



Vacant Land in Cities: An Urban Resource

By Michael A. Pagano and Ann O'M. Bowman¹

“Vacant land remains a key competitive asset for implementing a number of economic development strategies.”

Findings

A recent survey examining vacant land and abandoned structures in 70 cities found that:

- **On average, fifteen percent of a city's land was deemed vacant.** This total includes widely varying types of land, ranging from undisturbed open space to abandoned, contaminated brownfields.
- **Cities in the South tended to have the most vacant land while cities in the Northeast had the least.** Cities in the South reported the highest proportion of vacant land (19.3 percent of total land area). On average, cities in the Northeast reported the lowest amount of vacant land (9.6 percent).
- **Cities in the Sunbelt, experiencing high levels of growth in population and land area, reported high levels of vacant land.** For example, between 1980 and 1995, Phoenix grew its population by 55 percent and its land area by 30 percent; it reported 43 percent of its land as vacant. Similar cities include Charlotte and San Antonio.
- **Cities with low proportions of vacant land tended to have high numbers of abandoned structures.** The Northeast region, with the lowest reported percentage of vacant land, reported the highest number of abandoned structures (7.47 per 1000 inhabitants).

I. Introduction

The reuse of vacant land and abandoned structures can represent an opportunity for the economic growth and recovery of a diverse range of urban areas. For a city rapidly growing in population with the ability to expand political borders, like Charlotte, or for a city with fixed boundaries that is losing population, like Philadelphia, vacant land remains a key competitive asset for implementing a number of economic development strategies: creating

jobs, increasing tax revenue, improving transportation infrastructure, and attracting residents.² For those working on smart growth issues, the strategic reuse of urban vacant land and abandoned structures can represent a key opportunity for encouraging greater density and reducing the push to develop suburban greenfields.

While a great deal of evidence from real estate developers points to increased demand for urban industrial, commercial and residen-

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tial development, tracts of land that seem ripe for new uses remain undeveloped. It's not that cities have failed to do anything to deal with vacant property. In fact, many cities, regardless of size and geographic location, expend tremendous resources trying to "abate" public nuisances associated with vacant and abandoned properties. However, this attention to regulating and managing vacant land has often resulted in short-term fixes rather than long-term solutions.³

No one really knows the depth of this resource. It still remains unclear how much urban vacant land or how many abandoned structures exist in U.S. cities, as there have been no comprehensive, systematic studies assessing these conditions in more than a quarter century. Consequently, recent national data on the amount of vacant land and on the number of abandoned structures do not exist.⁴

This survey was designed to inform urban practitioners and scholars about the supply of vacant land and to help jump-start a conversation about the potential of vacant land and abandoned structures to serve as social and economic assets for cities. It examined cities with varying densities and population growth patterns, and used new data to estimate the amount of vacant land and abandoned structures in U.S. cities. The survey also identified conditions of vacant and abandoned property in these cities. This survey will hopefully serve as a base for further quantitative studies examining the amount and location of both of these resources.

II. Definitions and Methodology

No formal or standardized definition of vacant land exists. The U.S. Bureau of the Census does not collect data on the use of land. Census data contains information only on vacant residential structures; the Census has no data on vacant land (as opposed to buildings) and no data on non-residential structures. The Census also does not measure abandonment.

However, the common designation of vacant land often refers to many different types of unutilized or underutilized parcels - perimeter agricultural or uncultivated land; recently razed land; derelict land; land with abandoned buildings and structures; brownfields; greenfields. This broad and varied definition often makes it difficult for researchers or government officials to measure the amount of vacant land accurately. Vacant land is not necessarily damaged land. It can be small or irregularly shaped parcels left over from earlier development. It can be parcels with physical limitations, virtually unbuildable due to steep slope or flood hazard. Land in temporary use (e.g., storage, pasture) is also often considered.

There is also no standardized definition of abandoned structures and the definitions imposed by municipalities vary greatly. For example, some cities contend that a structure is abandoned (and therefore presents an "imminent danger" to the community or threatens the city's "health and safety") if it has been unoccupied for 60 days; others use 120 days or longer as the threshold. In addition, much of the difficulty in obtaining an accurate count of abandoned structures resides in the rapid turnover of properties and the city's administrative capacity to count - - and therefore to know about -- abandoned structures. Finally, a lack of reliable, comprehensive local data often translates into inconsistent defi-

nitions, with the same kinds of structures being considered abandoned in one city and not in another.

To gather information about vacant land and abandoned structures, a survey was mailed to city officials (typically, but not always, a planning director) in U.S. cities with populations of 100,000 or more. To minimize the likelihood of definitional disparities, a definition of vacant land was printed on the questionnaire. It read: "*Vacant land includes not only publicly-owned and privately-owned unused or abandoned land or land that once had structures on it, but also the land that supports structures that have been abandoned, derelict, boarded up, partially destroyed, or razed.*" No definition was provided for abandoned structures. In the survey, city officials were asked to estimate the amount of usable vacant land (thus excluding undevelopable land such as streets, rights of way, submerged land, wetlands, etc.) within their corporate boundaries. The survey asked respondents to estimate the number of abandoned structures in the city; it did not request a disaggregation of abandoned structures by use (i.e., single-family residential, multi-family residential, commercial, industrial), nor the square footage of the abandoned structures.

Follow-up conversations with planners who responded to the survey suggested that some definitional variation remained. Part of the variation resulted from respondents' interpretation of the definition (e.g., does "unused" include "under-used?"); part was due to constraints in state law (e.g., the ease with which land usage could be changed). Thus, Phoenix and Jacksonville, two cities with large land areas, reported different amounts of vacant land but the difference was magnified because of the cities' interpretations of the phrase "usable vacant land." In Phoenix, some land zoned for

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agricultural use was considered vacant (because on these parcels crop-growing is a temporary use); in Jacksonville, much agricultural land was not considered vacant (because state law makes it more difficult to convert agricultural land to other uses).

Surveys were received in 1998 from 99 cities (a response rate of 50.3 percent), 16 of which were unable to provide data on either vacant land or abandoned structures, but responded to other questions. Of the 83 remaining cities, 70 provided data on vacant land and 60 on abandoned structures. The location of the 99 responding cities closely mirrors the universe of U.S. cities with populations of 100,000 or more: 38.4 percent of the respondents were from the Western Census region (compared to 34.6 percent in the universe); 32.3 percent were from the Southern region (34.1 percent in the universe); 18.2 percent were from the Midwest (19.8 percent in universe); and 11.1 percent were from the Northeast (11.5 percent in universe). Revisions to the survey data were made as better and more accurate information became available (e.g., a few cities initially responded with out-dated information, which was later revised for this survey).

III. Findings

A. On Average, Fifteen Percent of a City's Land Was Deemed Vacant.

Table 1 lists all of the cities that provided data on vacant land and/or abandoned structures by region. On average, less than one-sixth of a city's land area was vacant land (15.4 percent).⁵ This total includes widely varying types of land, ranging from undisturbed open space to abandoned, contaminated brownfields. This average amount of vacant land is at similar levels to that found in cities over thirty years ago.⁶

Population size did not seem to be an indicator of the amount of vacant land in a city.⁷ Only eight of the 21 cities that provided data on vacant land with above 250,000 in population (Phoenix, Fort Worth, Mesa, Albuquerque, Nashville, Virginia Beach, Charlotte and San Antonio) reported a higher percentage of vacant land than the survey average. Those cities above 250,000 in population and reporting relatively low levels of vacant land (below 10 percent) include New York, Baton Rouge, San Jose, Atlanta, Kansas City, Louisville, Seattle, Jacksonville, Baltimore, and Cincinnati.

On average, cities had 12,367 acres of usable vacant land, although the figures varied considerably (due to a subset of cities with large amounts of vacant land: Phoenix reported approximately 128,000 acres of vacant land, Fort Worth 83,000 acres, and Nashville 82,000 acres.) The median amount of usable vacant land was a more modest 4,499 acres.

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Table 1: Amount of Vacant Land and Abandoned Structures in 83 Responding Cities by Census Region

CITY	State	Census Region	Population (1995)	City Area (acres)	Vacant Land (acres)	Vacant Land to Total Land Area	Number of Abandoned Structures Per 1000 Inhabitants
Average			346,639	64,426	12,367	15.4%	2.63
Alexandria	VA	S	117,000	10,048	60	0.6%	0.00
Amarillo	TX	S	158,000	56,730	25,528	45.0%	1.27
Atlanta	GA	S	425,000	84,480	5,895	7.0%	--
Baltimore	MD	S	675,000	53,760	1,000	1.9%	22.22
Baton Rouge	LA	S	400,000	48,000	4,480	9.3%	--
Beaumont	TX	S	114,523	54,669	--	--	4.37
Charlotte	NC	S	460,000	149,760	32,000	21.4%	2.17
Columbia	SC	S	104,000	22,818	3,052	13.4%	0.96
Durham	NC	S	167,000	57,600	8,640	15.0%	0.30
Fort Worth	TX	S	484,500	192,403	83,064	43.2%	--
Grand Prairie	TX	S	111,811	50,025	14,673	29.3%	--
Jacksonville	FL	S	711,933	485,488	16,726	3.4%	0.00
Knoxville	TN	S	167,535	62,637	--	--	0.55
Little Rock	AR	S	181,295	76,800	--	--	3.31
Louisville	KY	S	386,000	40,960	1,750	4.3%	5.70
Lubbock	TX	S	196,679	67,424	12,113	18.0%	--
Mesquite	TX	S	115,000	26,747	7,000	26.2%	0.03
Midland	TX	S	100,000	38,400	16,000	41.7%	1.50
Mobile	AL	S	206,685	101,018	--	--	9.72
Nashville	TN	S	536,360	336,000	81,948	24.4%	--
Newport News	VA	S	183,185	44,288	4,000	9.0%	0.98
Orlando	FL	S	173,122	62,733	18,000	28.7%	2.31
Pembroke Pines	FL	S	116,000	21,760	2,560	11.8%	0.01
Plano	TX	S	205,000	45,210	2,600	5.8%	0.05
San Antonio	TX	S	1,115,600	248,320	51,402	20.7%	2.69
Tallahassee	FL	S	140,643	49,542	19,756	39.9%	--
Virginia Beach	VA	S	420,000	196,480	48,000	24.4%	1.55
Albuquerque	NM	W	419,681	103,680	25,600	24.7%	0.05
Anaheim	CA	W	295,452	31,911	4,517	14.2%	0.17
Boise	ID	W	167,000	34,900	5,000	14.3%	--
Concord	CA	W	115,000	19,200	--	--	0.87
Fullerton	CA	W	122,804	14,238	532	3.7%	0.20
Garden Grove	CA	W	153,824	11,200	168	1.5%	--
Glendale	CA	W	195,623	19,584	1,540	7.9%	0.75
Hayward	CA	W	124,000	27,520	1,000	3.6%	0.60
Huntington Beach	CA	W	200,000	17,600	528	3.0%	--
Inglewood	CA	W	117,300	5,664	40	0.7%	0.04
Irvine	CA	W	127,000	27,520	11,008	40.0%	0.00
Mesa	AZ	W	364,876	78,733	27,328	34.7%	--
Moreno Valley	CA	W	133,000	32,000	12,800	40.0%	1.88
Ogden	UT	W	120,000	17,280	3,000	17.4%	0.21
Orange	CA	W	122,000	15,040	300	2.0%	0.01
Pasadena	CA	W	138,925	14,720	450	3.1%	--
Phoenix	AZ	W	1,220,000	300,160	128,000	42.6%	--
Provo	UT	W	107,000	27,456	11,455	41.7%	0.07

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CITY	State	Census Region	Population (1995)	City Area (acres)	Vacant Land (acres)	Vacant Land to Total Land Area	Number of Abandoned Structures Per 1000 Inhabitants
Reno	NV	W	160,000	39,104	600	1.5%	0.13
Salem	OR	W	120,800	29,018	1,925	6.6%	--
Salinas	CA	W	123,329	11,970	927	7.7%	0.00
Salt Lake City	UT	W	163,405	77,718	--	--	3.06
San Diego	CA	W	1,197,000	211,200	30,080	14.2%	0.17
San Jose	CA	W	873,286	113,024	8,785	7.8%	0.00
Santa Clara	CA	W	100,030	12,350	254	2.1%	0.05
Santa Clarita	CA	W	142,000	28,800	10,800	37.5%	0.13
Santa Rosa	CA	W	132,000	25,216	3,500	13.9%	0.14
Seattle	WA	W	536,000	53,800	2,000	3.7%	--
Spokane	WA	W	189,000	36,672	4,713	12.9%	--
Stockton	CA	W	236,000	35,648	11,407	32.0%	0.74
Sunnyvale	CA	W	129,250	15,360	265	1.7%	0.07
Tempe	AZ	W	158,315	25,600	1,950	7.6%	--
Vallejo	CA	W	100,000	32,960	--	--	5.00
Akron	OH	M	223,000	39,808	--	--	1.35
Aurora	IL	M	120,000	23,680	5,920	25.0%	0.17
Cincinnati	OH	M	362,040	49,280	493	1.0%	2.76
Columbus	OH	M	660,000	135,488	16,867	12.4%	1.52
Dayton	OH	M	182,005	32,640	5,773	17.7%	--
Detroit	MI	M	1,027,000	88,768	--	--	9.74
Fort Wayne	IN	M	195,680	49,056	4,480	9.1%	--
Kansas City	MO	M	442,300	203,520	12,800	6.3%	11.30
Livonia	MI	M	108,850	23,040	5,884	25.5%	0.04
Madison	WI	M	201,786	42,918	380	0.9%	0.01
Naperville	IL	M	120,000	23,040	3,000	13.0%	0.03
South Bend	IN	M	105,511	24,960	1,500	6.0%	4.74
Springfield	MO	M	150,604	46,144	7,842	17.0%	--
Bridgeport	CT	N	142,000	10,880	--	--	1.06
Erie	PA	N	108,718	51,200	1,536	3.0%	2.07
New Haven	CT	N	123,000	12,800	700	5.5%	4.26
New York	NY	N	7,400,000	205,952	20,000	9.7%	--
Philadelphia	PA	N	1,478,002	86,144	--	--	36.54
Providence	RI	N	160,728	11,840	1,776	15.0%	4.98
Stamford	CT	N	110,000	24,320	3,648	15.0%	--
Syracuse	NY	N	160,000	16,064	--	--	3.13
Worcester	MA	N	171,226	24,620	2,361	9.6%	0.29

Table 2: Percent Vacant Land by Region, 1998

Census Region	# Cities Reporting Vacant Land Data	Average Population (1995)	Average Area (acres)	Average Vacant Land (acres)	Average % of Vacant Land to Total Land Area
Cities Reporting	70	346,639	64,426	12,367	15.4
South	23	326,167	103,869	20,011	19.3
West	30	274,183	47,232	10,349	14.8
Midwest	11	240,798	59,433	5,904	12.2
Northeast	6	1,345,612	55,122	5,004	9.6

B. Cities in the South Tended to Have the Most Vacant Land While Cities in the Northeast Had the Least.

Table 2 indicates that the supply of vacant land in a city varies by region. Cities in the South reported the highest proportionate amount of vacant land (19.3 percent). Western cities reported vacant land proportions similar to the survey average (14.8 percent). Of the 25 cities that reported above average amounts of vacant land, 21 (84 percent) were located either in the South or West. Cities in the Midwest reported less vacant land than these two regions (12.2 percent) and Northeastern cities had the lowest proportionate amount of vacant land (9.6 percent). No Northeastern city reported vacant land figures higher than the survey average.

Table 2 shows that, on average, Southern cities reported a gross vacant land supply that was four times as large as that reported by cities in the Northeast (20,011 acres vs. 5,004 acres). As a proportion to total land area, the difference in reported vacant land between Southern cities and their Northeastern counterparts was a factor of two (19.3 percent vs. 9.6 percent).

Disaggregating the 70 responding cities by rate of population growth allows a closer look at the suggested regional differences. Nineteen cities (“growing cities”) increased their population by at least 50 percent between 1980 and 1995. These growing cities were predominantly found in the South and West (95 percent) and

reported nearly 4 times (22 percent versus 6 percent) more vacant land than cities that lost population during the same period.

Phoenix, an example of a growing city, grew its population by 55 percent between 1980 and 1995 and reported 43 percent of its land as vacant. Cities that lost population and reported low amounts of vacant land (predominantly found in the Northeast and Midwest) include Cincinnati (6 percent population loss and 1 percent vacant land) and Kansas City (1 percent population loss and 6 percent vacant land). Baltimore, designated by the Census as a Southern city but considered both economically and geographically a Northeastern city, lost 14 percent of its population and reported only 2 percent of its land as vacant.

Disaggregating the 70 responding cities by rate of land area growth further highlights regional differences. Sixteen cities (“expanding cities”) increased their land area by 25 percent or greater between 1980 and 1995. These expanding cities were predominantly found in the South and West (88 percent), and reported almost two and a half times the amount of vacant land (23 percent versus 9 percent) than cities with less than a two percent change during the same period.

Phoenix increased its land area between 1980 and 1995 by 30 percent. Charlotte increased its land area by 68 percent and reported 21 percent vacant land. San Antonio (27 percent increase in land area and 21 percent

vacant land) is another example of an expanding city. Cities from all four Census regions were represented among the cities reporting little or no land change. It is likely that annexation plays a central role in this outcome. And if so, then it appears that the territory being annexed adds proportionately more undeveloped land (or “raw dirt,” as it is often called) to an expanding city’s land area.

C. Cities With Low Proportions of Vacant Land Tended to Have High Numbers of Abandoned Structures.

Of the 99 responding cities, only 60 could estimate the number of abandoned structures within their borders. Table 3 summarizes the data on abandoned structures in the 60 cities (see Table 1 for a complete listing). Because cities with more people will have more structures, a standardized measure of abandoned structures was created (abandoned structures per 1000 residents). The 60 responding cities averaged over two abandoned structures per 1000 inhabitants (2.63).

The region with the lowest reported percentage of vacant land and the lowest average percent change in city land area (Northeast) reported the highest average number of abandoned structures per 1000 inhabitants (7.47). Responding cities in the West, where population growth was high, reported the lowest number of abandoned structures per 1000 inhabitants

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Table 3: Number of Abandoned Structures Per 1000 Inhabitants by Region, 1998

Region	# Cities Reporting Abandoned Property Data	Average Population (1995)	Average City Area (acres)	Average % of Vacant Land to Total Land Area	Average # of Abandoned Structures Per 1000 Inhabitants
Cities Reporting	60	282,437	61,145	14.8	2.63
Northeast	7	334,811	30,507	8.3	7.47
Midwest	10	337,049	65,450	11.3	3.16
South	20	293,844	92,811	17.1	2.98
West	23	232,833	41,063	15.7	0.62

(0.62). Northeastern cities averaged approximately 10 times the number of abandoned structures per 1,000 residents than cities in the West, and about 2 to 3 times more than cities in the South and Midwest.

However, caution should be exercised in comparing abandoned structure figures across regions. The presence of a city with an exceptionally high number of abandoned structures can skew the regional average. Philadelphia, with a reported 36.5 abandoned structures per 1,000 population, increased the Northeastern average. Baltimore, at 22.2 abandoned structures per 1,000 inhabitants, undoubtedly had a similar impact on the Southern regional average.

The cities that reported low proportions of vacant land do not necessarily report disproportionately low stocks of abandoned structures. In fact, Table 3 suggests an inverse relationship between the two situations. Thus, the presence of vacant land and the existence of abandoned structures may be separable situations calling for different policy solutions.⁸

IV. Implications: Behind the Findings

A. Many Cities Did Not Have Reliable Methods for Collecting Information on Vacant Land and Abandoned Structures.

The survey found that only 56 percent of the cities used a computerized system to track vacant land. Specifically, 44 of the 99 responding cities indicated that they could not rely on geographic information systems to track vacant land. Whether the cities that do employ GIS systems are capturing accurate and timely information is left for further exploration.

The survey also uncovered that cities often learned about their unoccupied structures in informal ways. In this survey, city officials were asked to rank-order the mechanisms they use for learning about a structure's abandonment. By far, the notification method most frequently used was "calls from neighbors," selected as one of the top three methods by 74 percent of the cities that answered this question. "Informal feedback" from city officials (68 percent) was relied upon more heavily than were regular inspections by city personnel (46 percent), such as building inspectors, health and safety officials, or fire marshals. Tax delinquency (24 percent) and health inspections, two time-honored approaches to discovering abandonments, were relied on less frequently than calls from neighbors.

In many cities, information about vacant land and abandoned structures tended to reside in a variety of city agencies with varying levels of jurisdiction, responsibility and land use powers. Especially in older cities, where vacant property was often not a significant problem when enabling legislation for local government was enacted, vacant property-related information was usually dispersed among multiple agencies which may not have a history of working in coordination.

B. The Condition of Vacant Land Varied by Region.

The questionnaire sent out to the 99 respondents listed a set of six general conditions that might describe vacant land, in addition to an "other" category. Respondents were asked to choose as many categories as applied to their vacant land situation.⁹

Overall, vacant land conditions in the 99 responding cities tended to be characterized by one or more of three fundamental conditions: the parcels were not large enough (56 percent of respondents), they were odd-shaped (45 percent), or they were in the "wrong" location (44 percent). These three characteristics individually, but especially in concert, seemed to limit the development potential of vacant land. For some cities (26 percent), the issue was temporal, that is, land stayed vacant for "too long." Twenty-eight percent identified "other" conditions,

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among which were the holding of vacant land for speculative purposes, the presence of brownfields, or the existence of infrastructure problems.

The data suggested that the size, shape, and location of vacant land were the most vexing conditions. However, these vacant land conditions did not affect cities equally. For example, vacant parcels considered too small or parcels that stayed vacant too long characterized cities in the Northeast and Midwest more than cities in the West or South. More than half of all cities in the Northeast Census region noted that land remained vacant too long, compared with only 10 percent of cities in the West. More than four in five Midwest cities reported that their vacant land parcels were not large enough for development purposes, compared with half of cities in the South and 42 percent of cities in the West. In fact, 45 percent of Northeastern cities and 38 percent of Midwestern cities listed both factors as impediments to development, compared to fewer than 10 percent of cities in the Western and Southern census regions.

V. Conclusions

The reuse of land is critical to the economic growth and recovery of older areas. For any city to take advantage of this resource, its public and private decision-makers must first know how much vacant property exists within its borders, where it exists, and the condition of its supply. Cities need to collect more reliable information. Without a reliable data base containing information about derelict property throughout a city or a formal data collecting process, a systematic response to vacant land will prove elusive. Whether a Charlotte or a Philadelphia, the successful transformation of vacant land in all cities depends on accurate, comprehensive and computerized information.

City governments are also well-

advised to look to their organizational structures to see whether changes are in order. Fragmentation of existing government and private-sector land redevelopment programs can prove to be a major stumbling block in some cities. Philadelphia, for example, found that data and administrative duplication limited the effectiveness of its land management programs.¹⁰ Thus, the city is working on the creation of a consolidated and streamlined process for collecting data and disposing of vacant land. Other cities may find, however, that a less centralized approach works better.

In major cities, the parties most involved in and affected by vacant land and abandoned structures generally have not communicated extensively with one another to compare experiences and brainstorm about ways to address vacant property management issues. Although anecdotes and “best practices” information is periodically disseminated by federal agencies and national interest groups, individuals concerned about vacant property rarely communicate on an ongoing basis about ways to systematically improve the acquisition/disposition process.¹¹ More opportunities for city-to-city communication must be created in order to gain insight into opportunities for system changes and large-scale improvement.

However, as cities communicate more with one another, they must also understand that vacant land conditions, and the opportunities and challenges that are a result of those conditions, vary greatly. This survey indicates that cities experiencing different rates of population and land area growth report different amounts of vacant land and different numbers of abandoned structures within their borders. Therefore, different questions seem to face cities across the nation. Can a city like Philadelphia assemble long vacant and too-small parcels, especially when they are not clustered in an area, into larger ones? Should a

city like Phoenix adopt “infill” policies that are different from the policies governing the disposition of large tracts of vacant land at its fringe? City governments must understand the unique circumstances of their vacant land situation and craft policy solutions that fit them.

Unfortunately, many respondents in this survey did not view the redevelopment of vacant land as any different than developing any other piece of land within their cities. While the majority of city governments have adopted a series of policies and programs aimed at managing vacant land and abandoned structures (e.g., procedures for razing abandoned structures that violate the city code; policies for unoccupied residential structures predicated on health and safety concerns; special programs to monitor illegal dumping on vacant lots, to board up unoccupied structures, and to remove graffiti from abandoned buildings), many cities also indicated that they had designed no policies for encouraging the use or reuse of city-owned vacant land and abandoned structures.

In sum, if urban areas are going to attract major development, they must recognize the need for innovative policy options for assembling and improving parcels of land and making these parcels available to responsible users. Cities need to consider a range of aggressive and entrepreneurial policies, including governance reform, foreclosure and eminent domain, state and local tax reform, urban renewal designations, special redevelopment institutions, subsidies for brownfield redevelopment, information improvements and systems development, local planning, and annexation and growth management policies.

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Endnotes

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² See Michael Hough, "Design with City Nature: An Overview of Some Issues." Rutherford H. Platt, et al. (eds.) *The Ecological City* (Amherst, MA: University of Massachusetts Press, 1994), 40-48.

³ International City/County Management Association, "CMA Abandoned Properties Concept Paper, 2000." Page 2.

⁴ The latest attempts to measure the amount of vacant land in urban areas were undertaken about 30 years ago. See, Allen D. Manvel, *Land Use in 106 Large Cities*. In *Three Land Research Studies* (Washington, DC: Prepared for the Consideration of The National Commission on Urban Problems, Research Report No. 12, 1968); John H. Niedercorn and Edward F. R. Hearle, *Recent Land-Use Trends in Forty-Eight Large American Cities* (Santa Monica, CA: The RAND Corporation, Memorandum RM-3664-1-FF, September 1963); Ray M. Northam, "Vacant Urban Land in the American City," *Land Economics* 47 (1971): 345-55.

⁵ To make meaningful comparisons across cities with different territorial sizes, total vacant land by acres was converted to a proportion of the city's total land area. This variable, the proportion of usable vacant land to total land area, provides a better indicator of the magnitude of the vacant-land situation in a given city than does the absolute "vacant-land acreage" figure.

⁶ In 1963, Niedercorn and Hearle estimated vacant land in 48 "large" cities at 20.7% of cities' land area. Manvel's 1968 study found that for 40 cities with populations greater than 250,000, the amount of undeveloped land was 12.5 percent. In this study, 21 cities with populations greater than 250,000 in population reported vacant land data and averaged 15.8 percent vacant land.

⁷ Although most of the cities' data on vacant land and abandoned structures refer to conditions as of 1997 or 1998, some provided data from earlier years. In transforming the raw data to standardized measures (i.e., vacant land as a percentage of total land area and abandoned structures per 1000 population) we chose to provide the population estimates from 1995.

⁸ Ann O'M. Bowman and Michael A. Pagano, "Transforming America's Cities: Policies and Conditions of Vacant Land," *Urban Affairs Review* 35 (March 2000): 559-581.

⁹ Those categories were the following: (1) in oversupply, (2) in undersupply, (3) vacant too long, (4) in the wrong location, (5) odd-shaped parcels, (6) not assembled in sufficiently large parcels.

¹⁰ Mark Allan Hughes, "Dirt Into Dollars: Converting vacant land into valuable development," *Brookings Review* 18 (Summer 2000): 36-39.

¹¹ John Kromer, "Vacant Property Management: Baltimore, Detroit, Philadelphia, St. Louis (Concept Paper)." Page 2.

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