

## OPPORTUNITIES AND CHALLENGES IN DEVELOPING THE OAKLAND JOINT INTERMODAL TERMINAL

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### BACKGROUND

The unprecedented growth of the Pacific Rim economies and the creation of integrated transportation systems across the United States have contributed to a doubling of cargo moving through West Coast ports in recent years. The development of the double-stack railcar, in particular, has reduced intermodal operating costs to a level that has allowed ocean shipping companies to directly serve the entire continental United States. Improved service reliability and route expansion have created a demand for double-stack container services in the domestic intermodal market as well, where the economics of double-stack operations are diverting freight from both traditional, rail piggyback equipment and from over-the-road carriers.

International intermodal service is the fastest growing segment of Pacific Rim trade. The sheer size of the intermodal market, compared with smaller local markets, presents the most opportunities for ports to grow. The routing of intermodal cargo is usually at the discretion of the shipping lines and because all three major port areas on the West Coast have both rail services and container facilities, competition between ports for intermodal cargo is fierce. Although continuing to enjoy healthy overall growth, the Port of Oakland has not enjoyed the same increases in intermodal cargo as other ports. The structure of rail routes and physical restrictions, due to tunnel clearances, have limited the use of double-stack equipment by the three railroads serving Oakland. As a result, Port of Oakland customers have experienced some disadvantage in rail rates and services when compared with other ports.

In the past few years, a series of railroad mergers, tunnel improvement programs, and broad changes in overall transportation economics have made highly competitive, double-stack train services available in Oakland. With all three railroads now able to provide double-stack services to ocean carriers calling at Oakland the port has accelerated its efforts to identify ways to increase its productivity and the efficiency of the intermodal interface. Several studies performed between 1989 and 1991 found that the port would have enough capacity both in its marine terminals and at the railroad intermodal yards to handle forecasted growth until the

end of the century. In a demonstration of the dynamic changes that can occur in the intermodal marketplace, both Union Pacific Railroad (UP) and Southern Pacific Transportation Company (SP) have experienced dramatic increases in business, and the port has added five new ocean carriers in the past 2 years. The result is that the port must begin development of several new terminals before the end of the century, and UP must expand its capacity immediately.

The Port of Oakland has several significant advantages over other West Coast ports. Two of the three major railroads, SP and UP have intermodal terminals adjacent to the port's marine terminals. The Atchison, Topeka, and Santa Fe Railway is located in Richmond, approximately 11 mi away. The port's marine terminals and the SP and UP rail facilities are located in an area that is isolated from surrounding residential communities and which has direct access to the area's freeway system. Rail access to these facilities is excellent, with relatively few grade crossings and with enough existing capacity to nearly double the current level of rail traffic with little or no modification. To take maximum advantage of this situation, the port has formed a partnership with SP and UP to pursue the concept of a centrally located, independently operated intermodal facility. Santa Fe participation is expected, if access and trackage issues can be resolved with the other two railroads.

### THE PROJECT

The Oakland Joint Intermodal Terminal Project (JIT) proposes to expand and improve existing Port of Oakland intermodal operations of SP, UP, and the international segment of the and Santa Fe Railway by consolidating their activities into a single, jointly operated terminal. JIT is planned to occupy SP property and Port of Oakland-controlled property as may be made available by the U.S. Navy, through the conversion of the Oakland Naval Supply to civilian use. The location of this facility, in the port's Middle Harbor area, no more than 1 mile from any of the port's marine terminals. Access to the port's marine terminals will be provided by port-controlled streets, which will give ocean carriers a variety of options in using drayage equip-



FIGURE 1 Aerial photograph of the Port of Oakland.

ment and which will allow the movement of heavy containers.

The footprint of land available for the project from the two sources is more than 350 acres, enough room for construction of a very large facility with ample room for future expansion. The site also has existing double-mainline rail access for all railroads from both the north and east ends. Current access to freeways is within 1 mi of the existing SP gate complex. When construction of the replacement for Interstate 880, which was destroyed in the Loma Prieta earthquake, is complete, freeway on and off ramps will be only a quarter mi from the facility.

JIT will be designed to create enough capacity to handle the projected growth of both international and domestic intermodal business well into the next century. Preliminary plans call for a facility consisting of a series of mile-long tracks for loading and unloading trains, the

creation of sufficient trailer and container parking areas, additional tracks, and other facilities required to support operations. The terminal will be designed to incorporate the latest electronic data interchange/automatic equipment identification technology, and an operating plan will be developed using a "best-practices" approach. The facility will be constructed in phases, which will allow the railroads to continue uninterrupted operations until the facility is ready to be occupied and operational transitions can begin.

#### **BENEFITS TO PARTICIPANTS AND CUSTOMERS**

The development of JIT will give ocean carriers calling at the Port of Oakland the choice of three competitive railroads offering transcontinental service between Oakland and all areas of the United States. The port

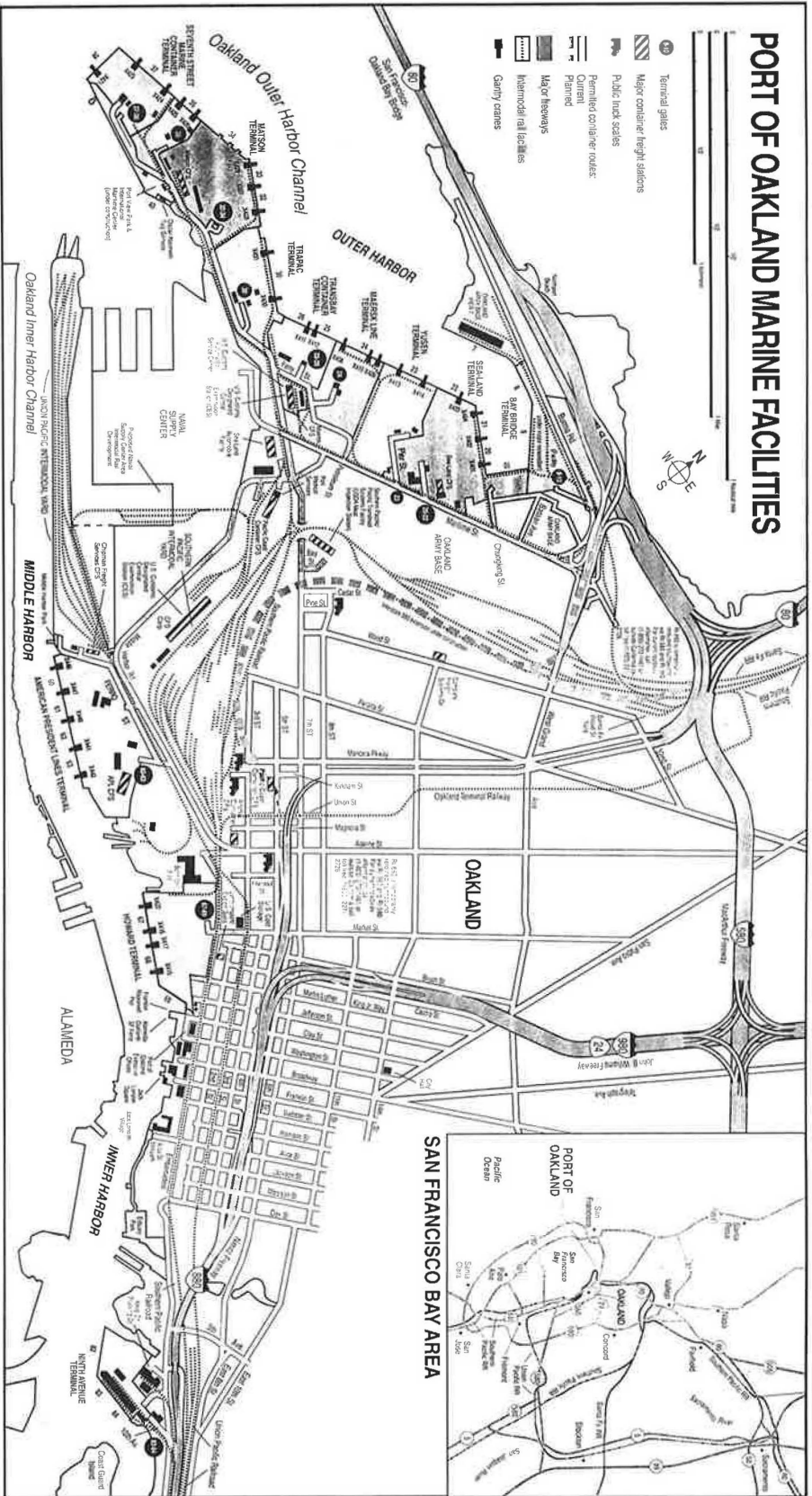


FIGURE 2 Port of Oakland marine facilities.

will be able to offer its customers a level of operational efficiency compatible with the on-dock operations available at other port areas, at a fraction of the cost. The proximity of the facility to marine terminals will mean minimum drayage costs and maximum productivity by equipment and drivers. The use of near-dock intermodal, rather than on-dock rail operations, will increase the effective capacity of marine terminals by reducing intermodal container storage on terminals and by eliminating the need for the large area required for railroad operations. JIT will provide ocean carriers with an efficient, cost effective alternative to other West Coast gateways, enabling them to avoid congestion and balance equipment flows.

These improvements will make the Port of Oakland an attractive gateway for cargo and will increase the volume of intermodal traffic through the port. But equally important, the development of JIT will allow the port to relocate UP's current operations from port-owned waterfront land making it possible to use this property, in conjunction with property obtained from the Navy, for new marine terminal development.

Each participating railroad will benefit by significantly expanding and improving intermodal terminal operations at the Port of Oakland, while lowering their individual capital investments through sharing the overall investment with each other and the port. Ongoing operating expenses and terminal overhead should be reduced through economies of scale and elimination of redundant operations. This will result in more competitive rates and services for Bay Area intermodal customers, while contributing to better profit margins for the railroads. Railroads will be able to consolidate both domestic and international operations and run trains in the most efficient manner, without having to segregate or otherwise double-handle international traffic as they would for on-dock facilities. With the development of new marine terminals and a cost-effective alternative to other gateways, the railroads will gain new business opportunities at the Port of Oakland.

### **BENEFITS TO PUBLIC**

Because JIT will relocate UP operations from Port-owned waterfront property, the port will be able to build new terminals and increase the rate of return on its investments. Improved services and lower costs associated with development of JIT will make the port more competitive with other West Coast ports. The new business generated by this expansion will fuel economic development and create new jobs in Oakland and the surrounding region. It is estimated that the combination

of developing JIT and creating five new berths in the port's Middle Harbor will generate more than 4,000 direct and induced jobs in the region, contributing an additional \$187 million in personal income and \$500 million in business revenues to the local economy.

The development of JIT on land acquired through conversion of Naval Supply Center facilities provides a unique opportunity for a civilian use of the property that is not only compatible with national defense interests, but also will actually enhance the Navy's mission to support overseas military deployment. The increase in capacity to handle trains and the large material storage area JIT creates will give the Navy the ability to move large amounts of both containerized cargo and noncontainerized equipment directly to the adjacent Port of Oakland terminals, the Army's Military Overseas Terminal in Oakland, and other Navy facilities in Oakland.

More efficient terminal operations and a state-of-the-art receiving and delivery gate at JIT will reduce the time that trucks must wait in line and will significantly reduce vehicle emissions. Santa Fe Railway participation in JIT will remove trucks from highway I-80 between Oakland and Richmond, resulting in improved air quality and reduction of highway congestion.

The increase in intermodal terminal efficiency and productivity created by JIT will contribute to an increase in domestic truck shipments diverted to rail movement. This also will lower emissions and reduce congestion on a regional and national basis. Finally, JIT will improve the nation's transportation links with the global economy and allow American products to be more competitive in international markets.

### **CHALLENGES**

Although, conceptually, the potential benefits of JIT are easily appreciated and attractive, the task of making JIT a reality may be one of the most complex and challenging projects ever undertaken by any port. To complete the project, participants must overcome both institutional and structural challenges. The institutional challenges are faced in the process of creating a working partnership not only between the public and private sectors, but also between competing railroad companies that have differing corporate requirements and business philosophies. Structural challenges arise with the physical development of the facility itself.

The JIT concept is to create an operation that allows all participants to realize the benefits of sharing assets and economies of scale while maintaining their identities and competitive places in the market. Even though railroads have experience with joint terminal

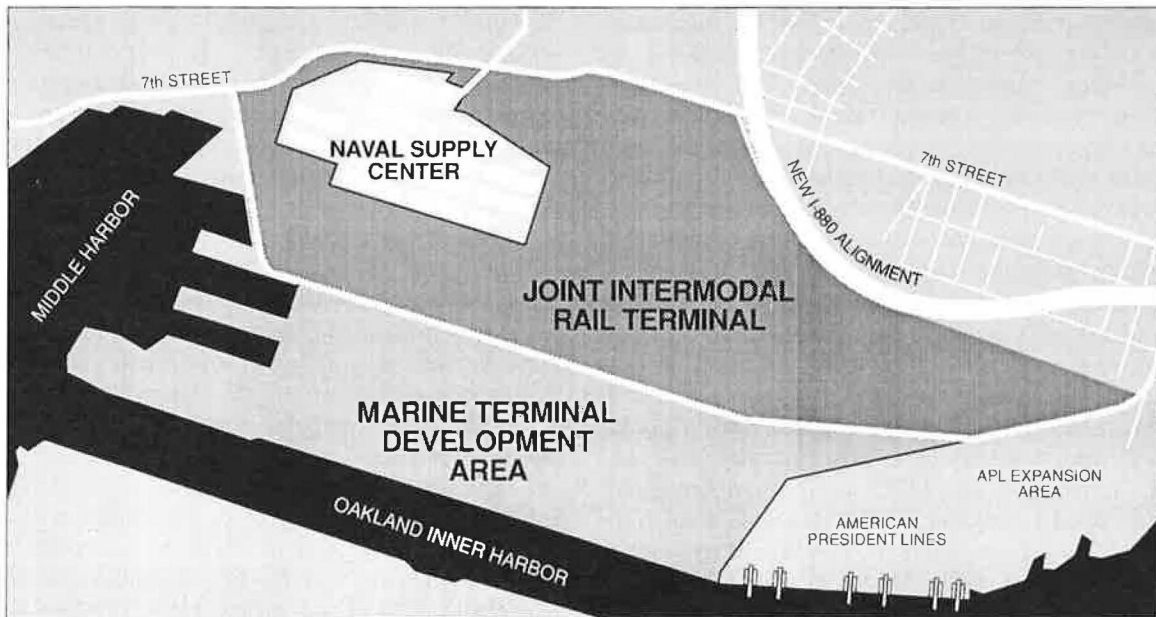


FIGURE 3 Schematic view of the Port of Oakland joint intermodal rail terminal.

operations and shared track arrangements, there is no precedent for joint intermodal operations among direct competitors. Intermodal business is extremely competitive and characterized by elusive profit margins. In addition, railroad customers, in particular ocean carriers and small parcel carriers, are often competitors. These customers may not be comfortable sharing a facility with their competitors. Often an intermodal customer will receive preferred treatment or additional services from a particular railroad that are specifically tailored to that customer's needs or that reflect a special business relationship. Steps must be taken to ensure that individual railroads will be able to maintain these special relationships while operating within the bounds of a joint facility, or both the railroads and the port will lose business.

The transition of employees from separately operated terminals to a consolidated operation and the related labor and employee issues it engenders will be one of the most important considerations in the development of JIT. Each railroad has a different set of labor contracts and union representation at their respective intermodal facilities. Railroad unions and Teamsters currently represent employees. The International Longshoreman and Warehouseman's Union, which represents marine terminal workers and performs intermodal operations at on-dock facilities in Southern California and the Pacific Northwest, has an interest in intermodal facilities as well.

A facility management plan and a subsequent joint-venture agreement must be negotiated among all

participants to accommodate participants' competitive concerns and respect the operating requirements of each railroad, without diluting the benefits derived from joint operations. The exact nature and structure of the joint venture itself has not been determined at this time. However, any joint venture must be an independent structure and not dominated by any single railroad. It must reflect the financial and marketplace realities that participants face individually and collectively. Negotiations for such an agreement also must recognize and address a number of potential legal issues, including antitrust considerations, restrictions on the use of public funds, and a host of local, state, and federal regulations.

Perhaps the most important element in this complex mix of issues and challenges is the fact that JIT must be viable from a financial standpoint. Project capital investments and operating ratios must meet the return-on-investment requirements of the participants. The contribution of capital and the division of equity are key elements that must be resolved. There are any number of reasonable approaches to financing the project, which must be considered with an open mind and careful analysis. For example, under one scenario SP may be able to bring a property interest to the joint venture in lieu of a cash contribution. Another scenario could have the port purchase property interests from SP and consolidate that property with port-controlled property and lease it to the joint venture. The final choice must meet all long-term financial requirements while ensuring that Oakland transportation services are not priced out of the market. To achieve these

potentially opposing goals and ensure that the long-term benefits to the public are realized, it is essential to secure funding from outside sources, such as the Intermodal Surface Transportation Efficiency Act (ISTEA).

Under current ISTEA legislation, rail freight projects have been at a disadvantage in competing for funds with local transit and highway projects because the metropolitan planning organizations (MPOs), which control the allocation of funding, emphasize local benefits of a project over broader national Benefits. The JIT project is especially sensitive to the local-impact emphasis of ISTEA because of the uncertainty of Santa Fe Railway participation in the project, which would account for the majority of local traffic and emission benefits. Fortunately the MPO for the San Francisco Bay Area, the Metropolitan Transportation Commission (MTC), has long been aware of freight transportation concerns and issues. MTC has been supportive of the JIT project and has currently authorized both planning and construction funds through ISTEA. However, for intermodal freight projects such as JIT to secure adequate funding, ISTEA will have to be modified to recognize and understand the national and regional benefits of the projects. Otherwise, alternative sources of funding will need to be identified.

Once these institutional and funding issues are resolved, the actual design, construction, and operation of JIT will create a new set of challenges. The facility must be designed to accommodate the tremendous peaks of terminal activity that occur during the week and that place acute strains on facility resources and capacity. International ship arrivals tend to be clustered on the same day of the week because of competitive reasons and schedule considerations. Domestic business must move on frequent, regularly scheduled trains. Chassis and other equipment must be available at the terminal for movement of containers; this represents a necessary but unproductive use of valuable land. JIT must handle all projected growth of both international and domestic intermodal business well into the next century. The terminal will be designed to use current state-of-the-art technology and yet must have enough inherent flexibility to take advantage of future technology and changes in operations. Innovative solutions that combine fundamental changes in the way business is conducted and physical design features need to be developed to solve these problems. Concepts such as neutral chassis pools, paperless gate operations, and elimination of equipment inspections must be explored so that JIT can meet the expectations of the carriers and their customers.

JIT designers also must take into account the substantial nonintermodal rail operations in Oakland and

the current and future impact of JIT on the overall rail systems of each railroad. The operations of the intermodal terminal will have a wide-ranging impact on rail operations throughout each carrier's system. Unlike motor carriers and ocean carriers, rail systems are limited by track capacity and have limited routing flexibility.

The environmental review process will have a critical impact on both the design of the facility and the project schedule. Land-use issues, traffic impacts, hazardous material identification and remediation, and other key elements of an environmental impact report will be considered in both the design and operation of JIT. The environmental review process can be the major determinant of the project schedule.

Project scheduling becomes a major challenge in itself. The timing of project development is critical because the JIT project is subject to the larger internal business planning and funding decisions of individual participants. Therefore, project budget cycles need to be carefully considered as participants decide where and how to invest their capital and as JIT competes with other demands for resources. Project schedules are further complicated by the uncertainty of when land will be available from the Oakland Naval Supply Center. Development of JIT also must be coordinated carefully with other port maritime and street projects to ensure overall transportation system goals are realized. Finally, the actual construction of JIT must be programmed in a way that will not affect the ongoing operations of the railroads or the port.

## PROJECT STATUS

The foregoing list of challenges the JIT project poses may seem overwhelming. However, it is the understanding of and respect for the magnitude of these challenges that becomes the essential first step in meeting them. The port and the railroads, after much thought and consideration, have devised a plan of action and a problem-solving approach that will move the project forward with measured, careful steps that build on the successful completion of each step. A memorandum of understanding that has been signed by the port, SP, and UP describes the process to be followed in developing JIT and defines the responsibilities of the participants. At this time, Santa Fe Railway participation in the project is subject to further negotiation between Santa Fe and SP to allow Santa Fe access to JIT over SP tracks. The project will be developed in phases designed to create a joint-venture agreement between participants and, in turn, to design, construct, maintain, and operate JIT. It is

estimated that the entire project will be completed within 3 to 5 years. The immediate task is to create a terminal operating plan that will test the feasibility of the concept and address many of the institutional challenges that have been discussed. A preliminary engineering design and site plan of the facility will then be drawn from the operating plan. Eventual agreement between the participants on the operating plan and preliminary design will result in a detailed estimate of project costs and will form the basis for future joint-venture negotiations. The port has retained the firm of Summit/Lynch Consulting Engineers to assist in developing the operating plan. Subsequent proposals will be sought for preliminary engineering and environmental review.

Initial cost estimates for JIT have ranged from between \$40 million and \$120 million depending on a wide range of assumptions. However, \$2.4 million of federal funding has been secured through ISTEA for preliminary engineering and environmental review. An additional ISTEA request for \$7 million in construction funds has been made and is currently being reviewed by the MTC. The port also is exploring other public funding sources for the project. Remaining funding requirements will be borne by the participants.

JIT presents a unique opportunity to revolutionize the way in which intermodal business is conducted in Oakland. The realization of a successful project in Oakland can have a broader significance for the transportation industry as a whole. JIT can serve as a model for other partnerships within the railroad industry and between the public sector and private industry that will maximize the use of assets and improve the transportation system to help generate the economic development that is vital to the nation.