

Technology Development, Neighborhood Planning, and Negotiated Partnerships

The Case of Pittsburgh's Oakland Neighborhood

Marc A. Weiss and John T. Metzger

Neighborhood organizations are rarely involved in policymaking for high-technology industries, and as a result they often oppose new development initiatives. The Oakland Planning and Development Corporation (OPDC) in Pittsburgh, Pennsylvania, is an exception. That organization has attempted to influence high-tech growth in its community by commissioning a "technology impact analysis" as a tool with which to negotiate with key high-tech participants. OPDC has successfully used the analysis to broaden support and gain resources for its activities in housing and commercial development and land-use planning. OPDC's inability to establish job training and placement links to high-technology industries, however, points to difficulties in neighborhood-level planning for advanced technology economic development.

Neighborhood organizations have generally not been involved in designing state and local policies to promote the growth of high-technology manufacturing and services (Weiss 1986; Goldstein and Bergman 1986; Peltz and Weiss 1984). Indeed, the lack of community participation in the policymaking process has occasionally become a source of opposition to high-tech development initiatives, most notably in the recent defeat of Rhode Island's "Greenhouse Compact" (Silver and Burton 1986; Bradford 1983). Yet rarely have community-based organizations even attempted to become direct partners in shaping technology-oriented growth strategies. One example of such an attempt is the Oakland Planning and Development Corporation (OPDC) in Pittsburgh, Pennsylvania. OPDC utilized the preparation of a "technology impact analysis" as a vehicle for gaining knowledge and visibility, asserting legitimacy, building coalitions, and formulating a program to negotiate with public and private organizations that controlled Pittsburgh's advanced technology development agenda.

Oakland, a mixed-income neighborhood east of Pittsburgh's central business district, is important in public and private plans to revitalize the region's economy through the development of advanced technology. Its importance devolves from the concentration of research and educational institutions within Oakland, in particular the University of Pittsburgh and Carnegie-Mellon University. By 1985 the neighborhood

was under strong pressure to develop because the Allegheny Conference on Community Development, the two universities, and the state, county, and municipal governments were combining forces to design and implement economic development projects. In the fall of 1985, the Oakland Planning and Development Corporation, a neighborhood-based organization, commissioned us to project and assess advanced technology development in Oakland.

We divide this article into three parts. First, we outline the history of Oakland, the plans of the institutions, and the politics of economic development in Pittsburgh. Second, we present the role of the Oakland Planning and Development Corporation and the results of the technology impact analysis. Third, we discuss and evaluate the outcomes of the case and the possibilities of the negotiated partnership in Oakland.¹

Weiss teaches urban planning and policy at the University of Illinois at Chicago, and is a 1987-1988 research fellow at the Lincoln Institute of Land Policy in Cambridge, Massachusetts. He is the author of *The Rise of the Community Builders: The American Real Estate Industry and Urban Land Planning* (Columbia University Press, 1987). Metzger is a research assistant at the Cleveland Center for Neighborhood Development, in the Urban Center, College of Urban Affairs, Cleveland State University.

Background

Oakland's development has been influenced by land-use conflict between the area's institutions and its residential neighborhoods. Oakland's institutions include the University of Pittsburgh (Pitt), the six affiliate hospitals of the University Health Center of Pittsburgh (UHCP), Carnegie-Mellon University (CMU), and the Carnegie Institute. Pitt and CMU are the two largest universities in the area, UHCP is a regional health care center, and the Carnegie Institute operates major art and natural history museums.

Oakland is four miles east of Pittsburgh's "Golden Triangle" of downtown corporate headquarters. Situated on a plateau north and east of the Monongahela River, it initially developed as a 19th century suburb. Institutional and residential development in the community was relatively free of conflict in the first half of the 20th century, and Oakland enjoyed some of the finest architecture and landscaped urban parks in the city. Land-use conflict emerged after World War II, when plans for institutional expansion threatened the shape and dynamic of the community. The conflict intensified around Pitt, whose building boom began in the 1960s when it changed from a private to a state-affiliated institution. Pitt purchased additional residential and commercial blocks in Oakland, including Forbes Field, the old sports stadium. The campus grew from 64 to 110 acres during the 1960s, and Pitt embarked on a master plan to construct several large new facilities. The number of buildings on campus rose from 23 to 40 between 1964 and 1980 (Oakland Directions 1980).

The working-class population of Oakland began to diminish in the 1970s, displaced, along with small businesses, by institutional expansion and by the loss of manufacturing jobs in the city. The additional employment that the universities and hospitals have generated has attracted middle-income residents to North Oakland, which, with the subdivision of low-income housing units in West and Central Oakland, has increased the community's population to nearly 25,000. The institutions and businesses in Oakland employ more than 20,000 persons, nearly 15 percent of Pittsburgh's total employment base.

Many of the community-based organizations within Oakland were formed during the late 1960s and early 1970s in response to Pitt's expansion plans. The fear of displacement prompted residents to establish People's Oakland in 1970. That group and other community organizations in Oakland kept Pitt from fully implementing its master plan, and by 1972 a public-private coalition formed Oakland Directions Inc. as a vehicle for community planning. From 1976 to 1980, this coalition worked to produce the Oakland Plan, a comprehensive community planning process that laid out an agenda for housing rehabilitation,

neighborhood improvements, and better transportation in Oakland (Oakland Directions 1980).

One of the direct spin-offs of the Oakland Plan was the Oakland Planning and Development Corporation (OPDC), established in 1980. The corporation is one of the strongest community development organizations in Pittsburgh and one of the so-called "fortunate five" because of its favored status for operating support from the city. It has developed more than 120 housing units for low- and moderate-income people and for the elderly, and has improved the traffic flow in Oakland. Governed by a community-based board and funded by the city and private foundations, OPDC's goal is neighborhood stability through community planning, housing, and mixed-use development.

The Oakland Plan did not anticipate that the Oakland neighborhood would be a target area for regional economic development. The economic upheaval in the Pittsburgh metropolitan area between 1979 and 1983 resulted in the net loss of 120,000 manufacturing jobs—many in heavy industries such as steel. But the disruption elicited economic development proposals from the major public and private actors in the region (St. John 1985).

In 1984 the economic development committee of the Allegheny Conference on Community Development (ACCD), a private sector planning group that some of Pittsburgh's corporate leaders chaired, released *A Strategy for Growth: An Economic Development Program for the Pittsburgh Region*. The ACCD strategy targets several growth sectors—corporate headquarters, financial services, education, and health—and avoids the area's traditional manufacturing base (Allegheny Conference on Community Development 1984).

The vehicle to implement the ACCD proposals appeared in 1985 with the release of *Strategy 21: Pittsburgh/Allegheny Economic Development Strategy to Begin the 21st Century*. Pittsburgh Mayor Richard S. Caliguiri, the Allegheny County Commissioners, Pitt, and CMU formulated *Strategy 21* as a funding proposal to the state of Pennsylvania for economic and industrial development projects. Both the ACCD plan and *Strategy 21* recognize local universities as vital actors in regional economic development. ACCD expresses the goal of "marketing university technologies . . . to step up the transfer of technology from our universities to the private sector." *Strategy 21* targets 20 percent of its proposed funding to projects in which Pitt and CMU are involved (Caliguiri et al. 1985).

Public agencies at the local and state level are creating university-based high-technology strategies for economic development. The Pennsylvania Department of Transportation commissioned researchers at Pitt's Center for Social and Urban Research to study the location and transportation requirements of advanced technology firms in Oakland and elsewhere in the state. The center's report, released in 1986, con-

firmed the importance of research institutions to advanced technology development (Center for Social and Urban Research 1986).

The concentration of universities within Oakland has accelerated technology development. CMU has a national reputation in computer science, robotics, magnetics, and special materials. That institution's research volume has grown by 50 percent over the last two years. The Department of Defense (DOD) has been the largest research sponsor, awarding more than \$35 million in research contracts to CMU in 1986. Forty percent of CMU's research is industry-related. The university's Robotics Institute handles contract research; its current budget is approximately \$10 million. One-third of its work is for DOD but it has 25 industrial sponsors as well, including Westinghouse and Digital Equipment. Half of the institute's research focuses on applications in industry, while the rest centers on general robotics.

CMU's expertise in robotics and computer science prompted DOD to locate its Software Engineering Institute (SEI) in Oakland, adjacent to the CMU campus, in 1985. That institute is the first new research and development center to be funded by the federal government in more than 20 years. It is expected to create 250 jobs, and to have an annual budget of more than \$30 million when it becomes fully operational by late 1987. Sixty percent of SEI's work will involve the development of software technology for defense contractors, many of whom are expected to open local offices.

CMU also provides support services to small, technology-based businesses in Oakland, and has developed an office building for those businesses near campus. The Enterprise Corporation, funded by the Mellon Foundation, and the Western Pennsylvania Advanced Technology Center, a joint Pitt-CMU operation funded by the state's Ben Franklin Partnership,



Carnegie-Mellon University's Software Engineering Institute in North Oakland, nearing completion in the spring of 1987. (Photo by John Metzger)

provide technical and financial assistance to business owners.

Pitt's primary area of research and development is biomedical technology; its partner in this area is UHCP. Most of the biomedical work takes place on the university's campus, as will the newly-proposed "medical renaissance" plan which is expected to create 1500 jobs over 15 years. In addition, UHCP has developed the Nuclear Magnetic Resonance Research Institute nearby in Oakland and is planning a new cancer institute at a still-undetermined location. Pitt also operates an office building near the campus for business support services. Together, Pitt and UHCP are the largest employers in Oakland.

Pitt, CMU, and other institutions are cooperating to turn an abandoned Jones and Laughlin steel mill on the banks of the Monongahela River into an advanced technology industrial park. We discuss the plans in detail below. Completion of the industrial park should further advance technology development in Oakland, and it could sharply influence transportation and land use patterns in the community.

Technology impact analysis

The high-technology "boomlet" in Oakland and the redevelopment plans for the Jones and Laughlin site prompted the Oakland Planning and Development Corporation (OPDC) to assess and define its position in local economic development. OPDC had no input into the economic development agenda that a public-private partnership of entrepreneurs, university, and government officials created for Oakland. Yet, the corporation had political leverage that could facilitate its participation in the partnership and allow it to represent community interests in the planning and development process.

First, OPDC had established a working relationship with Mayor Richard Caliguiri because it had successfully implemented community development projects and because it was an important member of the Mayor's Oakland Task Force. Second, OPDC had developed a working relationship with Pitt, through the university's involvement in Oakland Directions Inc. and in the implementation of the Oakland Plan. The Oakland Task Force and Oakland Directions Inc. were arenas in which OPDC could raise concerns and negotiate development disputes with both the Caliguiri administration and Pitt. Thus, OPDC had leverage by which it could enhance its power in two areas—local government funding and regulatory support for economic development projects in Oakland, and negotiation of a development agreement for the Jones and Laughlin site.

To increase its bargaining power, OPDC sought recognition as an informed participant in high-technology development through an analysis and projection

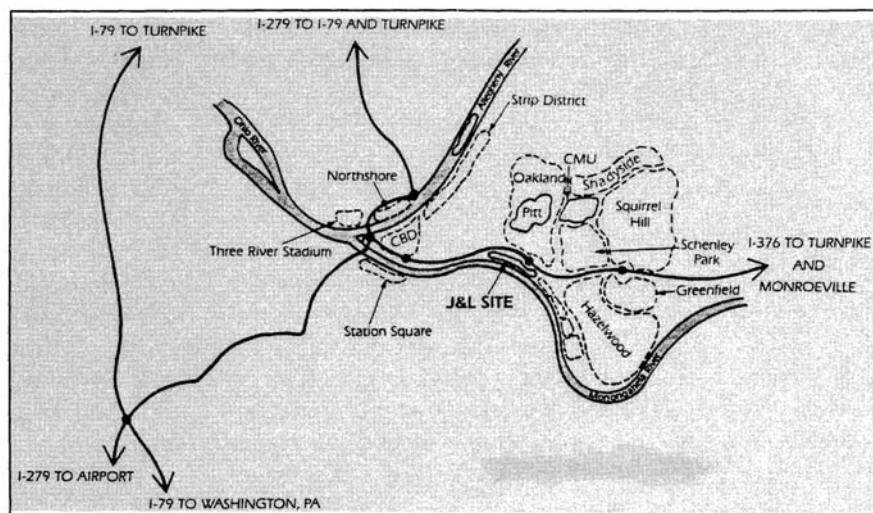


Figure 1. The Pittsburgh region and the Jones and Laughlin redevelopment site. (Source: Urban Land Institute 1985)

of the impacts and outcomes of technological innovation in Pittsburgh and Oakland. Under a planning grant to OPDC from the Economic Development Administration (EDA) of the U.S. Department of Commerce, we prepared an impact assessment of advanced technology development in Oakland (Weiss and Metzger 1986).

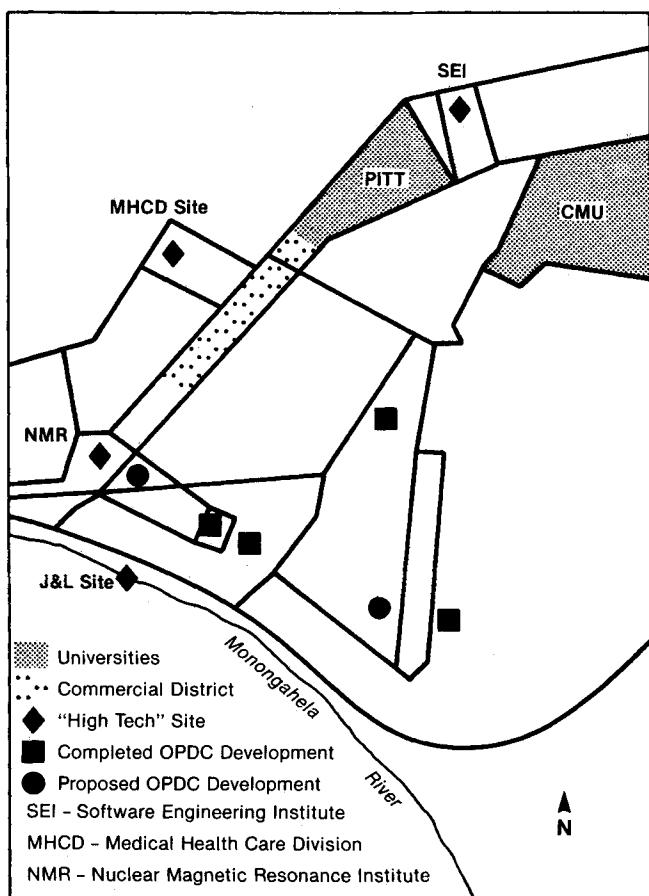


Figure 2. Map of Oakland neighborhood showing institutions and development sites. (Source: Oakland Planning and Development Corporation)

The impact assessment, or "technology impact analysis," is based on three sources of information. The first source consists of newspaper articles, recent planning reports, and economic development studies of Oakland and the Pittsburgh region. The second source is data on economic and industry trends from industrial and business censuses and local economic studies. The third source is information and observations from a two-day site visit, which involved tours of the development areas and interviews with real estate developers, university officials, local government representatives, and others active in advanced technology development in Oakland.

Development projections

The report evaluates job creation potential, occupational structure, and locational requirements of four sectors considered crucial to advanced technology development in Pittsburgh and Oakland—computer software, robotics, medical research and development, and business support services.

Computer software. Table 1 provides economic data on Pittsburgh's software industry. Table 2 illustrates software employment trends in Allegheny County from 1977 to 1984. Pittsburgh's computer software industry has grown rapidly, although software jobs remain only a small proportion of total employment. In 1984, software employment accounted for 0.2 percent of all of the jobs in Allegheny County. For a number of reasons, the Pittsburgh area is a good location for development of the software industry. It has top-notch research universities, a professional and technical labor force, and access to communication and transportation networks.² Software development has been stronger in Pittsburgh's suburbs, however, than in the city itself. Within the city, software employment has been concentrated in the Oakland neighborhood (Center for Social and Urban Research 1986; Urban Redevelopment Authority 1984).

Table 1. Establishments, employment, receipts, payroll, and selected ratios in the software industry (SIC 7372), Pittsburgh SMSA, 1982

	Pittsburgh city	Pittsburgh suburbs	SMSA total
Establishments with payroll			
Paid employees	22	28	50
Employees per establishment	588	316	904
Receipts	26.7	11.3	18.1
Receipts per establishment	\$28,777,000	19,137,000	47,914,000
Annual payroll	\$1,308,045	683,464	958,280
Payroll per employee	\$12,569,000	7,860,000	20,429,000
Payroll per employee	\$21,376	24,873	22,598

Source: U.S. Department of Commerce, Bureau of the Census, *Census of Service Industries, 1982*.

Most jobs in the software industry are either for highly-paid computer professionals or for low-paid keypunchers and computer operators. The number of "paraprofessional" jobs in which computer education and experience are not required has been shrinking because of technological changes in software development. Displaced blue-collar workers cannot qualify for specialized professional jobs in computers; such jobs require advanced degrees (Hall et al. 1985; SRI International 1984; Office of Technology Assessment 1984; Joint Economic Committee 1982).

Robotics. Robotics involves the computerized application of flexible machine technology in the production process. Robotics machines are combined with new computer hardware and software to create integrated automated manufacturing systems. Those systems could help Pittsburgh's corporations modernize their older manufacturing plants. The use of robotics and software technology in factory automation, however, may reduce manufacturing employment through tech-

Table 2. Establishments and employment in the software industry (SIC 7372), Allegheny County, 1977-1984

Year	Total establishments	Total employment	Employees per establishment
1977	20	113	6.7
1978	24	212	8.8
1979	26	445	17.1
1980	32	576	18.0
1981	32	743	23.2
1982	35	923	26.4
1983	58	884	15.2
1984	59	901	15.3

Source: U.S. Department of Commerce, Bureau of the Census, *County Business Patterns, 1977-1984*.

nological displacement (Dorf 1982; SRI International 1984).

As the Department of Defense increases its use of robot automation and software technology, it provides another market for the robotics industry in Pittsburgh. Table 3 illustrates the growing DOD market share in industries active in automation and robotics development. Oakland profits from the increased defense spending because DOD has funded the Software Engineering Institute and is sponsoring research at CMU's Robotics Institute.³

Medical research and development. The OPDC report cites medical research and development as a major industry that is also likely to grow in Oakland, due to university resources in biotechnology and software. Planners expect the Jones and Laughlin redevelopment—which includes Pitt's proposed biotechnology center and the relocated Drug Design Institute—along with the "medical renaissance" project and the Nuclear Magnetic Resonance Research Institute to anchor medical technology development in Oakland. The demand for medical technicians is expanding, and the increased use of nuclear magnetic resonance equipment and other medical imaging devices will stimulate growth in related software occupations (Feldman 1985; SRI International 1984; Salmon 1985; Aries and Kennedy 1986).

Business support services. The expansion of advanced technology in Pittsburgh is generating growth in related business support services. The business support services include accountants, architects, management consultants, finance professionals, lawyers, marketing specialists, and real estate brokers, as well as trade and business associations. As high-tech business services locate in Oakland, they create pressure on the limited amount of office space in the community at the same time that they increase the demand for local professionals in the fields.

Community impacts

The OPDC report assesses the community impacts of advanced technology development in Oakland on employment, housing, and office space. As indicated earlier, employment in advanced technology is growing in Oakland. However, most of these jobs are not accessible to Pittsburgh's blue collar workforce, a situation reflective of the national pattern for employment in high-technology industries (Weiss 1985; Hall et al. 1985; Markusen, Hall, and Glasmeier 1986; Castells 1985; Aries and Kennedy 1986).

Housing demand by high-tech professionals will be centered around the North Oakland area, an area close to existing upper-income residential neighborhoods. Working-class residents in the rest of Oakland are not likely to be displaced. However, without efforts

Table 3. Defense shares of output by industries active in automation and robotics development, 1979-1987

Standard Industrial Classification (SIC)	Value of industry shipments ^a 1982	Defense share of output ^b			Defense output growth 1982-1987 ^b
		1979	1982	1987	
Code	Title				
3662	Radio and television communication	33,028	44.8	58.0	54.2
3811	Engineering instruments	3,046	23.5	27.7	59.9
3399	Primary metal products, n.e.c. ^c	938	6.4	11.9	48.3
3624	Carbon and graphite products	980	6.1	7.7	51.4
3573	Electronic computing equipment	36,704	3.6	7.1	141.0
3541	Machine tools, metal cutting types	4,440	6.1	6.2	54.4

Source: U.S. Department of Commerce, *U.S. Industrial Outlook 1983*; U.S. Department of Commerce, Bureau of the Census, *1982 Census of Manufactures*.

a. In millions of dollars.

b. In percent.

c. n.e.c. = not elsewhere classified.

to rehabilitate and build quality, affordable housing, the other areas of Oakland may experience deterioration of much of their housing stock. That could hamper future institutional development and advanced technology growth.

The report projects an increase in the demand for office space in Oakland. Development of new office space will primarily be near the Software Engineering Institute and the Pitt/UHCP hospital complex (W.G. Conway 1978).

Site areas

The technology impact analysis also examines two high-technology development site areas in Oakland—the Pittsburgh Technology Center on the Jones and Laughlin site and the Software Engineering Institute. By the end of 1987, the Software Engineering Institute plans to obtain 500 industry affiliates. While the affiliates are not likely to create many local jobs, software firms and business support services near the facility are generating new jobs. SEI, its affiliates, and related businesses will demand more local office space and increase traffic congestion in North Oakland.

Pittsburgh's Urban Redevelopment Authority (URA) bought the 51-acre Jones and Laughlin site in October 1983, and the Regional Industrial Development Corporation (RIDC) is developing it as an industrial park. CMU plans to locate a research center for robotics in manufacturing at the Pittsburgh Technology Center, linking it to the Robotics Institute. CMU officials expect the robotics center to attract industrial sponsors to the park.

Pitt will establish a regional center for biotechnology and will relocate its Drug Design Institute to the new industrial park. Through these operations, Pitt hopes to establish a strong base for medical technology programs. The remainder of the park will include advanced technology firms, light manufacturers, and office space (Figure 3).

Two key factors impede the full realization of development plans for the site. First, there is stiff

competition from the suburban market for industrial real estate and from other sites in the city, such as Herr's Island and Neville Island, which are also potential industrial parks. For RIDC, the Jones and Laughlin site is its first central city industrial park; the organization successfully developed three such areas in Pittsburgh's suburbs. Table 4 shows the distribution of major industrial and research and development parks in the Pittsburgh region. Suburban sites accounted for more than 86 percent of the developed space and 97 percent of the available undeveloped space in the region.



Residential street in Oakland neighborhood. The University of Pittsburgh's Cathedral of Learning is in the background. (Photo by William Metzger)

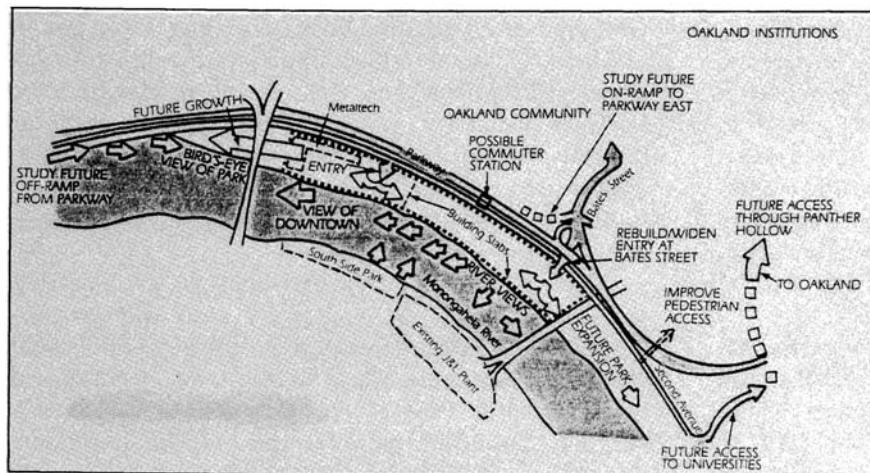


Figure 3. Detail of the Jones and Laughlin redevelopment site.
(Source: Urban Land Institute 1985)

The second and more important obstacle is the lack of sufficient coordination among URA, RIDC, CMU, and Pitt. The development agreement between URA and RIDC remains unclear, as does the relationship of the universities to the site (Urban Land Institute 1985; Center for Social and Urban Research 1986).

Recommendations

The technology impact analysis makes the following recommendations: First, the Oakland Task Force should promote special services, on-site amenities, public access, and research links with the universities that will distinguish the Jones and Laughlin site from the traditional RIDC model of suburban industrial parks. To accomplish that, they should initiate a cooperative process that stresses the role of the universities and the community. Second, Oakland residents should receive job opportunities within the advanced technology sector, along with employment training to equip them with the necessary skills. High-tech entrepreneurs, public and private agencies, local institutions, and OPDC should work together to formalize those arrangements. Third, local institutions and private developers should invest directly in OPDC's efforts to improve the community's housing stock. A housing

trust fund financed by institutional and private contributions should support low- and moderate-income housing in Oakland. Fourth, OPDC should help develop office space in Oakland, and should act as a broker for job commitments and generate income to support its nonprofit activities. Finally, the report recommends that OPDC should continue to support the efforts of Oakland Directions Inc. and the Mayor's Oakland Task Force to mitigate development impacts and monitor growth (Weiss and Metzger 1986).

Outcomes and conclusions

The recent history of advanced technology growth suggests that the economic benefits and costs have been unevenly distributed both within and between metropolitan areas. Traditional blue-collar workers and other groups of low- and moderate-income people have not been the main beneficiaries of "high tech," and thus have reason to be concerned about public sector commitment of resources for technology development (Markusen, Hall, and Glasmeier 1986; Castells 1985; Weiss 1985; Luger 1985; Harrison 1984; Saxenian 1984). Many community-based organizations have simply opposed high-technology policies in favor of more traditional neighborhood revitalization strategies (Silver and Burton 1986; Bradford 1983). In other cases, neighborhood-oriented groups have promoted alternative visions of technology development (Luria and Russell 1984). The Oakland Planning and Development Corporation explicitly avoided both approaches; it neither opposed *Strategy 21* nor proposed a competing program. Instead, its goal was to get a "piece of the action" and thus to ensure that its moderate-income constituency would receive at least some benefits from the anticipated economic growth in Oakland.

OPDC's primary claim for a seat at the *Strategy 21* negotiating table was based on its track record as a neighborhood advocacy and development group and

Table 4. Major industrial and research and development parks, Pittsburgh metropolitan area

Location	Area ^a			
	Number	Total	Developed	Available
Pittsburgh city	8	402.0	309.0	93.0
East suburbs	9	204.0	155.2	48.8
North suburbs	13	2450.0	1136.0	1314.0
West suburbs	23	2364.5	691.7	1672.8
Total	53	5420.5	2291.9	3128.6

Source: Urban Land Institute.

a. In acres.

the political power it wields through the constituency it represents. OPDC leaders decided they also needed a "technology impact analysis" before the organization could play a significant role in influencing advanced technology development policy. First, the analysis gave OPDC a greater understanding of the future economic outlook for Oakland. This was helpful in identifying issues where neighborhood-level intervention was needed and could be successfully applied by community groups.

Second, the act of commissioning and preparing the analysis was very important for winning OPDC added visibility and legitimacy. Using the EDA grant to hire outside consultants and bring them to Pittsburgh to meet with high-ranking officials from most of the key public and private institutions served notice that OPDC was a force to be reckoned with in the high-technology policy arena. In that sense our two-day site visit, though of limited use as a research methodology, was a crucial element of OPDC's political strategy in Pittsburgh.

Third, the preparation and use of the analysis provided OPDC with new opportunities to share information and policy ideas with other supportive groups. OPDC created a focus for coalition-building within the Oakland neighborhood, and also began building a citywide coalition of neighborhood organizations around city and regional implementation of *Strategy 21*. Since the OPDC study was largely confined to Oakland, the new coalition has now obtained additional funds to hire a consultant to prepare a citywide "technology impact analysis."

In choosing points of intervention, OPDC has relied upon expanding traditional strengths. The organization has been most effective in making gains on issues of land-use and transportation planning, housing, and commercial development. On the issues of job training and placement, however, the organization has not made much progress. OPDC has also been able to apply the most leverage to public institutions with which it has ongoing relationships, such as the city government (including URA) and Pitt. With CMU, RIDC, and the Allegheny Conference on Community Development, however, OPDC has been unsuccessful in gaining cooperation.

Many cities and states are now discussing the need for monitoring, regulating, and mitigating undesirable land-use effects of advanced technology growth (Farley and Glickman 1986; Saxonian 1984; 1985; Peltz and Weiss 1984). OPDC, through its involvement with Oakland Directions Inc. and the Oakland Task Force, has utilized the impact analysis to argue for greater public-private coordination in land-use planning, and Pitt has responded by submitting its "medical renaissance" development plans for review by neighborhood groups. The plan calls for constructing one million square feet of new office and laboratory space on the

air rights over existing hospital-owned buildings in Oakland, to spawn a biotechnology research complex under the auspices of Pitt's Medical Health Care Division (MHCD). OPDC, which raised concerns through the impact analysis about unplanned technology growth, was able to convince Pitt and MHCD to include neighborhood participation in their development planning.

OPDC also used the impact analysis to argue that people and places untouched by new economic investment in Oakland may create physical and social problems that could stand in the way of successful future growth. Thus OPDC was able to bargain for increased public and private support for its traditional role as a developer of moderate-income housing. The Oakland Development Fund has received \$305,000 in contributions from local institutions and Pittsburgh foundations to provide loans and recoverable grants for community-based development projects. The Ford Foundation matched that amount and OPDC will draw on the fund to support its projects. The Holmes School redevelopment is a \$3.5 million project through which OPDC will construct 64 owner-occupied housing units on the cleared site of a closed school (Ford Foundation 1986).

Finally, OPDC used the projections of demand for new office space as the basis for becoming a co-developer of the Western Portal project, which will include an office building and a hotel next to Magee-Women's Hospital and the Pittsburgh Playhouse. URA loaned \$1 million to OPDC for acquiring the site. The profits from this development will be channeled into OPDC's ongoing activities to promote and develop affordable housing. Thus both the advance knowledge of technology's impacts and the added political leverage of asserting a claim to this "non-neighborhood" issue has enabled OPDC to win some benefits for people not directly targeted for resources by *Strategy 21*.

This case indicates that neighborhood organizations with clear goals and access to power can garner benefits for their constituencies by staking a claim on the issue of high-technology development. OPDC has successfully used the "technology impact analysis" and its relationship to key high-tech participants such as Pitt and the city government to strengthen and expand its position as a housing developer, land-use planner, and policy negotiator in Pittsburgh. OPDC has been far less successful in influencing the type and distribution of jobs generated by advanced technology growth. Frustration over the employment issue has prompted citizen groups in other situations to either oppose high-tech development plans or design alternative policies. OPDC's decision to bypass these strategies and pursue a negotiated partnership consistent with its goals illustrates both limits and possibilities of neighborhood-level planning for advanced technology economic development.

Notes

1. In addition to the published articles, reports, plans, and documents cited throughout the text, another key source for this article is the information and observations we gathered during a two-day site visit that involved tours of the primary development areas and interviews with real estate developers, university officials, local government representatives, and other key participants in advanced technology development in Oakland. We conducted the site visit November 3 and 4, 1985.
2. In 1982 Pittsburgh's four-county standard metropolitan statistical area held 0.7 percent of the total national employment in software, compared to 7 percent, 5 percent, and 5 percent for the three leading standard metropolitan statistical areas, Los Angeles, New York, and Boston.
3. Defense spending is a critical factor in explaining high-tech growth. Defense contracts have stimulated high technology development in states such as California, Texas, and Florida (Markusen and Bloch 1985; Markusen, Hall, and Glasmeier 1986).

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