

the zone's operating expenses may be minimal. On the other hand, it is obvious that a zone cannot survive on tenants that have only occasional storage and distribution requirements. At least one high-quality tenant is needed if the zone is to succeed financially. A high-quality tenant represents a permanent fixed enterprise that can make a substantial contribution to the zone's fixed operating expenses.

There is a chicken-and-egg relationship between the quality of the tenants that are attracted and the financial success of the zone. Although the grantee is discouraged by the board from showing a profit from the zone's operations, there must be adequate income to support capital improvements, utilities, staff, and promotional activities. The greater the number of high-quality tenants, the higher is the income available to improve facilities and conduct promotional activities. These expenditures, in turn, attract even more tenants.

A variety of steps can be taken to market a foreign trade zone and make it attractive to potential tenants. First, it is essential that the zone be well managed and free of political interference. Nothing is more discouraging to a businessman contemplating a long-term investment than the prospect that a change in the political winds will alter the conditions on which the investment decision has been based. This contributed to the failure and revocation of the grant for the Mobile, Alabama, zone.

In addition, the facilities should be clean and functional. Since a high-quality tenant may locate equipment and staff within the zone, the facilities should be equal to those the tenant would have chosen at a location outside the zone.

The grantee-operator should have a professional staff and, where appropriate, directors or governors with recent successful business experience. The staff should be oriented to providing service and should understand and be sympathetic to the profit motive of the tenants.

If a new zone grant has just been granted and the grantee is seeking its initial tenants, concentration should be placed on the firms providing the letters of intent as well as on any leads from the feasibility survey, both of which were a part of the application process. Individual visits to potential tenants by the zone staff are essential. If necessary, incentives, including state and/or city tax breaks, should be used to influence high-quality tenants.

The grantee-operator may find that it is necessary to conduct an extensive educational program. Many potential tenants are not aware of the possible uses of a foreign trade zone. One way

to correct this problem is to sponsor seminars on the many advantages of foreign-trade-zone use. Another is to prepare an illustrated presentation that can be given to local business groups.

Perhaps the most effective means of locating and attracting tenants is through concentrated research and door-knocking by the zone representatives. For instance, meetings with banks, customs brokers, and cargo carriers will often result in ideas for trade zone applications and industry contacts. Research information on imports and exports to and from the economic hinterland of the foreign trade zone can be obtained from the New York Journal of Commerce and the U.S. Bureau of the Census. A sample of a recent census data run is given in Table 3. This information will prove useful in identifying potential zone users.

When grantee-operators do not have an adequate staff to conduct complete and ongoing tenant solicitation, there are a number of specialized consultants who can undertake the necessary work on behalf of the grantee.

HOW TO RETAIN TENANTS

Finally, it is important to retain tenants once they have occupied the zone, either with products in storage or with manipulation or manufacturing processes. Tenants, like customers everywhere, will stay where the service is good and the prices are reasonable. Some zones have complained that their tenants have been pirated or stolen by other competing zones, and as a result the zones have become very secretive about their tenants and their operation. This type of defensive activity only detracts from a zone's main concern, that of providing superior service. It is virtually impossible to pirate or steal tenants who are happy with the service they are receiving.

CONCLUSIONS

Foreign trade zones have a bright future in the coming decade and can serve as a real asset to river ports and their hinterlands. However, success in foreign-trade-zone operations is not automatic and is in fact a direct function of the number and quality of the tenants. Zones that achieve their goals of attracting new economic activity will be those that have understood the concept of service in attracting and sustaining their customers, the tenants.

Publication of this paper sponsored by Committee on State Role in Waterborne Transportation.

Financing Inland Port Development

JAMES H. KELLOW

The financing of future port facilities will require aggressive marketing efforts as a basis for developing creative financing strategies. The various types of funding for inland port development—federal, state, regional, and local—are outlined. It is concluded that, because of the wide range of requirements for public funds and future prospects for a reduction in available resources at all levels, future inland port development will be largely in the hands of private entrepreneurs and that a sound, integrated public-private financial plan will be a necessity in the 1980s.

Many studies, including the recently completed Mid-America Ports Study (1), point to the significant benefits that accrue to local communities and private firms from port development as well as the future need for additional facilities on the inland waterways system (as referred to in the study, Mid-America consists of Alabama, Arkansas, Illinois, Iowa, Kansas, Kentucky,

Louisiana, Minnesota, Mississippi, Missouri, Nebraska, Ohio, Oklahoma, Pennsylvania, Texas, West Virginia, and Wisconsin). Projections in the study indicate that by the year 2000 cargo will exceed existing port capacity by almost 700 million tons annually.

The capital investment needed to accommodate the forecast growth is projected to be \$9.5 billion. This money will provide more than 1000 new port terminals, on more than 100 miles of waterfront and 11 000 acres of land, plus additional acreage for industrial facilities that will be served by these terminals. This is the investment required for new port development and does not include funding for modernization to existing facilities.

Historically, ports on the inland waterways system of the United States developed and grew either because of the location of a major firm that built privately funded river shipping and related facilities or because a state or local community provided public shipping facilities as part of its industrial development program and encouraged firms to use them.

My own experience has convinced me that there is no one best way, no pat formula, that could be used by all communities to develop and finance a new port or expand an existing facility (2). On the contrary, basic developmental and financial considerations for the port planner are dictated by the local community's relationship to the regional and national transportation system, local competitive industrial location advantages, as well as local community, state, and private investor attitudes toward port development.

The attitudes and commitment of a local community toward port development will involve political, social, and economic considerations. Of course, the same may be said about state, regional, and federal funding sources. Private funding sources will certainly be conscientious about the political and social climate, but the private sector's investment decision is more economically oriented.

As we move into the 1980s, the trend is toward fiscal conservatism, and no single unit of government may be capable of financing port development. Rather, the successful port development or improvement project in the future will probably be the project that has a sound, integrated financial plan that includes limited public funds from a variety of sources to provide leverage for private investment.

This paper briefly discusses possible funding sources that a local port might consider in preparing an integrated financial plan.

LOCAL GOVERNMENT FUNDING

Local government funding for a port may take the form of revenue bonds for the acquisition and/or development of the facilities. Other potential local contributions may include the grant of funds or existing owned land or facilities, the annual payment of operating expenses, or a combination of such funding.

The usual reason for such commitment at the local level relates to providing additional local jobs and tax base. Therefore, the community attitude toward growth and industrial development, the existing financial condition, and the extent of need for other public expenditures by the local governmental unit will play a large part in the decision of the amount and type of local funding support made available for the port development. Because most local governments have more identified needs than financial capacity, the amount of financial aid they can provide to any one project is limited. In

addition, the lack of an immediately identifiable benefit may affect local funding. In the case of the Louisville and Jefferson County Riverport Authority, we are fortunate that Jefferson County, Kentucky, has guaranteed the initial \$6.5 million bond issue used to acquire the property for the port complex as well as annual operating expenses.

STATE GOVERNMENT SOURCES

Grants

To varying degrees, states have established agencies to help in developing their states' port potential (3). Some states have established centralized agencies that plan, finance, and operate local ports; others essentially provide a source of capital financing and, once the port has been established, are not involved in providing operating subsidy; others fund both capital and operating needs; and still others have limited, if any, real involvement. Space does not permit a detailed discussion of each state's activities, and so I have restricted my comments to the state of Kentucky (4).

Kentucky is committed to the development of river ports. As a part of that commitment, in 1966 the state created the Kentucky Port and River Development Commission to aid in the promotion and development of river-related industry, agriculture, and commerce in the state and to aid in the promotion and development of local port authorities. The commission consists of the Kentucky Commissioner of Commerce, the Secretary of the Cabinet for Development, and five citizens appointed by the Governor.

This commission is the main agency of Kentucky state government to which local Kentucky ports look for capital investment funding. Only funding for nonoperating purposes is provided. Based on the recommendation of the commission, funds are appropriated every two years by the state legislature and allocated by the commission to specific Kentucky port authorities.

To date, the commission has helped to establish local ports in Louisville, Paducah, Owensboro, Henderson, Eddyville, Hickman, Maysville, Ashland, and northern Kentucky. The largest of these is Louisville, with more than 1600 acres of property. Grants amounting to \$17.5 million have been made to Kentucky ports. Louisville has received \$1.6 million from the commission and has requested another \$6 million during the next two years, in addition to state highway funds of \$2.7 million. The philosophy of the Kentucky Port and River Development Commission is that the funds represent seed money to help obtain capital from other public and private sources. Total funding for a specific project is not contemplated.

Local participation in the project is particularly important in the commission's allocation decision. Grants to a local port are based on the justification submitted by the local port for capital expenditures and the project's economic impacts and benefits compared with those of other projects in the same location or different locations. No funding is provided to any port where economic feasibility has not been determined.

Although there are several state agencies in Kentucky that provide funds to assist local ports, requests for all such funds are channeled through the commission. This allows a consolidation of expenditures for ports in one state agency and also aids the local ports by reducing the coordination and red tape that are required. In addition to funding, technical assistance is also available from the commission's professional staff.

It should be mentioned at this point that, although the state of Kentucky and many other states heavily support the development of ports, present federal-state cost-sharing proposals being considered for locks and dams and other waterway improvement projects may restrict greatly the ability of states to provide continued heavy support for future local port development.

Loans

Loans can be obtained for port facilities through the Kentucky Development Finance Authority, an independent state agency. The agency's purpose is to promote and aid the development of industrial, manufacturing, commercial, and agricultural enterprises. It was established in 1958 and is controlled by a board of 14 members appointed by the Governor. Its funds are obtained from legislative appropriations and from borrowing from state employee pension funds. Qualifications for a loan are very similar to those for loans from private financial institutions. Loans are available to local development agencies, including ports, and to private firms on a participation basis.

Industrial revenue bonds have been permitted since 1950 in Kentucky. In addition to the Kentucky Development Finance Authority, any city, county, or local port authority is authorized to issue industrial revenue bonds.

Further state sources of specialized funding for private firms, other than that allocated by the legislature, are the Business Development Corporation of Kentucky, the Kentucky Highlands Investment Corporation, and Equal Opportunity Finance, Inc. In addition, the Kentucky Pollution Abatement Authority may issue bonds for a firm's pollution control facilities.

REGIONAL FINANCING PROGRAMS

There are funds available to local communities from regional sources such as the Appalachia Regional Commission and the Ozark Regional Commission. However, since the main sources of funds for such commissions are state and federal, the future level of such funds may be limited, and a direct allocation to a port from a state or federal source may provide a greater level of support. Nevertheless, if funds are available, they should be pursued.

FEDERAL FINANCING PROGRAMS

The principal source of federal funding for port development is the Economic Development Administration (EDA). Other federal agencies that have provided grants to ports include the Maritime Administration, the Office of Coastal Zone Management, the U.S. Department of Transportation, the Law Enforcement Assistance Administration, the Sea Grant Program, the U.S. Department of Agriculture, the Farmers Home Administration, and the Environmental Protection Agency.

As we all know, competition for grant money is very keen. Therefore, the use of a skilled "grantsman" is almost mandatory. A grantsman helps to alleviate much of the frustration for port planners and to shorten the time between a request for funds and approval. Such skilled help has been provided by Jefferson County.

INTERNAL PORT FUNDING

A local port may use its own retained earnings or, where permitted legally, issue its own revenue

bonds. These bonds may be backed either by a pledge of anticipated revenue by the port or a pledge of the use of port facilities by one or more private firms (5). Such bonds can be used to fund a wide range of facilities and can provide significant revenue for a port's growth and development at the time of actual demand for such growth.

Many currently programmed port projects are planning to use the latter funding method. In many cases, this is the safest method for the port in that the specific project must stand on its own. It also requires the least commitment from a public agency to pay off the debt.

Other possible funding methods that should be considered are lease and lease-purchase plans. Such plans might provide for a year-to-year, renewable lease with an option agreement that allows termination at the end of any given year should funds not be appropriated for the future year's lease payment. Ownership of the item may be assumed at the end of the full lease. Third-party financing should be considered when a facility is built by an operator or a subsidiary of the engineering firm that designed the facility. The third-party concept is particularly useful when there are several facility users, none of which has sufficient demand to justify the financing. In addition, local ports and communities may issue bonds backed by private firms to finance pollution control facilities.

SUMMARY AND CONCLUSIONS

From this brief discussion, it is obvious that, in Kentucky (and, in my opinion, in all states), if the economic justification for a port exists and a community wants it, the funding sources exist to help to make the port a reality. The real decisions facing the local community are in preparing its strategy for port development and financial marketing. In these decisions, such factors as the environment, the need for related public facilities such as roads and schools, the local labor force, the existing economic base, and the size and geographic location of the community must be considered. One of the most important decisions is the degree to which the development strategy will rely on public revenue versus private funding.

In light of the wide range of local requirements for public funds and the future prospects for reduced state, regional, and federal help, it is probable that future port capital development will be accomplished primarily with private funds or publicly issued bonds backed by leases or the credit of one or more private firms. Therefore, although the acquisition of water-oriented land and basic infrastructure development such as roads, water, and sewers will probably always require at least some public financing, the future development of inland ports appears to be largely in the hands of private entrepreneurs. We all know that competition for private development capital is very keen. The financing of future port facilities will thus be directly related to how successful we are in our marketing programs.

The strategy of the local port authorities of the future is likely to be that suggested in the Mid-America Ports Study: develop a master plan for the port complex and the adjacent waterfront and encourage the private sector to plan and construct facilities in accordance with the port master plan.

REFERENCES

1. Tippetts-Abbott-McCarthy-Stratton. Mid-America Ports Study. U.S. Department of Commerce, Vol. 1, June 1979.

2. R.D. Dean and J.H. Kellow. Inland Harbor Development Strategies. American Industrial Development Council Journal, Vol. 8, No. 2, April 1973.
3. J.L. Hazard. The Public Role in Port Development. National Transportation Policy Study Commission, Washington, DC, Working Paper 3, Aug. 1979.
4. Financing Methods for Kentucky Business and In-

- dustry. Kentucky Department of Commerce, Frankfort, 1978.
5. L.K. Barba. Port Financing: Tax-Exempt Financing with Bond Issues. World Ports, Jan.-Feb. 1979.

Publication of this paper sponsored by Committee on State Role in Waterborne Transportation.

Economic Feasibility of Transporting Western Coal on the New York State Barge Canal System

JAMES E. VITALE

The results of a comparative economic study of the feasibility of transporting western coal to New York State utilities via the barge canal system are presented. Three coal-supply regions are delineated: southwestern Pennsylvania and northern West Virginia, Wyoming, and Montana. Site-specific projections of potential coal consumption developed for coal from each region are presented. A costing framework that includes all unit operations in the mine-to-stack coal-use cycle is used in making economic comparisons of the use of the three coals at new generating stations. This framework is designed to account for major expenditures that vary as a function of the characteristics of coal quality, including (a) extraction costs, (b) distribution costs, (c) flue-gas-desulfurization system investment and operating costs, and (d) balance-of-plant investment expenditures. The methodology is applied to a comparison of the economics of using the three coals at a future mid-Mohawk River Valley generating facility.

In recent years, commercial traffic on the New York State barge canal system has steadily decreased. To ascertain the causes of this decline and estimate future traffic volumes, the New York State Department of Transportation engaged Roger Creighton Associates, Inc., to conduct a market study of the canal system. Cargo potentials and transportation cost savings resulting from the use of the canal were estimated for two situations: (a) continued operation of the existing facilities and (b) operation of an improved and modernized canal that could accommodate larger barges and tows.

A major component of the market study was an assessment of the economic feasibility of transporting western coal to New York State utilities via the canal system. It was felt that emerging federal policies on energy resources and environmental quality might create pressures for increased use of western coal in the state. This potential demand for western coal, coupled with the construction of a proposed transshipment facility at the Port of Buffalo, might in turn lead to significantly increased traffic on the canal system. Thus, western coal was considered to be the bulk commodity that had the greatest potential for large-volume, long-term shipment via the canal.

The primary purpose of this paper is to report and update the coal-related portion of the market study. It also serves to illustrate the importance of using a total systems approach in estimating future levels of coal traffic on waterways and rail lines and through ports.

GENERAL METHODOLOGY

A comparative economics approach was used in the study to assess the feasibility of transporting

western coal to New York State utilities via the canal system. This methodology consisted of four major components, each of which is discussed in this paper:

1. Three coal-supply regions were delineated: southwestern Pennsylvania and northern West Virginia (coal A), northern Wyoming (coal B), and Montana (coal C). There are major differences in physical characteristics and free-on-board (FOB) mine prices for coals produced in these regions. Moreover, northeastern utilities either use or have considered using coal produced in these areas.

2. Site-specific projections of potential coal consumption (for coal from each region) were developed. These estimates were derived from the announced plans of New York State utilities (1) and interviews with personnel of the New York State Public Service Commission.

3. A costing framework that included all unit operations in the mine-to-stack coal-use cycle was developed and quantified. Since this analytic construct was to be used to compare the economics of using alternative coals at new generating stations, it was designed to account for all major expenditures that vary as a function of coal quality.

4. This framework was applied to all potential supply-demand pairs, and estimates of future western coal traffic on the canal system were made. Rational economic behavior on the part of potential coal consumers was assumed; that is, it was assumed that the source of coal supply and the transportation mode or route configuration for which total annual costs would be lowest would always be chosen.

COAL-SUPPLY REGIONS

For the purposes of this inquiry, one eastern and two western coal-supply regions were delineated. It was assumed that eastern coal would originate from mines located in southwestern Pennsylvania and northern West Virginia, a region that has large quantities of untapped reserves and excellent access to New York State markets via the existing rail system.

The boundary between the states of Wyoming and Montana was used to divide the Powder River Basin into two supply regions. This strategy was dictated by differences in quality characteristics and FOB mine prices of coals produced in these states as well as differences in the accessibility of these