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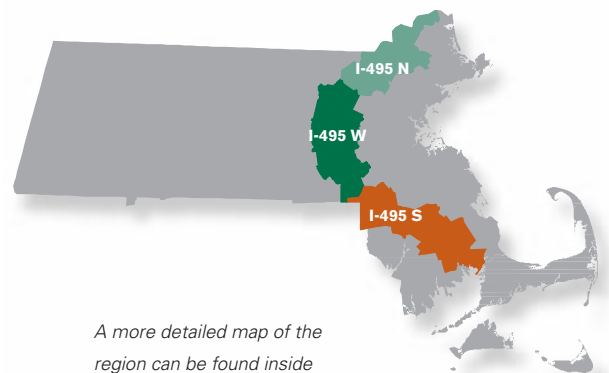
ILLUSTRATION: NAOMI SHEA

# Interstate 495 West

## *The Challenges of Change in an Information Technology Corridor*

SARAH KUHN

**U**nited in the early 1960s by the construction of Interstate 495, the communities along I-495 West now face a common challenge: responding constructively to the pressures of rapid economic growth.



A more detailed map of the region can be found inside the back cover of this journal.

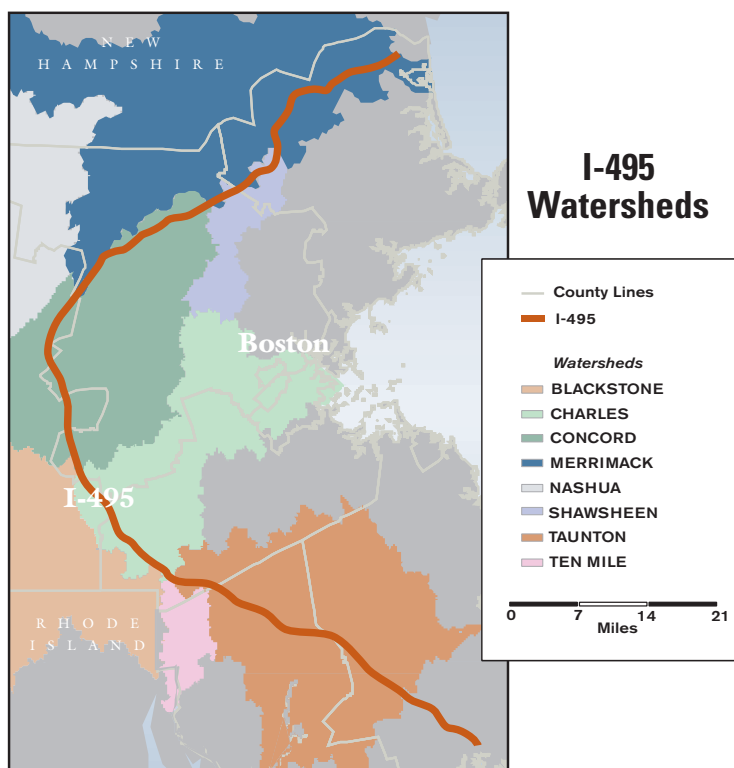
One third of the way from Worcester to Boston, the Interstate 495 West corridor arcs along the interstate between Littleton and Franklin. On both sides of this relatively uncongested superhighway, a string of attractive towns offers the appeal of a modified rural lifestyle along with access to two major urban centers. These and other qualities have made this one of the fastest growing regions of Massachusetts.

“While it clearly functions as part of the overall metro-Boston economy, it still maintains a unique character in comparison with other high-tech regions, such as Route 128 or the Silicon Valley. The I-495 Corridor is distinguished by its open space, New England town culture, and—compared to Silicon Valley in particular—its lower cost of real estate and favorable commuting patterns.”<sup>1</sup> The reputation for small-town life, access to nature, lack of congestion, more affordable housing, and decent public schools attracts new arrivals. Yet the growth these communities are experiencing, if not carefully managed, will damage the very qualities that make them so attractive.

### A Region of Edges

There is no generally accepted definition of the I-495W corridor. The one used in 1999 by the I-495 Technology Corridor Initiative/Campaign for Shared Solutions includes 25 communities that are touched by or are immediately adjacent to the interstate (see map).<sup>2</sup> The precise endpoints of the arc of towns are somewhat arbitrary, admit initiative participants, and could be subject to change; yet the boundaries selected do roughly define the midsection of Interstate 495, which straddles the Massachusetts Turnpike.

One striking feature of the I-495W corridor is how few groups have defined it as a region unto itself. In most definitions, I-495W is at the periphery. It is a region of “edges,” both natural and artificial. The path of the highway, for example, lies along the rim of a number of watersheds: the Charles River and Shawsheen watersheds to the east, the Concord watershed in the center, and the Blackstone and Nashua watersheds to the west.



To the north of the highway lies the Merrimack watershed, and to the south the Taunton and Ten Mile watersheds. The highest elevation along this stretch of 495 is in Hopkinton, which is at the conjunction of three watersheds. This area faces special challenges to development and preservation of natural resources because of its boundary-spanning position.

Some of the edges on which the corridor sits are political or administrative demarcations. From Berlin and Hudson south, I-495W communities straddle the boundary between the Metropolitan Area Planning Council (MAPC), which serves communities in the greater Boston area, and the Central Massachusetts Regional Planning Commission, which serves the greater Worcester area and south central Massachusetts. From Bolton north, communities are split between the jurisdiction of the MAPC and that of the Montachusett Regional Planning Commission. Similarly, these communities, if served at all, are served by three different transit authorities. Counties (Middlesex, Worcester, and Norfolk) and U.S. congressional districts (3, 5, and 7), too, meet at I-495W.

The Interstate ties it all together. “The highway serves as the River Nile,” says Senator David Magnani. “It’s a source of transportation, and people settle along it. It separates people and it brings them together.” That the communities of this area are coming to see their identity as linked to a highway testifies to the power of machine-made infrastructure to define and shape a region.

### The Corridor’s Economic Mix

Comparing employment by major industrial sector along I-495W with employment in Massachusetts as a whole, we find that the proportion of manufacturing employment in the region is significantly higher—nearly 24 percent as opposed to 15 percent—across the Commonwealth. Employment in services is significantly less (34 percent regionally versus 41 percent statewide). In other respects, the economy of I-495W is quite similar to that of Massachusetts overall.

## Heavy on Manufacturing

Roughly 29 percent of all manufacturing jobs in the Commonwealth are along Interstate 495, though these communities account for just 18 percent of the state's employment. I-495 North has the highest proportion of our manufacturing employment, with 12 percent, followed by I-495W (10 percent), and I-495 South (7 percent). Along Route 128, by contrast, we find about 9.5 percent of the Commonwealth's employment base and 8 percent of its manufacturing employment.

Comparing this segment of I-495 to its neighbors in the north and south, I-495W has significantly more IT industry employment than I-495 North (which has 10 percent), and vastly more than I-495 South (2 percent). Most surprising, using this definition of the IT industry, I-495W even edges out Route 128 (15 percent) for the highest proportion of IT employment.

Information technology employment is no newcomer to the region's towns. In the late 1970s, Digital Equipment Corporation, the largest of the minicomputer manufacturers, had nine Massachusetts locations. Four of them,

## Major Divisions of Employment

	MA		495 West		Route 128	
	Employment	Percent	Employment	Percent	Employment	Percent
Agriculture, Forestry, and Fishing	24,313	0.8	2,364	1.3	1,598	0.6
Mining	1,134	0.0	287	0.2	11	0.0
Construction	119,873	4.1	7,441	4.1	8,526	3.1
Manufacturing	439,842	15.1	43,073	23.6	34,796	12.6
Transportation and Public Utilities	163,991	5.6	7,871	4.3	11,897	4.3
Wholesale Trade	135,497	4.7	12,228	6.7	19,929	7.2
Retail Trade	460,644	15.9	26,621	14.6	33,195	12.0
Finance, Insurance, and Real Estate	183,845	6.3	10,581	5.8	20,166	7.3
Services	1,198,636	41.3	62,842	34.4	133,209	48.2
Public Administration	175,971	6.1	9,162	5.0	13,015	4.7
<b>Total</b>	<b>2,903,746</b>	<b>100.0</b>	<b>182,470</b>	<b>100.0</b>	<b>276,342</b>	<b>100.0</b>

Information technology employment is significant. Interestingly, the segments of I-495 that lie both north and south of this corridor have the same proportion of manufacturing employment as does the corridor itself. In services, I-495 North has roughly the same proportion of employment as does I-495W, while I-495 South has substantially less (28 percent).<sup>3</sup> Route 128, by contrast, looks more like the overall Massachusetts economy than do the I-495 communities—13 percent of jobs are in manufacturing, and a whopping 48 percent are in services.

Focusing exclusively on employment in information technology (IT) industries,<sup>4</sup> I-495W's percentage of employment is more than double that in the Commonwealth as a whole (17 percent, compared to 7 percent of all employment). Com-

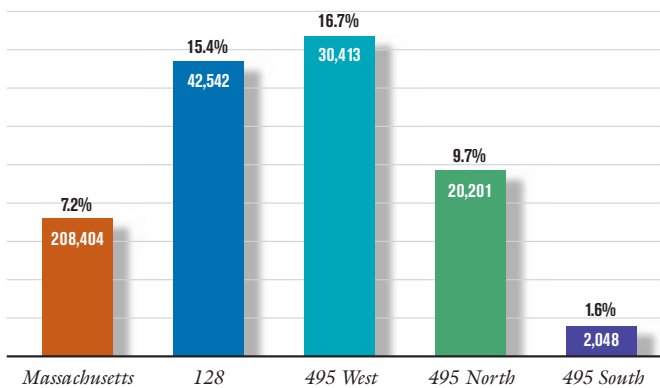
including its Maynard headquarters, were in the 495 corridor.<sup>5</sup> Other minicomputer makers also had substantial facilities in local communities. Despite the disappearance of the minicomputer industry that fueled the Massachusetts Miracle—what is left of Digital is now owned by Compaq, and Data General by EMC—I-495W has a robust economy. Indeed, it is argued that the demise of the vertically integrated minicomputer industry paved the way for renewed economic growth in eastern Massachusetts, as horizontal relationships and regional capabilities in systems integration came to the fore.<sup>6</sup>

Comparing the top 20 IT industries by employment in the I-495W corridor and on Route 128, we find noteworthy similarities and differences. IT manufacturing makes up more

than half of the IT employment along I-495W, with the computer storage device industry being the largest employer. Less than 10 percent of IT employment along Route 128 is in manufacturing. The second largest industry on I-495W, as measured by employment levels, is computer software development. By contrast, this is the largest employer on Route 128, accounting for roughly 65 percent of IT employment.

Three segments of the computer industry and “Computers, not elsewhere classified” are in the top 20 on I-495W; none of these appears in the top 20 on Route

### IT Employment as a Percentage of Total Employment, 2000



128. Though several industries appear among the top employers on both I-495W and Route 128, there is evidence to justify the claim that Route 128 has a particular strength in software and services and I-495W in hardware and communications.

#### Consequences of Growth

Rapid growth in the corridor is evident particularly in home prices, the expansion of the elementary school population, job growth, and an increase in concerns about water and traffic. Median home prices more than doubled in Berlin, Bolton, and Boxborough between 1990 and 1997 and grew by more than 25 percent in six other communities (compared to an average increase of 13 percent in the Boston area). Only in Bellingham is the median-priced home considered “affordable” to a median-income household.

The K-6 school population grew 30 percent, and the 7th and 8th grade populations by 21 percent from 1989 to 1996, while growth statewide in both age groups was only 16 percent.<sup>7</sup> Overall population in the 25 communities on I-495W grew at only about 5 percent between 1990 and 1995, indicating that the proportion of families with young children has increased significantly, straining local school budgets.<sup>8</sup>

**Work force growth better than state rates.** The number of jobs in the region increased only 6.9 percent between 1990 and 1997, slightly ahead of the 5.5 percent statewide increase. The number of workers in the I-495W corridor grew by 4.5 percent, compared to only 1.6 percent in Massachusetts; the region is experiencing substantially higher work force growth than is the Commonwealth as a whole.<sup>9</sup> The number of jobs and the number of workers are separate matters, however, since the corridor is both a place of origin for those commuting to jobs elsewhere and a destination for those from outside the area who commute to workplaces on I-495W. In 1990, at the time of the last Census, Boston was the second most popular commuting destination for workers living in four of the 25 communities in the region, and the third most popular for those from eight other communities. More recent information on commuting patterns awaits data from the 2000 census.

**Water resources tightening.** In some I-495W communities, signs of aquifer or groundwater depletion are increasing. Municipal water conservation restrictions are becoming more frequent, and increased sewer construction, combined with an increase in paved areas, reduces the extent to which local water is replenished rather than moved further downstream. A few I-495W communities are part of the Massachusetts Water Resources Authority (MWRA)—Westborough, Marlborough, Southborough, Ashland, and Framingham are all located on the Wachusett Aqueduct and get their water, sewer, or both from MWRA—but the rest are faced with providing both water and sewer locally.<sup>10</sup> Continued rapid growth could cause towns to meet or exceed the water withdrawal volume permitted by the Water Management Act.

In the corridor’s wastewater treatment plants, flow exceeded capacity during at least one month—and at the Charles River plant, five months—in 1997.<sup>11</sup> Interstate 495 may indeed be “the River Nile,” but the location of natural rivers in the region is at odds with the placement of the artificial one. This gives I-495W communities a special challenge: because they are located at the headwaters of their respective watersheds, moves to “keep water local” become particularly important to maintaining viable communities.

**With convenience comes congestion.** Traffic, too, has become a problem in some areas. Average weekday traffic volume on I-495W increased three- to fourfold between 1977 and 1997.<sup>12</sup> Traffic on local roads has also become congested in some places, and I-495W interchanges, such as those at Route 20 and Interstate 290, are often backed up at peak times. “When we moved here, this area was just fields and woods,” said a Bellingham resident. “We didn’t have all the stores or movies. On weekends now it’s impossible to move because of the traffic. It’s nice to have these

places right down the street, except when you have to get somewhere in a hurry.”<sup>13</sup>

All these symptoms—housing costs, school enrollment, job growth, and water and traffic issues—highlight the challenges facing these fast-growing communities as they struggle to preserve and enhance the quality of life in the region. Although home rule is a principle these communities hold dear, they are also finding themselves increasingly confronted with problems that are difficult for a community acting alone to solve.

### What Is the Future of the I-495W Corridor?

This is a period of decision for stakeholders in the I-495W corridor. Change is already occurring at a rapid pace and is likely to continue. The question for citizens, employers, and policymakers is “What kind of change?” Will I-495W take the conventional path, converting orchards to subdivisions and meadows to industrial parks? Vanishing open space, depleted aquifers, automotive gridlock, and suburban bedroom communities far from retail and services may be the price of allowing the status quo to prevail. Or will the I-495W communities find their way to a new model for growth—changing while maintaining—or even enhancing—the qualities that make these towns attractive places to live?

Preserving livability in the towns along I-495W will require collaborative solutions. Home rule is an important principle in these towns and deserves deference from developers and policymakers, but many goals that communities want to achieve require that they make common cause with others in this complex and interdependent world. Much infrastructure is shared, and when individual communities act in isolation, the results can be undesirable for all. This is a clear case of hanging together or hanging separately.

There is still time for the communities of the I-495W corridor to avoid falling victim to their own success. New approaches to managing growth, however, will require collaboration and creativity and the participation of the members of all stakeholder groups. Fortunately, the issue of growth management has finally reached the forefront of planning. The I-495W communities have an opportunity to shape a livable future and at the same time set an example for the nation. ▮

1. Massachusetts Technology Collaborative, “The I-495 Regional Overview,” January 1999.

2. The towns selected in January 1999 by the I-495 Technology Corridor Initiative/Campaign for Shared Solutions are Acton, Ashland, Bellingham, Berlin, Bolton, Boxborough, Framingham, Franklin, Harvard, Holliston, Hopedale, Hopkinton, Hudson, Littleton, Marlborough, Maynard, Medway, Milford, Millis, Northborough, Southborough, Stow, Sudbury, Upton, and Westborough. (Massachusetts Technology Collaborative, “The I-495 Regional Overview,” January 1999.)

3. In this study, the following towns are used to define Interstate 495 North and South: 495 North towns: Haverhill, Methuen, Boxford, North Andover, Andover, Dracut, Lawrence, Lowell, Tewksbury, Billerica, Chelmsford, Westford, Carlisle, Merrimack, Amesbury; 495 South towns: Wrentham, Foxboro, Plainville, Mansfield, North Attleboro, Attleboro, Norton, Taunton, Raynham, Bridgewater, Middleboro, Lakeville, Carver, Rochester, Wareham.

4. Craig Moore, *Information Technology, The New Foundation* (Amherst, MA: University of Massachusetts Donahue Institute, 1999).

5. Sarah Kuhn, *Computer Manufacturing in New England* (Cambridge, MA: Joint Center for Urban Studies, 1982).

6. Michael Best, *The New Competitive Advantage: Technology Management and Regional Growth Dynamics* (Oxford: Oxford University Press, 2000).

7. See note 1 above.

8. MTC/MAPC “Water and Sewer Task Force” (I-495 Technology Corridor Initiative/Campaign for Shared Solutions. Data include Norfolk and Wrentham.

9. See note 1 above.

10. *Boston Globe*, “H<sub>2</sub>O Aplenty, but...” May 14, 2000, p. 1W.

11. See note 8 above.

12. MTC “Transportation Task Force Data Supplement,” January 1999.

13. *Boston Globe*, “Bellingham Strives to Balance Growth’s Pros and Cons,” January 9, 1999, p. G1.

All chart data used in this study are from iMarket, Inc.

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# The 495 Corridor

