000 000 000
Federal Highway Administration (4)	Car amortization	280 000 000
Barloon (5)	Public funding of Consolidated Rail Corporation	500 000 000
Railroad Revitalization and Regulatory Reform Act of 1976	Redeemable preference shares	600 000 000
	Guarantee of load obligations	1 000 000 000
	Rail passenger service payments	200 000 000
	Debentures and preference stock	2 100 000 000
	Payment of employee benefits	250 000 000
	Northeast Corridor project	1 866 000 000
Ex 305 rate increase granted by Interstate Commerce Commission, effective 1975	Seventy percent of rate increase specifically ordered for and restricted to deferred maintenance and delayed capital improvements (1975 amounts)	
	Deferred maintenance	
	Roadway	148 000 000
	Equipment	80 844 000
	Delayed capital improvements	
	Roadway	52 250 000
	Equipment	279 185 000
Tax Reform Act of 1976	Tax savings benefiting rail industry only	
	1977	55 000 000
	1978	84 000 000
	1979	83 000 000
	1980	71 000 000
	1981	59 000 000
Historical review, government subsidy	Partial funding of Rail Retirement Act of 1974	570 000 000
	Total	22 178 279 000

that transportation officials are preparing to spend billions of dollars to put rundown railroads back in shape. The total might go well over $20 billion in the next decade by some estimates. The railroads have traditionally enjoyed benefits far beyond those enjoyed by waterway transportation and, based on programs in place as well as expected future programs, railroads will be the beneficiaries of increasing public largess.

From the point of view of public policy, the crucial question becomes one of fairness and equity with respect to public investment among the various modes. If it is in the public interest to recover all public investment, then let each mode repay the government on the same basis. It hardly seems fair to impose an arbitrary and artificial cost-recovery scheme on one mode of transportation while a competing one enjoys substantially greater public benefits.

This can only be done through the formulation of a fair and balanced national transportation policy, something which has never been formulated by the federal government. A federal commission, the National Transportation Policy Study Commission, is currently trying to formulate such a policy, but its ability to succeed to the point where such a policy could be fair and could be fully implemented is certainly open to question, given all of the special interests involved and the inability of the executive branch to take unbiased positions on the advantages and public benefits inherent in each mode of transportation.

One complicating factor is the inability of the current U.S. Department of Transportation (DOT) to view objectively the role of the inland waterways industry. Our industry has virtually no representation within DOT other than the Coast Guard, which is not our advocate but rather our policeman and regulator. Dialogue with representatives of DOT has repeatedly indicated an extreme DOT bias toward the rail industry and a complete lack of understanding of the nature and role of the barge and towing industry.

For example, at the request of Senator Magnuson, chairman of the Senate Commerce Committee, DOT was directed to conduct a 90-day study on the need for replacement of Locks and Dam 26 and the possible impact on the rail industry. In examining the need for replacement, DOT chose to ignore the fact that, for the 10 years ending in 1976, the average compounded growth rate of traffic at this facility was 4.7 percent. Instead, it selected a much lower composite growth rate of 2.9 percent by using selected years. In addition, the freight capacity of the existing facility was cited as a range of tonnage, and the high end of that range, supplied by railroad consultants, was used to project growth at the low 2.9 percent growth rate. DOT therefore concluded that there would be no real need for additional capacity until well into the 1990s. If the capacity figures derived by Peat, Marwick, Mitchell and Company in their report for the U.S. Army Corps of Engineers are used, a growth rate as low as 2 percent/year will push tonnage to capacity levels by 1984. This would be long before the 10-year construction period for a single 365-m (1200-ft) lock would come to pass.

Until this inequitable situation is rectified, there can be little hope of evolving a national transportation policy that addresses the public interest and not the special economic interest of the rail industry. We are therefore faced with a situation where artificially high costs--to be borne by shippers, farmers, and consumers--will be imposed on water carriage.

CONCLUSION

What does the future hold for the barge and towing industry? To the extent that Congress does not impose a usurious and confiscatory user charge upon the industry, the barge and towing industry will continue to play its role in meeting the needs of its shippers. The physical system is in place with the exception of a few facilities that need improvement. We are prepared to use this tremendous present capacity through the construction of additional equipment. We are positioning ourselves to train young people to assume the well-paying jobs that will increasingly become available in the industry, not only aboard vessels but in shoreside and management areas. Significant efficiencies in terms of fuel consumption, steel required for additional haulage capacity, safety, and low labor utilization will help to ensure that a

fair share of new traffic finds its way to rivers and canals. Additional intermodal movements will be needed as a result of pressures from the shipping public. In several recent instances, railroads have found that their earnings are maximized by an intermodal movement rather than an all-rail proportional rate. This is encouraging in that it profits all concerned with transportation, including--and most importantly--the customer or consumer.

For 30 years after World War II, the barge and towing industry lived in an atmosphere of quiet growth and general prosperity. However, we suddenly realized during the struggle for authorization of the replacement of Locks and Dam 26 and the debate over user charges that we could no longer afford, as an industry, to sit back quietly hoping that others would understand our role, our purpose, and our problems. Our message must be taken to the public, particularly to those who are in a position to influence public policy. We need a balanced and unbiased national transportation policy that addresses the interests of all modes and, more importantly, the needs and desires of the shipping public. The barge and towing industry stands ready to play a part in the formulation of that policy.

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Impacts of Inland Waterway User Charges

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The potential impacts of imposing user charges on inland waterways are estimated by using models and data of the U.S. Army Corps of Engineers inland navigation systems analysis program. Fee schedules designed to recover 50 and 100 percent of Corps of Engineers operations, maintenance, and rehabilitation expenses plus Coast Guard costs of providing navigation aids are developed. Two types of fees are considered: a uniform, systemwide fuel tax and a set of segment megagram-kilometer fees that provide for local recovery of local costs. The principal impacts examined are changes in waterway transportation costs and modal shares of interregional freight traffic. Impacts of user charges are found to vary considerably throughout the waterway network based on the type of fee, the level of cost recovery, existing (without user charges) towing industry costs, and the waterway traffic base. Segment fees generally produce greater impacts than a fuel tax.

Inland waterway user charges constitute one issue in the emerging broader policy issue of the role of inland waterways in the nation's transportation system. User charges have been proposed to increase federal revenues and to require commercial waterway users to bear directly at least some right-of-way costs. There is, however, no consensus on the best type of user charge. The study summarized in this paper developed estimates of the potential impacts of selected types of inland waterway user charges as an aid to policy makers who will be carefully scrutinizing various user charge proposals. A more detailed account of the study is available elsewhere (1).

SCOPE OF STUDY

The array of potential inland waterway user charges includes megagram-kilometer fees, lockage fees, the fuel tax, equipment registration fees, direct shipper fees, and congestion tolls. This study examines a megagram-kilometer fee and a fuel tax. These are the mechanisms that have been suggested respectively by the Office of Management and Budget (OMB) and the U.S. Department of Transportation (DOT).

A wide variety of implementation options exist for each type of potential user charge. A user charge can vary according to the types of costs recovered, the level and the timing of cost recovery, and whether costs are recovered by uniform systemwide fees or by a fee schedule designed for local recovery of local costs. This study examines potential impacts of recovering 50 and 100 percent of U.S. Army Corps of Engineers operations, maintenance, and rehabilitation (OM&R) expenses plus Coast Guard costs of providing navigation aids. Partial recovery of future construction costs is also briefly considered. Impacts are estimated for current traffic bearing the burden of current costs. Within this implementation framework, estimated potential impacts of imposing a megagram-kilometer fee or a fuel tax on U.S. inland waterway transportation are presented. Impacts of partial recovery of federal costs for the Mississippi River plus tributaries and the Gulf Intracoastal Waterway (GIWW) portions of the inland waterway system are estimated.

Inland waterway user charges could have a variety of economic impacts. This paper examines only costs in the towing industry and impacts of modal traffic shares. Further, only waterway and rail competition for movement of fixed intercity traffic is considered. Pipelines and intercity trucking are not included, and origin-destination patterns and volumes of freight traffic are held constant. Actual economic impacts require considerable time to occur. However, because of limited study time, this paper describes impacts as they might occur in a base year rather than attempting to predict an evolving economic adjustment through