Insights Into the Practice of Joint Development: Lessons From Experience

Case studies of joint-development projects in six states and one Canadian metropolitan area were conducted for the Federal Highway Administration. Land acquisition associated with joint development, the extent to which highway agencies and other public bodies acquire more land than is actually needed for specific facility sittings, and the incidence of complementary government and private development projects on the surplus land were evaluated. Examination of the literature showed severe legal, financial, political, and institutional constraints that restrict this form of expanded acquisition and subsequent joint development. At the same time, however, numerous individual projects are being undertaken and somehow circumventing the constraints. The case studies examined over 35 specific projects completed or planned in Arizona, Florida, Kentucky, Maryland, New Jersey, and Nevada and a large number of developments on surplus land of the Toronto subway system. The studies showed situations where the transportation agency was used as an arm of general-purpose local government in undertaking expanded acquisition. Many of the successful examples illustrated special administrative and financial arrangements between local government and the transportation agency for the acquisition and disposition of the land, unique institutional solutions for planning and implementing projects, significant support from public opinion, and a high quality of technical and political leadership.

Joint developments of public and private facilities associated with transportation systems have, for at least a decade, been a subject of some interest to federal and state transportation planners and professionals from a variety of disciplines. The term joint development has been defined in many ways. Essentially, it means projects related in space and time to the construction of a highway or a rapid rail line. The projects can range from public works (schools, fire stations, or parks) to commercial ventures (office buildings, hotels, or factories). The locations of these projects are related in space to the transportation facility (over, under, adjacent to, or within an immediate-impact corridor), and their construction is related in time (simultaneously, or relatively soon before or after) to the construction of the transportation facility.

Functionally, joint-development projects are in some way dependent on the transportation facility. A need for access to it is the most common form of dependency. Mitigating the impact of the facility on a neighborhood or community is—in the case of parks and social services—another functional tie.

The institutional context for joint development is invariably complex. The transportation agency plays a critical role in planning or in providing a site. Other public bodies are involved in financing or in processing approvals. Citizen groups and (in the case of commercial reuses) private entrepreneurs are also participants. Much of the interest expressed in joint development has come from persons who view it as a way to balance, for public benefit, the land-use impacts of highways and rapid rail and to mitigate the adverse environmental, economic, or social impacts of transportation facilities on communities.

This interest has been discussed in numerous conferences and papers. The Federal Highway Administration (FHWA) has provided some tangible support by

1. Making certain aspects of joint development eligible for administrative and financial participation (the highway act contains authorization for participation by highway agencies in various complementary facilities ranging from hiking and bicycling paths to replacement of public facilities acquired for highway use, the program manuals contain basic administrative provisions regarding highway agency participation in joint development, and the Mass Transportation Act of 1974 has certain provisions, which are as yet unfunded, enabling federal financial support to joint development in mass transit corridors) and

2. Funding several joint-development planning efforts involving Interstate highway corridors or impact areas, including the Baltimore concept team, and studies in Pensacola and St. Petersburg, Florida; and Reno and Sparks, Nevada.

Some states (e.g., Arizona, Nevada, Florida, and New York) have passed enabling legislation allowing their
highway departments to participate in various aspects of joint development.

FHWA has published a catalog of joint developments (3), which identifies projects that have been planned or constructed across the country. This catalog is now in the process of being updated.

Although there has been extensive discussion of joint development as a concept, the results of actual efforts have not yet been formally evaluated. Have federal policies and programs to encourage joint development been consistent? Have they been effective? What factors have been on the success or failure of projects attempted under existing legislative authorizations? What can the experience of actual projects tell us about how well or how poorly existing mechanisms work? If joint development is to be an objective of national transportation programs, does experience suggest that changes are warranted at the federal or state level?

In 1976, a number of case studies of actual projects where joint development had been effected or planned were evaluated for FHWA. This was not the full-scale program review and evaluation suggested above. Rather, it focused primarily on one aspect of the process—land acquisition. Nevertheless, in view of the overall information gap that currently exists, some of the findings and conclusions from these case studies may be of particular interest because they can suggest certain factors that are required to establish effective joint-development projects and provide insights as to possible new policy and program approaches.

The evaluation dealt with joint development on surplus land adjacent to the transportation right-of-way. It was a part of a larger study and literature review on the subject of excess or expanded land acquisition by transportation agencies and other public bodies (4).

Four types of acquisition were examined: remnant and remainder purchases, land purchased to protect a facility or to protect an area from the impacts of a facility, land purchased expressly for recoupment of facility costs, and land purchased expressly for siting public or private projects complementary to a major facility.

Data from the larger study showed that there is little expanded acquisition, except by highway agencies, and that even highway-agency activity is seriously constrained.

Legal constraints arise from the strict interpretations of public use that are maintained in state enabling legislation and by the courts. Unless legislative mandates expressly include complementary facilities, clear transportation purposes must generally be demonstrated as the basis for acquisition. Moreover, the courts generally strike down attempts to purchase for recoupment of costs by resale.

On the fiscal side, the restricted budgets of most public agencies, including highway agencies, generally limit acquisitions to the land necessary for a specific facility site, even when broader mandates are available.

The public mood of increasing mistrust of government action and the public awareness that land acquisition has been and can be a source of corruption have also served to limit flexibility.

These constraints have been internalized by the executives of highway and other public-works agencies. Acquisition roles are seen as restricted to mandated responsibilities, not as part of a larger community-development framework.

The overview emphasized the constraints and limitations and concluded that surplus lands available for joint development would be accidental or the effect of particularly favorable local circumstances.

At the same time, numerous projects are apparently being attempted across the country despite the constraints. Here is the significance of the case investigations. FHWA wanted to know the legal, financial, political, and institutional dynamics of these projects. What kinds of uses were being developed? Were there any common lessons to be learned?

CASES

The cases selected for detailed field investigation came from six states and one Canadian jurisdiction, metropolitan Toronto. Joint development on surplus land of the Toronto subway system was included for comparative purposes.

All together, 13 separate jurisdictions were represented, and 35 individual acquisition-and-reuse projects were examined—exclusive of Toronto, where over 20 private developments have been built on surplus land. All of the U.S. cases involved acquisition associated with major interstate, toll road, or Appalachian highways. All but one were situations where the highway agency was the primary or sole acquisition body. In many cases, new developments already exist on the land. The others are planned or programmed for construction. Although private commercial projects are represented, the largest number of joint developments already existing are for public and community facilities (except in Toronto). The public and community facilities are quite diverse, however, and illustrate the range of services suitable for land adjacent to a highway.

The U.S. projects examined are listed in Table 1.

LESSONS LEARNED

Legal Framework for Expanded Acquisition

The case studies reaffirmed that transportation agencies operate under several legal constraints in exercising expanded acquisition. Yet four cases demonstrate significant departures from these constraints. In each of these, the transportation agency was used as the administrative vehicle for acquisition, without necessarily holding title to the land, because the local elected government had determined that expanded acquisition to capture for the public the benefits of facility impact was a public purpose. In each, general-purpose government supervised the entire process of right-of-way acquisition for the transportation facility and the surplus land and entered into the process as a financial partner.

1. Pensacola: In Pensacola, the city council has signed a cooperative agreement with the Florida Department of Transportation (FlaDOT), which is acquiring land for the I-110 spur. In accordance with a joint-use corridor plan funded by FHWA and approved by the city, FlaDOT is acquiring impact parcels whose reuse for public and private facilities is established by the plan.

Ownership of the land outside the highway right-of-way is vested in the city of Pensacola, however, and the city reimburses the state for the cost of the parcels over and above the appraised severance damages. Some joint uses will also occur on actual right-of-way land that remains in FlaDOT ownership. FlaDOT must justify these takings from the transportation standpoint.

2. St. Petersburg: St. Petersburg has signed a cooperative agreement similar to that signed by Pensacola.

3. Baltimore: In Baltimore, the cooperative process has been carried a step farther. All land acquired for Interstate highways must be approved by the city council and is owned in fee by the mayor and the city council.

The Interstate Division of the Maryland Department of Transportation (MdDOT) for Baltimore is both a state
Table 1. U.S. projects.

<table>
<thead>
<tr>
<th>Location</th>
<th>Route</th>
<th>Project</th>
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<tbody>
<tr>
<td>Maricopa County, Arizona</td>
<td>1-10</td>
<td>Flood control</td>
</tr>
<tr>
<td>Pensacola, Florida</td>
<td>1-110 spur</td>
<td>Public facilities (fire and police maintenance yards and community services); private facilities (shopping center, motel, and industry)</td>
</tr>
<tr>
<td>St. Petersburg, Florida</td>
<td>1-275</td>
<td>Maintenance facilities, parks, and flood control</td>
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<tr>
<td>Pikeville and Pike County, Kentucky</td>
<td>1-315 and 1-45</td>
<td>Housing and industrial and commercial development</td>
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<tr>
<td>Baltimore</td>
<td>1-370 and 1-375</td>
<td>Industrial and warehousing development</td>
</tr>
<tr>
<td>Montgomery County, Maryland</td>
<td>1-495</td>
<td>Public facilities and transit</td>
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<tr>
<td>Prince Georges County, Maryland</td>
<td>1-80</td>
<td>Capital Centre Arena</td>
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<tr>
<td>Monmouth County, New Jersey</td>
<td>Garden State Parkway</td>
<td>Garden State Arts Center</td>
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<tr>
<td>Reno and Sparks, Nevada</td>
<td>1-15</td>
<td>Health center; Junior Achievement and Girl Scouts; parks; air rights for casinos</td>
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<tr>
<td>Las Vegas, Nevada</td>
<td>1-10</td>
<td>Recycling center; employment-security office; parks and playgrounds</td>
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and a city department. As a state agency, it receives state and federal transportation funds and is subject to all design and funding requirements of both governmental levels. As a city agency, it becomes an acquisition and development arm of the city government, and highway takings are owned in the same manner as any other municipal public land. This arrangement has enabled the mayor and the council to determine the condemnation lines for highway rights-of-way within the city. Joint-development planning often precedes the drafting of condemnation ordinances, which are adopted after public hearings.

In establishing condemnation lines, the city has generally considered the street nearest to the right-of-way as the maximum taking boundary. In so doing, some portions of the land within the boundaries do not meet state or federal financial criteria for right-of-way acquisition assistance. The city has legally justified its supplementary acquisitions through the broad set of public purposes available to it, including economic development, and has pooled its funds with those of the highway agency and used the Interstate division as the acquisition mechanism.

4. Toronto: The legal structure for subway right-of-way and surplus acquisition in Toronto is similar to the land-acquisition situation in Baltimore. The metropolitan council, the general-purpose government, establishes the alignment, which is approved by the province, and makes the acquisitions in its name by using the mechanism of a subway-property committee. This specially constituted agency includes representatives from both the metropolitan council (its planning and property departments) and the transit commission. Land surplus to the actual design requirements of the subway is included in the takings with the understanding that it may eventually be used for nonsubway development.

But even in Toronto, at least portions of all properties acquired must be justified as absorbed by the facility, its access, or support installations or because the facility eliminates their access or use. The taking of adjacent or nearby properties that are not directly impacted is disallowed. Even general-purpose government does not extend its legislative mandate very far.

5. Pikeville, Kentucky: The case of Pikeville demonstrates a broadened interpretation of taking authority, backed by a special form of legislative mandate. This is the Pikeville-Cut-Through where, under the umbrella of a model-cities program, the city acquired land for a complex multiagency project involving an Appalachian Development Highway and a Corps of Engineers river diversion. The Kentucky Bureau of Highways and a major railroad company will ultimately occupy portions of this land, which they will acquire from the city, and the excess land will be used for industrial development and other private and public uses. A major factor here is the Appalachian Regional Commission, which was specially chartered by Congress and the Appalachian states to assist in the economic development of this depressed area. The Appalachian Development Highway Program has economic-development purposes as well as transportation justification.

6. Monmouth County, New Jersey: Possibly the most striking example of legal constraints is that of the Garden State Arts Center. The New Jersey Highway Authority is a semi-autonomous builder of toll roads, financed by user charges, whose enabling legislation allowed it to build and operate park facilities related to the highways. The authority, with little interagency discussion or public participation, acquired land and built a large performing-arts facility to provide commercial as well as free entertainment. At first, the state legislature was unresponsive to public charges that the authority had exceeded its powers but in 1968, when the center opened and was found to have cost four times the originally announced estimates, acted and amended the authority's statute to forbid any future undertaking not directly related to highway purposes.

Financial Framework for Joint Development

Acquisition

The process of evaluating each potential land purchase by state and federal right-of-way officials and determining the portion that can be financed or assisted by the various levels of funding is complex and time-consuming. This is partly a function of the regulations and partly because of the general scarcity of funds. Marginal takings or takings more directly related to the joint-development objectives of the highway program, even when authorized by federal legislation (e.g., bikeways and miniparks), are carefully scrutinized and often dropped from consideration.

Several cases, however, demonstrated willingness by both federal and state officials to execute cooperative financial agreements or arrangements for land purchase with local authorities. These agreements allowed the executing transportation agency to expand its right-of-way acquisition into lands designated for nontransportation public purposes by the local community and then be reimbursed by the community. The variety of local funding sources merits comment.

1. In Pensacola, the city designated $1,000,000 of federal revenue-sharing money for joint-development land purchases. This was used to reimburse FlaDOT for total takings over and above what would have been paid for severance damages.

2. In St. Petersburg, the city council will make appropriations from its general fund, also totaling about $1,000,000, for similar arrangements with FlaDOT.

3. In Baltimore, the city has used the proceeds from an economic-development-agency bond issue and general-
funds and public and community groups. The private
tative agreement with FlaDOT and FHWA, will be contri­
the subway system will be repaid by lease revenues dur­
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Disposition Financing Arrangements

The cases showed a wide variety of financial arrange­ments governing disposition.

Private Use

Three cases dealt with private-facility use of expanded acquisitions where project arrangements have already been made: Baltimore; the Capital Centre Arena in Prince Georges County, Maryland; and Toronto.

Baltimore is the one case where properties have been sold. These were negotiated purchases by private developers, from the city's economic development agency, at the market value for industry and warehousing. The city would have preferred to lease the properties, but legally cannot subordinate. The revenue from the sales and the taxes are returned to the general fund of the city. Several years ago the Maryland State Roads Commission sold a 0.52-km² (128.5-acre) remnant tract to the Maryland-National Capital Park and Planning Commission (MNCPPC) for about $300,000. This later became the site of the privately owned Capital Centre Arena. Now, MNCPPC has executed a 40-year lease with the builder and operator. In less than 10 years, the annual rent will have repaid MNCPPC the land purchase cost and, at the termination of the lease, the arena reverts to MNCPPC ownership. Beyond this, an admission tax, which thus far has amounted to about $1.5 million/year, goes to the local government, Prince Georges County. A real-estate tax payment will also be levied, but the precise amount and manner of payment are currently in litigation. Regardless of the final legal judgment, this payment is estimated to be at least $300,000/year.

In Toronto, the municipality can subordinate and has leased more than 22 parcels for private developments, most of which are high-value, commercial projects. The leases are executed for 33 to 50 years, with a right of one-time renewal. Market rents are charged. The improvements are taxed at full value, and the land is also taxed, with a reduction in the full value that is dependent on whether or not there is some subway use of the surface or the subsurface. All revenues are returned to the general fund and, at the expiration of a renewed lease, all improvements will revert to metropolitan council ownership. The Toronto projects have been profitable, not only to MNCPPC but to both the municipality and the private entrepreneurs, who are not required to put capital into land. It is estimated that the full costs of right-of-way acquisition for the subway system will be repaid by lease revenues during the 1980s.

A lease arrangement is also planned for Pensacola. FlaDOT has executed a 55-year lease with the city for all of the land in its ownership where either public or private joint developments may take place. The omnibus lease is for $100. In turn, the city will sublease to private firms and public and community groups. The private leases will carry market rents that, under the cooperative agreement with FlaDOT and FHWA, will be contributions to the city's transportation system.

Public and Community Use

Some states have requirements of market rental or sales to public or community, as well as private, users. However, most of the cases illustrate sensitivity to the needs and limited budgets of nonprofit agencies. Indeed, many of the public-serving facilities could not be located in such accessible sites without some form of land subsidy. All of the several community and public facilities along the Nevada highways pay $1,00/year rentals to the state highway department. Toronto sold a parcel to a public-housing corporation for less than the land could bring on the open market. Pensacola plans to assess nominal rentals for facilities, such as community buildings and a school-board maintenance center, anticipating a market return from eventual private facilities on the joint-development sites.

Arizona has elected to grant permanent easements at no cost to the flood control agencies that have erected area-protection works on the excess acquisitions in Maricopa County. Land title remains with the highway department.

Institutional Framework for Joint Development

Despite the legal and financial restraints that severely limit the flexibility of the expanded-acquisition technique, the cases demonstrate several successful examples of joint-development projects. These are existing or programmed land uses on the acquired sites, compatible with both the transportation facility and the surrounding community. Many factors in the relative effectiveness are institutional.

Organizational Structure

One of the most significant factors is the organizational structure established to deal with the acquisition, planning, marketing, and disposition processes. Most successful cases have involved some formal interagency mechanism that coordinates or directs the process. This mechanism may or may not exist at the outset of acquisition but, if it does not, it will be created at some point in the situation when all parties realize that traditional liaison arrangements do not work. These are not traditional projects for either federal, state, or local agencies. Each entity has its statutory or administrative responsibility, which represents a piece of a puzzle that must mesh with the other pieces. The nature of the directing mechanism varies from case to case and reflects the peculiarities of local circumstances.

1. Toronto: In Toronto, the mechanism is the subway-property committee, which reports all acquisition, planning, and disposition decisions directly to the decision-making metropolitan council. The committee is composed of representatives from the planning and property departments of the council and of the Toronto Transit Commission. It is a one-stop shop and acquires land, recommends disposition, receives bids, reviews plans, and expedites development.

2. Baltimore: In Baltimore, the Interstate Division of MdDOT functions both as a state agency (subject to state and federal highway requirements and receiving funds from both) and as a city department. It reports to the mayor and council, handles acquisition and disposition, and contains the joint-development planning team, through which liaison to other key city agencies is effected.

3. Pensacola: From the very beginning of the I-110 spur planning process, an interagency coordinating com-
mittee was established, including state and federal representatives as well as city departments. The nature of the committee has changed and evolved over time, as has its name. But all parties are represented, and periodic conferences are held throughout the implementation stage of the highway and its joint uses.

4. Capital Centre: Although MNCPPC coordinated the project, a formal six-party memorandum of understanding was signed among the governmental agencies and private individuals most directly involved in building the arena to guide implementing actions. A special interagency task force implemented the agreement.

5. Pikeville: In Pikeville, the joint-use projects are not yet established. However, the special legislation that enabled the Corps of Engineers to participate in the program mandated that corps funds be used only if an interagency agreement was signed among the corps, the city, the State Bureau of Highways, and the Appalachian Regional Commission. An interagency coordinating committee, with technical support by a consulting firm, meets monthly.

6. Nevada and Arizona: There are two notable exceptions to the above conclusions. Projects both in Nevada and Arizona may be considered successful from a joint-use standpoint, although no special mechanism was established in either state. While these developments in each state required several years, they were nevertheless accomplished to the general satisfaction of all parties involved through normal governmental channels. The projects in both states were relatively simple and noncontroversial.

Continuity and Quality of Technical Leadership

Regardless of how well structured an organizational mechanism may be, without committed, knowledgeable staff leadership maintained over long periods of time, little will be accomplished. Such leadership is particularly important in joint development because of the time-consuming issues of intergovernmental, community, and developer relationships; the web of highway and other regulations; and the funding uncertainties involved. In each of the successful cases, such leadership and its continuity were demonstrated in the highway agencies at state and federal levels, in the local governments, and among the community leaders who were willing to follow through arduous project reviews until completion of facilities.

Role of General-Purpose Local Government

The more complex and controversial the projects, the more critical has been the role of general-purpose local government. This role is played out in diverse ways. Fundamentally, however, it is a political role. In matters as sensitive as these, dealing with the fabric of the community, it is the elected local officials who are the most responsible for that community. Authority and responsibility have been delegated to them, and they answer to the ballot box if these powers are abused. They have far more discretionary actions available than a transportation agency staff or a state or federal department.

From a structural standpoint, also, local government is critical. It can bring to bear a broader array of public purposes and uses (under the police power) than can a transportation agency. Local government has various forms of fiscal resources—taxing powers, borrowing powers, and revenue sharing—that can, if funds are available, supplement those of the transportation agency. Local government can make ordinances governing the use and control of land that can shape the market in respect to the location of transportation impact. It can readily assume a directing or coordinating role.

Public Support

A corollary to the commitment of local government is the commitment of public opinion. The more complex and potentially controversial the projects, the more essential it is for an articulate body of public opinion to approve the actions of the local government. This has occurred in Pensacola, where a broad spectrum of opinion from the chamber of commerce to the black community most directly impacted by I-110 has vocally supported the joint-development and expanded-acquisition efforts. It has also been true in Toronto, Baltimore, and the Capital Centre where local government actions that were or could be controversial were approved by important groups in the community.

Land Scarcity: Importance of the Market Mechanism and Public Regulation

No one will claim that joint development is an easy process. On the contrary, it is complex, costly, time-consuming, and fraught with red tape and uncertainty. From the standpoint of the private developer, whose financial equation is constrained by time as well as money, it can well be a process to be avoided if there is a viable alternative. If development sites are available and zoned within reach or view of a highway interchange, why bother with battling the bureaucracy? Why bother looking for land that, in both the Nevada and Florida contexts, carries with it the proviso that if the highway agency determines a necessary highway use within the time frame of a lease, the owner will be forced to vacate his facility (in Nevada, without compensation)? Private builders and developers have generally answered the question by clustering as closely as possible to the transportation facility, without occupying land owned by the public agencies. Other sites are easier, less costly, and preferable.

The cases suggest that certain factors are essential for successful private development. When the market for sites is strong, and sites are available only or primarily through joint development of publicly owned land, private enterprise will respond, negotiate, and build.

In the U.S. context, the air-rights developments of casinos at Reno and Sparks and the industrial projects in Baltimore bring this conclusion into sharp perspective. In Reno and Sparks, the demand for gambling casinos is high, and their profitability is great. The only sites zoned for such uses in the central areas are along the highway. No others are available without going further from the core. Most land in the core, however, is already built-up. This led private entrepreneurs in Reno to negotiate an air-rights lease to build a platform over the highway for a casino. In Sparks, the owners of an existing facility adjacent to the roadway were prepared to go through an arduous negotiating process to extend under the highway as the only expansion alternative. Neither of these operations has security of tenure: Leases are for a 5-year period, and the highway department can demand vacatin on 90-d notice. But the profits are worth the risks.

Baltimore is a less extreme, but equally informative, example. Through a long and complicated process that involved the cooperation of an economic-development agency and the Interstate division, sites for industrial uses immediately adjacent to highway interchanges were recently made available. These are among the few such sites available in the built-up central city. Some have
been sold, and one is already occupied. Desirable private uses have been established. But, despite long-standing efforts by the public agencies to market these sites in advance of their availability, these private commitments were not made until the availability was imminent. Here too, the private market responded, but to an immediately realizable time frame characteristic of the private development process.

At the Capital Centre, a regional demand for an arena combined with the extraordinary accessibility of the site to warrant the private effort. In Pikeville, Kentucky, there is no physically and economically developable land available for major private commercial developments or housing, except that which public offices, it conducts reviews of state and local actions, other commitments and could emphasize the present interest in the approach. The reviews conducted at the division level or above are often too remote from the projects and circumstances under review and thus insensitive to the factors involved and

2. Some officials at the division level or above are unresponsive to joint development as a role for highway agencies or unfamiliar with those existing provisions of federal law of FHWA procedure that encourage participation.

(The only extensive examples of private joint development identified are those associated with the Toronto subway, where the subway-property committee is a one-stop shop in respect to disposition and design review. No higher levels of government are involved—a parallel that is clearly not possible in the United States because of present federal-state-local administrative and financing arrangements.)

CONCLUSIONS AND RECOMMENDATIONS

Despite the constraints, difficulties, and limitations, the cases illustrate that joint-development projects with positive public benefits can be created under the present system and that highway agencies can play a productive role in expediting their occurrence.

Individuals

At both the state and federal levels, there are individual highway officials who are community conscious, provide technical leadership, and are cognizant of the nuances of and the flexibility allowed in the regulatory structure. Few of the projects were initiated by highway agencies, but none could have been accomplished without the genuine interest and expediting actions of individual state and FHWA officials. Efforts should be made to provide appropriate tools for those already capable and to expand their numbers.

1. FHWA should prepare a manual on joint development that consolidates the applicable policies and procedures currently found in several sections of the Federal Highway Program Manual. This new document could contain examples of how projects can be initiated and approved and case studies of actual undertakings. It would help to alleviate confusion over existing regulations and could emphasize the present interest in the approach.

2. FHWA and the states should initiate seminars and special training programs on joint development. These would be vehicles for the exchange of experience. They should be opened to local government officials as well as transportation agency staffs and could provide both skills and confidence to individuals involved in initiating and developing projects.

Responsiveness to General-Purpose Government

In those complex projects in which general-purpose local government became the leader, the highway agencies performed responsive and important roles. They did so largely by providing skills unavailable to some of the
communities (such as appraisers and in-house design staff) and by entering into cooperative financial arrangements that allowed communities and community organizations to use land at modest cost. These efforts should be encouraged and expanded.

1. Highway agencies, supported by FHWA, should make positive efforts to offer the services of their skilled personnel to communities interested in fostering joint development. This can be particularly important to small cities and rural areas that cannot afford to maintain staffs of appraisers and designers under normal operations and can be inhibited from undertaking joint development by the lack of personnel. Clearly, such staff assistance should not dilute the transportation mission of the highway agencies, but it can be applied in support of that mission.

2. Highway agencies, supported by FHWA, should make increasing efforts to enter into financial arrangements with communities and community groups for the use of surplus land associated with new transportation facilities. This would include establishing long and short-term leases for surplus land and initiating agreements, as in Pensacola, to offer remnants at their residual value after damages. It would also include the use of agency personnel to acquire supplemental land beyond the right-of-way, in accordance with joint-development plans, with repayment by the municipality.

Inventory of Excess Land

In practice, highway agencies acquire more or less substantial amounts of excess land, although not for joint-development objectives. There are remnants and old borrow pits and waste sites in agency inventories throughout the country. There are also examples of land once acquired for right-of-way but no longer intended for highway use because of changes in alignment or governmental decisions to abandon the route. Some of the cases showed that astute highway officials, supported by state enabling legislation allowing community use of surplus lands, have helped establish beneficial, visible public or community projects on excess land. This practice should be encouraged.

State highway agencies, supported by FHWA, should make positive efforts to identify surplus land suitable for public or community use. They should initiate joint-use arrangements, especially through leasing, under which the highway agency maintains long-term ownership and control of the land.

Support of Joint Development Planning

Without highway agency and FHWA financial and administrative support, the joint-development planning in Pensacola, Baltimore, St. Petersburg, and Reno and Sparks could not have taken place. These plan-making studies may have far greater influence on how communities can capture public benefits of highway development and mitigate adverse impacts than can any direct role of the highway agency in acquisition and joint development. These plans, and the range of local regulatory and development actions that flow from them, are positive achievements. The practice should be increased.

Highway agencies, supported by FHWA, should broaden their financial and administrative support to highway-corridor planning by local authorities. This support should, moreover, extend to impact planning of facilities beyond the Interstate system; e.g., the federal-aid program and Appalachian systems where there may be many joint-development opportunities in the coming years. Through this planning assistance, local communities should be encouraged to adopt their own acquisition programs and regulatory techniques designed to capture for the public the widest range of benefits from highway development and mitigating negative impacts.

Demonstration Program

Each of the above suggestions is based on continuation of the present limited level of policy interest in joint development by the federal government and the states. Should that interest increase, one of the most important innovations would be a demonstration program in the use of the highway agency to acquire land for joint development.

The cases demonstrate numerous potential opportunities for public and community facilities and services in immediate impact areas of highways. Extraordinary difficulties exist, however, in mobilizing potential sites because of differing powers and budgets among governmental bodies. Even with advance planning for joint use, opportunities can be lost unless there is some form of coordinated acquisition mechanism to assemble and prepare sites in conjunction with right-of-way takings. Thus, the demonstration program should include the following principal features:

1. A joint-development plan would be prepared for the highway corridor. It would indicate a desirable pattern of land uses adjacent to and in the vicinity of the highway right-of-way. It would identify sites for public facilities and services and for private development on publicly held land. It would include proposals for regulatory procedures (e.g., zoning) and other measures to support implementation. The plan would be adopted, after public hearing, by the local governing body and would be approved by the state highway department and FHWA.

2. The plan would be accompanied by a capital acquisition-and-development budget, committed to by the local governing body and other relevant agencies. This would determine the amount of funds required for site acquisition and development of nonhighway elements and the approximate year when those funds would become available to the agencies involved.

3. The highway agency would proceed to acquire both the highway right-of-way and the sites specified for other public facilities in the plan. Money would be advanced for purchase of these sites and for site preparation by the highway agency through the state and federal highway programs.

4. Prior to purchase, the relevant public agencies would execute agreements with the highway agency for repayment (with or without interest) of the land costs and possession of the sites when funds became available under the capital program.

FHWA could initially establish such a program in a few cities on a demonstration basis and provide funds for both planning and acquisition as an incentive. Based on tests of performance, the approach could eventually become institutionalized as an integral part of the federal highway program, perhaps including a revolving fund for such purchases. Since the purpose of the purchases would be identified in advance, and since highway agencies can enter into agreements with other governmental bodies, special federal or state enabling legislation would not be essential, although legislative changes might be required in some states.

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Abridgment

Impact of Railroad Abandonment on Rural Highways

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Declining railroad patronage over the past 30 years has caused more and more people to question the need for much of the aging, little-used trackage that exists in this country today. One solution to the financial dilemma confronting many of the rail carriers is the elimination of railroad access to those rural areas that are served by lightly used branch lines. This paper addresses the problem of how a shift in transportation demand, which could result from the abandonment of a branch rail line, might affect the roads of a rural area.

The paper introduces an evaluative methodology that can be used to estimate the impact of rail-service discontinuance on rural highways and bridges. The methodology was developed from a research effort conducted at Purdue University and will itself be discussed only briefly in this paper. The major portion of the paper will describe the results of using the methodology for two areas in Indiana that have been confronted with the possible loss of direct rail service.

EVALUATIVE METHODOLOGY

The methodology that can be used for assessing the costs of upgrading the rural highway system to accommodate increased numbers of heavily loaded commercial vehicles is composed of several different procedures. The most important of these is the one developed for measuring the impact of railroad abandonment on highway pavements. This procedure is based on equations developed by the American Association of State Highway Officials and the U.S. Army Corps of Engineers. By using these design procedures as a foundation, formulas were developed that express the impact of railroad abandonment on a rural highway pavement in terms of the additional thicknesses of asphaltic concrete overlay that would be required to accommodate the increased traffic.

The procedure concerned with possible effects of railroad abandonment on rural highway bridges uses information that has been gathered by various agencies within a state. By analyzing data obtained from these secondary information sources, as well as personal inspection of bridges likely to be affected, it is possible to identify those structures whose physical deficiencies are a serious impediment to over-the-road transportation of the goods formerly moved by the railroad.

The methodology introduced in this paper also contains recommended techniques to be used to meet the data requirements of the evaluative system and a method for estimating the financial impact of a branch-line abandonment on affected rural highways. Detailed explanations of all of the procedures of the methodology are contained in a report that summarizes the results of this research effort for the Joint Highway Research Project at Purdue University (1).

TWO CASE STUDIES

Two areas in Indiana that were confronted with possible loss of direct rail service were investigated in regard to the impact that abandonment would have on local highways and bridges. The rail segments chosen for analysis were (a) the 44.2-km (27.5-mile) section of United States Railway Association (USRA) line 429 from Decatur to Portland and (b) the 41.5-km (25.8-mile) segment composed of USRA lines 589 and 590 between North Vernon and Madison. Both of these rail lines had been recommended by the Governor’s Rail Task Force of Indiana for inclusion in the final system to be operated by the Consolidated Rail Corporation, but this was not done.

For the two case studies, a time span of 10 years was chosen as the length of the analysis period over which the impact was to be measured. Because both highway and railroad data were available for 1973, the 10-year analysis period was begun on January 1 of that year. Furthermore, because a normal increase in traffic volumes will probably occur on those highways, regardless of the final