

## Logistics Network Analysis: Following the Numbers Out the Window An Easy Fix for a Serious Deficiency

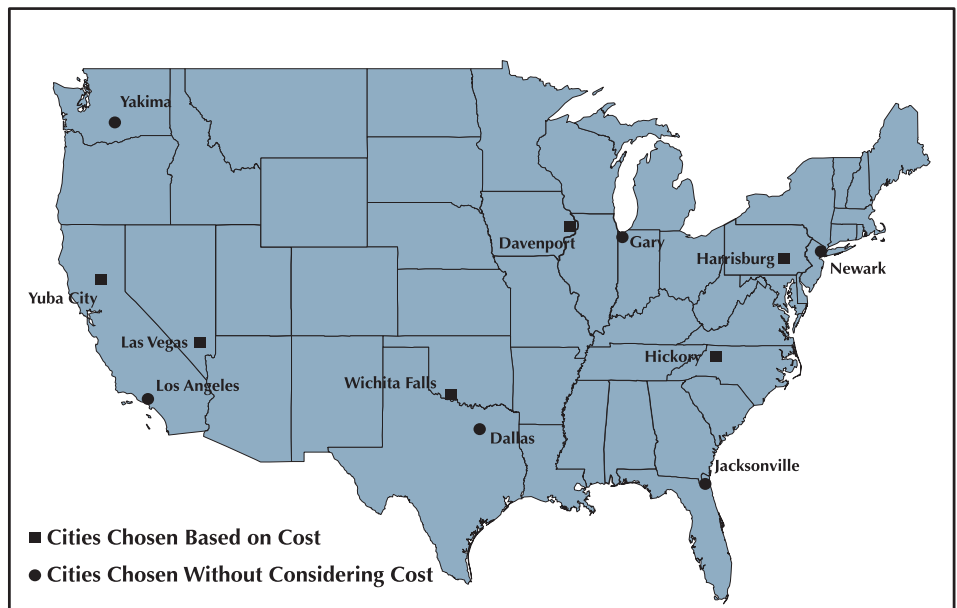
You've seen the analysis published annually by one of the logistics consulting firms...the one that shows the best location for distribution centers if your objective is minimizing the distance to every person in the continental US. The research identifies the "best" locations for a single DC, a two-DC network, and so forth, up to 10 DC's.

As an "attention grabber" this research is pretty effective, but it ignores two critical facts:

1. Transportation costs are not directly correlated with distance
2. Transportation costs are only one element of total logistics cost

The Walker Companies have developed a fast, inexpensive

*Continued on page 6*



## If Presidential Elections Were Held This Way, Jimmy Hoffa Would be in the Oval Office

### Casting Ballots in the Comfort of Your Own Home

Labor union membership has been in a long slide that began in the late 70's. Total union membership among private sector employers has fallen sharply, while public sector membership has held relatively steady. But as a share of the workforce, both have fallen.

As if this trend wasn't bad enough, unions struggle with falling certification election activity as well, a trend begun in the late 90's and which

continues to this day. Decertification elections as a share of total election activity have risen, yet another sign of the erosion of union influence.

Far be it from organized labor to pack up its tent and steal away into the night. On the contrary. The United Autoworkers (UAW) have sprung the "neutrality agreement" and its "good corporate citizen

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## Baby, Oh Baby . . . We Need More Babies!

Overpopulation? . . . Overblown!

**W**orried that the world is becoming overpopulated? Think again. Despite suburban sprawl, congested interstate highways, and long check out lines in the grocery store, the U.S. birthrate has been declining since 1957—from 3.7 births per woman to just under 2.1 births, the rate required to maintain a level population.

Declining birth rates are not just a United States trend. It's happening globally as well—in Europe, the Middle East, India, Japan, even in China. The United Nations reports that 61 nations (approximately 44% of the world's population) now have fertility rates that fall below population replacement levels.

### Reasons for Declining Birth Rates in the U.S.

According to Phillip Longman, author of numerous books on demographics (including his latest—*The Empty Cradle: How Falling Birthrates Threaten World Prosperity and What to do About It*), birthrates are declining wherever there is rapid urbanization, women have good educational opportunities, and there is a culture with visions of urban affluence.

Longman cites the rising cost of child rearing as the major child-bearing deterrent. With each new generation, society's standards rise for what parents must contribute to their child's development. The Department of Agriculture estimates that the direct cost of raising a child to age 18 exceeds \$200,000—not including college expenses. The additional cost in forgone parental

earning potential can easily top \$1 million.

In 1955, the median American family with one wage earner paid 17.3% in income taxes; by 1998, it paid 37.6% for one wage earner, 39% for two. In addition, parents pay the same Social Security taxes as non-parents and produce the children that will (theoretically) secure Social Security's future.

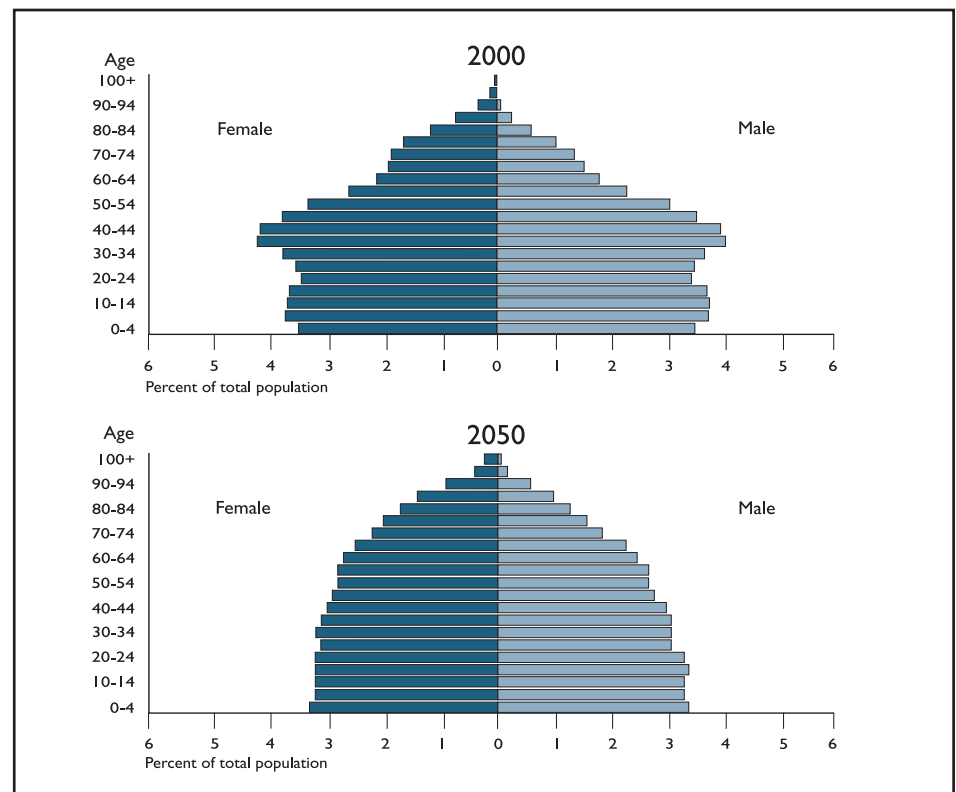
Longman predicts that “we are headed toward a future in which only rich people will be able to afford to raise and educate a child, and rich people, generally, are not much interested in the work. If they were, they would not be rich.”

**“Depopulation” + Population Aging = Economic Imbalance**

If there are fewer babies being born and life expectancies are increasing, it means there will be a large “bubble” of older people over time. Once fertility falls below replacement levels, working-age population declines, and the number of dependent elderly increases. In 1950, 8.2% of Americans were age 65 or older. This figure now stands at 12.6%; and by 2030, 20% of Americans are expected to be age 65 or older. Bye-bye Social Security as we now know it.

Some of the negative effects population aging may have on the U.S. economy include:

1. **Increased costs for federal and state programs, particularly Social Security, Medicare and**



**Medicaid.** Inflation adjusted medicare expenditures rose from \$35 billion in 1970 to \$213 billion in 1999. The number of enrollees in the same timeframe doubled, but expenditures per enrollee quadrupled.

**2. Depressed growth of government revenues.** Population growth is a major engine of economic growth. More people create more demand for products. A decline in the number of workers implies a decline in an economy's growth potential.

**3. Decline in physical fitness.**

While raising the retirement age has been suggested as a solution for both the first two problems, declining fitness among the elderly makes this a less-feasible option. Longer life spans coupled with dramatic increases in obesity and sedentary lifestyles have

caused increases in disability rates, in turn causing a 10-20 % increase in the demand for nursing home care.

**4. Impaired military readiness.** The cost of pensions and health care consume an ever-increasing amount of the nation's wealth. As the labor force downsizes, so will tax revenues, making it more difficult for Washington to sustain current levels of military spending. Within the military itself, the Pentagon currently spends 84 cents on pensions for every dollar it spends on basic pay.

**5. Decrease in foreign aid.** Budget strains domestically will most certainly lead to cuts in foreign aid spending.

How can the United States curb the declining birth rate and the residual effects of population aging? The answer may lie in the political

arena. Longman points out that in the 2000 presidential election, in the states where President Bush won a popular majority, the average woman bears 2.11 children in her lifetime—enough to replace the population. In states where Gore won a majority of votes in 2000, the average woman bears 1.89 children—insufficient to avoid population decline. Perhaps President Bush's reelection in 2004 will ensure four more years of active business in the nation's maternity wards, keeping the "depopulation" problem at bay. *(Editors note: the article in this issue of The Industrial Outlook entitled "Move Over Jesse" documents a similar trend in the Bush vs. Kerry election. In counties won by Bush, the average population growth rate over the period 2000-2003 was 4.5%, compared to only 1.9% in counties won by Kerry).* □

## Less Than Truckload – More Than Anticipated

LTL carriers put the pedal to the metal in '04

2004 was a rebound year for the less-than-truckload (LTL) industry after two dismal decades marked by weakening volumes, lost market share, and multiple LTL company bankruptcies.

LTL carriers, which handle the distribution of multiple shipments from several customers on a single truck, accounts for 7% (approximately \$26 billion) of total intercity freight revenues in the U.S.

What sparked the resurgence in the LTL industry in 2004? According to Raymond James and Associates there were three clear-cut catalysts for LTL revival:

1. A dramatic shakeout and consolidation of industry capacity over the past few years. Specifically cited was the bankruptcy of Consolidated Freightways.

LTL Industry Snapshot	
Top 10 Carriers and Revenues (in millions)	
Company	LTL Revenues – 2003
Yellow-Roadway	\$6,005
FedEx Corp.	\$2,495
Con-Way Group	\$2,213
USF Corp.	\$1,899
Overnite	\$1,406
ABF	\$1,370
Watkins	\$871
Estes Express	\$865
SCS Transport	\$827
Old Dominion	\$668

2. The new federally mandated Hours of Service (HOS) rules, making it advantageous for many multi-stop truckload shipments to return to the LTL networks. The HOS rules have effectively stopped the use of truckload carriers willing to provide LTL services.

3. Along with stronger economic growth, there is a continuing trend for producers and distributors to carry lower inventories, thereby increasing their reliance on LTL carriers for replenishment and in-filling.

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## Move Over Jesse

### Kerry has his own Rainbow Coalition

John Kerry's propensity to take five sides on every issue has been discussed *ad nauseum* in the press. While it may have been his undoing in November, he appears to have achieved some measure of success cultivating support in a few surprisingly diverse groups. His own "Rainbow Coalition" is concentrated along geo-demographic lines, judging by the Red-versus-Blue mapping analysis adopted by the mainstream media.

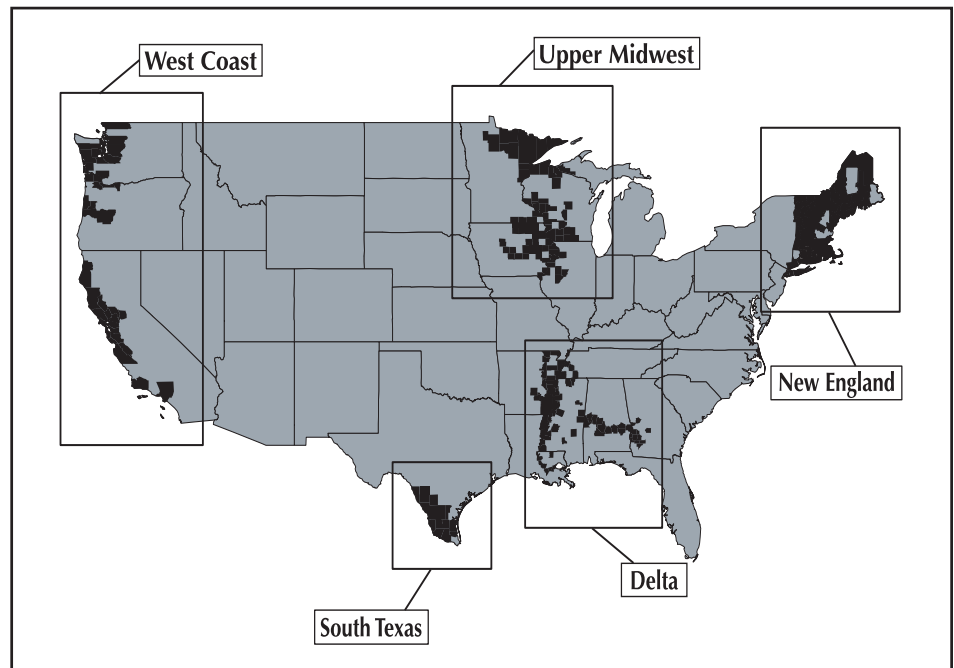
Deeper examination of the demographic information underlying this now-famous map shows surprising diversity in the regions that supported Kerry. The accompanying table shows data extracted from WISER<sup>sm</sup>, The Walker Companies site selection optimization model. For each region shown in the map, county-level data have been aggregated by region and averaged (using the appropriate weights) to arrive at

a comparison of population characteristics in each area. For comparison purposes, these data are contrasted to the national average (for the continental US) of all counties that were carried by Bush or Kerry.

Over the period 2000-2003, the counties carried by Bush have an aggregate population growth rate of

4.5%, versus only 1.9% growth in the Kerry counties. Other significant differences in the national data can be seen in income levels, which are lower for Bush. So much for the theory that only rich Republicans supported the President.

Kerry clearly enjoyed strong support from organized labor.



	Kerry Clusters					Continental US	
	New England	Delta	Upper Midwest	South Texas	West Coast	Kerry	Bush
Population Growth 2000-2003	1.5%	-1.1%	1.3%	9.5%	3.1%	1.9%	4.5%
Median Age	36.5	33.5	36.2	27.7	34.1	35.4	35.9
Per Capita Income	\$24,458	\$16,357	\$19,975	\$9,580	\$23,832	\$22,642	\$19,767
Median Household Income	\$47,834	\$31,351	\$39,985	\$24,509	\$48,896	\$44,743	\$32,763
Union Win %	54.2%	49.6%	49.9%	64.3%	52.4%	49.7%	43.8%
White	65.1%	42.8%	90.8%	9.1%	49.9%	60.9%	76.7%
Black	12.1%	53.1%	3.1%	0.4%	7.0%	16.1%	8.5%
Hispanic	14.6%	1.9%	2.6%	89.8%	26.7%	14.3%	10.4%
College %	30.1%	19.8%	23.5%	12.1%	29.9%	28.0%	21.4%
High School %	80.3%	73.6%	86.4%	50.3%	79.3%	80.8%	80.2%

Over the period 1990-2004, labor unions won 49.7% of all certification elections held in counties that were carried by Kerry, while winning only 43.8% of the elections held in Bush country.

Minorities were also big Kerry supporters. Thirty percent of the population in Kerry counties is Black or Hispanic, compared to only 19% in Bush counties.

Examination of these data on a regional basis shows remarkable diversity between the clusters of counties won by Kerry. For example, in the New England counties carried by Kerry, the population is 65% white, median household income is over \$47,800, and 30.1% of the population 25 years or older has a college degree. With the exception of greater racial diversity, the West Coast is nearly identical to New England. Compare this to the Upper Midwest, where it's nearly 91% white, only 23.5% have a college degree, and the median household income level is under \$40,000.

Even more amazing is the Mississippi Delta region and the cluster of Kerry counties in south Texas. The residents of these two regions are younger, significantly so in Texas, with very high minority populations and low educational attainment levels.

Perhaps the alignment of such diverse demographic groups behind a presidential candidate is a testament to Kerry's ability to customize his message to the population he is addressing. But it certainly undermines the Democratic party's message that it is "Moving America Forward" since these clusters are hardly representative of the nation as a whole. □

## Less – continued from page 3

Since the first two factors are structural, rather than cyclical changes in the market, analysts predict a lasting impact on LTL carriers. Industry wide, profit margins are improving significantly, with year-over-year earnings showing gains of 50% to 170% during the second quarter of 2004.

If there are any losers in the LTL recovery they are the few remaining unionized carriers who are fighting an uphill battle as they compete with the growing group of non-unionized regional LTLs. The challenges faced by unionized carriers are clear:

- Non-union workers are more flexible in their job assignments and can perform multiple tasks (driving, working the dock,

unloading freight, etc.), while unionized workers typically perform only one job function. This flexibility gives the non-unionized LTLs a competitive edge in "fast-cycle" logistics practices, offering faster transit times and guaranteed on-time delivery, particularly next-day services.

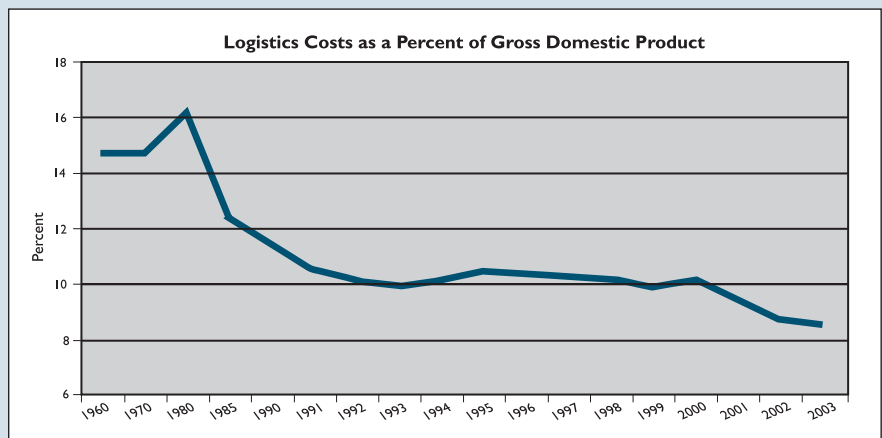
- Non-unionized carriers provide significant cost savings over unionized carriers on LTL's largest expense – wages and benefits. Wages among union and non-union carriers are comparable, but union carriers pay a whopping 40% more for benefits, due mainly to union retiree healthcare benefits and underfunded pension plan liabilities. □

## Getting Blood from a Turnip

### The continuing success in reducing logistics costs

Logistics professionals continue to bring out costs in the supply chain, according to the latest State of Logistics report, sponsored by the Council of Logistics Management. In 2003 US business logistics costs totaled \$936 billion, 8.5% of gross domestic product. After hovering around 10% for nearly a decade, logistics costs as a percent of GDP have been on a steady decline since 2001. Whether the trend will

continue in the face of rising interest rates, steel prices and fuel costs remains to be seen. Tougher security requirements, tight freight capacity and escalating insurance costs are also working against future reductions. With over 51% of total logistics costs contributed by truck transport, higher fuel costs and capacity limitations may cause an up tick in logistics expenses for all consumers, businesses and households alike. □





**Logistics** – continued from page 1

method for adding far more analytical power to the traditional network optimization study, which can shave millions of dollars from the logistics budget.

**WISER<sup>sm</sup> to the Rescue**

Network modeling tools are great at analyzing transportation cost and service levels, but they ignore many critical cost and operating environment considerations that drive profitability, for example, property and inventory tax rates, real estate costs, wage rates, labor union organizing activity, labor quality and availability, and others.

WISER<sup>sm</sup> is a site selection optimization model that analyzes these important site selection considerations. The Walker Companies have married this system with network analysis tools to dramatically improve the process of analyzing and comparing alternative network configurations.

The value can be illustrated with an example. The map on page 1 pinpoints the optimal DC deployment for a six-facility network under two differing methodologies. The cities selected without considering cost are drawn from the aforementioned study in which the sole objective is minimizing distance to the population. The cities chosen when costs are considered are derived from an analysis of transportation costs (using commercially available modeling tools) and data from WISER<sup>sm</sup> on real estate costs and wages.

In several cases, the two analyses picked locations that are fairly close to one another, for example, Dallas and Wichita Falls, Gary, IN and Davenport, IA, and Newark and Harrisburg, PA.

**The Cost of a Bad Decision**

The average distance to the population in the network configuration which ignores cost is 266 miles,

while it is 325 miles within the cost-based network. Despite being, on average, 22% farther from the population base, the network derived from a full spectrum cost-based analysis will be 21% less expensive to operate.

Table 1 presents a side-by-side comparison of a few locations that identifies where these cost savings arise. Selected data are also presented to underscore the differences between these locations considering variables that don't have a direct cost impact, but should be evaluated as part of any location decision, nonetheless (Table 2).

These data were derived from WISER<sup>sm</sup> and are based on a 400,000 sq. ft. facility on 30 acres, employing 300 workers. The investment in material handling equipment is projected at \$20 per square foot.

Lower wages in Wichita Falls are its principal cost advantage. Real estate costs and construction costs are

**Table 1**

Cost Category	Dallas	Wichita Falls	Gary	Davenport	Newark	Harrisburg
Wages	\$13,534,500	\$7,205,400	\$14,211,000	\$11,231,700	\$11,846,400	\$11,964,900
Real Estate Tax	\$179,307	\$197,306	\$257,463	\$260,145	\$556,214	\$222,259
Personal Property Tax	\$115,440	\$143,600	\$127,520	—	—	—
Electricity	\$154,821	\$190,681	\$227,816	\$183,960	\$378,222	\$180,036
Lease Cost	\$1,118,340	\$1,209,120	\$1,453,680	\$1,283,400	\$1,874,880	\$1,536,000
Total	\$15,102,408	\$8,946,107	\$16,277,479	\$12,959,205	\$14,655,716	\$13,903,195

**Table 2**

	Dallas	Wichita Falls	Gary	Davenport	Newark	Harrisburg
All Unions: Certification Elections	201	13	1,027	118	2,827	148
Union Wins	84	9	528	59	1,626	48
Union Win. %	42%	69%	51%	50%	58%	32%
Teamsters: Certification Elections	75	1	343	49	657	48
Union Wins	15	1	141	22	312	7
Union Win. %	20%	100%	41%	45%	47%	15%
Total Employment	2,341,322	72,538	1,648,259	236,405	6,604,151	632,574
Union Elections per 10,000	0.9	1.8	6.2	5.0	4.3	2.3

lower than in Dallas, but the greater development risk commands a higher capitalization rate, resulting in slightly higher occupancy costs.

Davenport exhibits lower wage rates than Gary, but enjoys the additional advantages of lower electricity and lease costs, with no personal property tax on equipment.

Harrisburg is about 5% less expensive than Newark, but shows far greater strengths and advantages in some of the non-cost comparisons shown in Table 2.

Within a 30 mile radius of Newark (the region from which the vast majority of labor will be drawn) labor unions have held over 2,800 elections during the period 1990-2004, winning 58% of them. This union win ratio is well above the national average of 44-46%, and markedly higher than in the Harrisburg area, which had only 148 elections within 30 miles during the same period.

There were 657 elections in the Newark area involving the Teamsters union, with a 47% union win ratio. The Teamsters won only 15% of the 48 elections held in the Harrisburg area.

Even allowing for the far greater employment density in the Newark

area, the region compares poorly with Harrisburg. Unions held 4.3 elections per 10,000 workers within the 30 mile radius of Newark, compared to only 2.3 in the Harrisburg area.

#### Added Depth at Much Lower Cost

WISER<sup>sm</sup> is fully populated with hundreds of variables quantifying operating costs and the operating environment for the entire United States. The model can quickly seek the optimal solution for a site selection problem based on the dual objectives of (1) minimizing capital investment and recurring operating costs, and (2) identification of the best operating environment based on labor quality and availability, labor union avoidance, proximity to critical transportation infrastructure (LTL terminals, intermodal facilities, airports, river ports, etc), quality of life considerations, and many more.

When this powerful model is married with a logistics optimization tool, the resulting analysis incorporates the full breadth and depth of relevant logistics and operating issues any company will face. And since the WISER<sup>sm</sup> model is already populated with data, analyses using this tool can be turned around very quickly, at a fraction of the cost of the typical logistics analysis. □

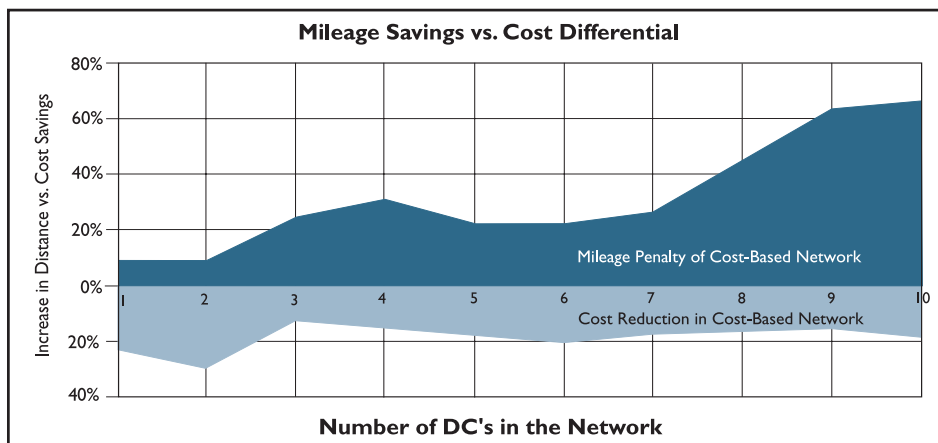
**Presidential** – *continued from page 1*  
policy” on workers and corporations to circumvent the secret ballot process.

The National Right to Work Foundation characterizes the UAW’s so-called “good corporate citizen policy” as a back door way to grease the skids for unionization by threatening suppliers to the Big Three with loss of business if the suppliers do not adopt a neutrality stance relative to unions organizing their operations. Tier One suppliers that refuse to help organize their employees face a “blackball” by their most important customers.

“Neutrality Agreements” are organized labor’s latest method for lassoing dissenting employees into unions. In these agreements, employers agree to pre-determined bargaining concessions and grant union organizers broad access to their plants. The employers also provide detailed information on employees, including home addresses. The workers are subjected to “card check” drives in which they are open to face-to-face pressure from union representatives, often after a “home visitation,” to sign union authorization cards that count as a “vote” in favor of unionization.

#### So much for the secret ballot election

Following complaints by employees at Freightliner and Dana Corporation, the National Right to Work Foundation filed suits against both companies. The complaint against Freightliner (and Daimler-Chrysler, its parent, as well as the UAW) alleges scheduled pay raises were withheld by the employer in order to coerce workers at its Gaffney, SC plant into accepting the union,



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**Presidential** – continued from page 7

despite the fact 70% of the workers opposed unionization.

The suit against Dana contends the union and company executives negotiated health benefits and other employment terms without the union having a majority of support by the employees. Dana's agreement with the UAW required the company to deny employees a secret ballot union election, and to give organizers employees' home addresses. The suit also alleges Dana and the union conspired to move employees in and out of the bargaining unit based on their support for the union.

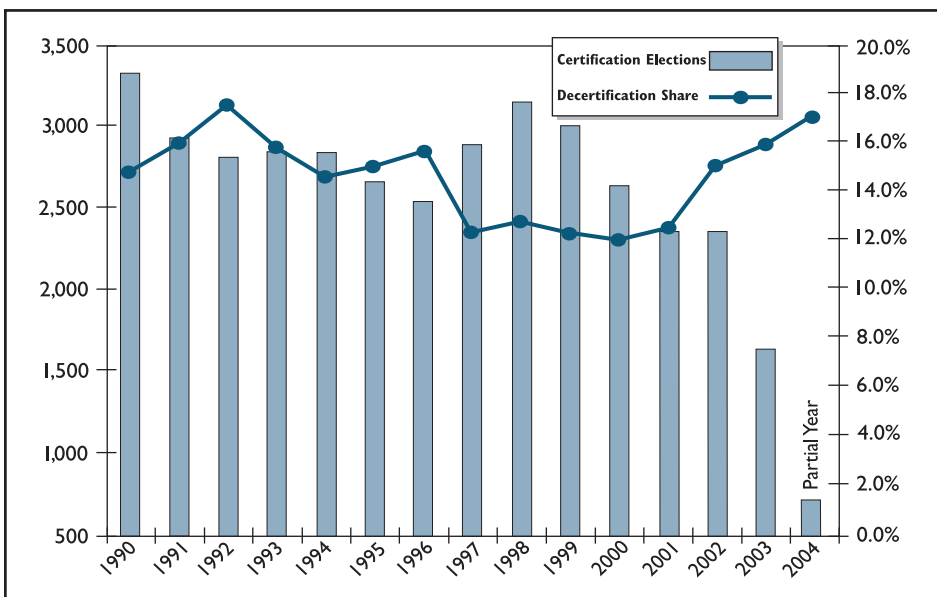
"Because employees are increasingly less likely to opt in favor of unionization when actually given a chance to vote their consciences, union organizers have resorted to harassment, bullying, and other tactics," according to Stefan Gleason, Vice President of the National Right to Work Foundation. Faced with the reality that Big Labor cannot get workers to vote for unionization through secret ballot election, union officials are trying to reshape the law so that employees facing the prospect of unionization will have to tell the 800 pound gorilla "no" to its face. □

**The Walker Companies are honored by Site Selection Magazine**

The Walker Companies have won the prestigious *Site Selection/William Dorsey Service Provider Award* for the second time in four years. The award is presented annually by Site Selection Magazine in recognition of excellence in client service, with specific emphasis on service providers that have demonstrated a strong history of innovation and delivery of tangible benefits to their clients.

Chief among the reasons for the firm's selection are:

1. The Walker Companies' track record of delivering quantifiable financial benefits to its clients, normally measuring 5-10 times it's fee, with a six month payback.
2. The groundbreaking WISER<sup>sm</sup> site selection optimization model, which has shaved months off the site selection process for distribution centers and manufacturing plants, while dramatically improving the depth and quality of location analyses. □



**THE WALKER COMPANIES** provide location consulting, real estate, and facility development services for industrial corporations throughout the United States. For additional information on our services, or to comment on our *The Industrial Outlook*, please contact:

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