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Employer Views on Traffic Congestion

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Introduction

Traffic congestion is a problem not just for individual commuters but for businesses as well. But while commuters' top concern is rush hour traffic, businesses are also concerned with the off-peak hour (non-rush hour) delivery of goods. Since businesses are concerned with congestion during both time periods, their views on traffic congestion differ from those of commuters. Solving rush hour and off-peak congestion is also more challenging than merely solving rush hour congestion.

This brief summarizes a national survey of employers' views of traffic congestion. One thousand representative employers answered a telephone survey regarding effects of traffic congestion on business practices, employee commutes, customer satisfaction and relocation prospects. These businesses represent 12.3 million U.S. employers with a total of 157 million workers.

Geographic location plays a major role in how employers view congestion. While 33% of employers view traffic congestion as a moderate or major problem, nearly half of southern employers, 53% of large employers, 52% of downtown employers near freeway exits and 71% of downtown employers on four-lane roads hold this view.

Employers encounter congestion during normal business activities. About 65% receive or ship materials, 53% require workers to drive while on the job and 51% receive customers or clients at their sites. Congestion affects employers through employee daytime business travel, shipping and receiving, worker commuting and customer contact.

Congestion also significantly affects employees. About 25% of employers and 38% of large employers note that managers regularly complain about traffic, particularly as it relates to employees' late arrival to work. Employers increasingly provide opportunities for flexible work hours, try to schedule meetings at less congested times and allow employees to work from home. Passes or subsidies for transit use are less common. Although customers also complain about traffic, employers appear to have taken few actions to address their complaints.

In order to mitigate congestion, employers suggest demand shifts, capacity improvements, the addition of signs and signals and transit improvements. In short, local traffic congestion is an increasingly important issue for employers, whose views should be considered in developing appropriate solutions.

Note

Much of the data in this brief are six years old, from April 2008, and thus pre-date the 2008 recession. Data components from this report have been presented at Transportation Research Board meetings but the full brief has never been released.¹ Fortunately, as a result of the Great Recession, today's total traffic volumes and congestion are similar to those in 2008. Business leaders' opinions may have changed slightly since 2008, but the information in this brief should still be accurate today, and the findings should continue to be relevant as the economy improves.

Method

The survey was developed based on features such as sample size, question format, delivery mechanism and length. An earlier survey of Charlotte, North Carolina employers was used as a guide in designing the survey and the sampling process.² Detailed notes on the survey design and the survey instrument are provided in the Technical Appendices.

A representative sample of 10,000 organizations (businesses and government/non-profit groups such as hospitals, governments and educational

institutions) was obtained from a national vendor of employer lists. In the final sample, 1,000 employers were interviewed. These are shown in Figure 1. The sample represented employers in the contiguous 48 states plus the District of Columbia. To ensure an equal sample representation from all employers, the planned sample of 1,000 included all types and sizes of businesses, and was stratified by employer size:

- 1–10 employees 200
- 11–40 employees 200
- 41–149 employees 200
- 150–999 employees 200
- 1,000+ employees 200

A Charlotte, North Carolina survey firm, Clark & Chase Research, Inc.,³ managed the actual survey, and organized and edited returns. Once the data were received, they were expanded by size and region to represent national distributions. The research also added summary or descriptive codes for verbal questions, summarized question responses by appropriate characteristics (size, type, location, etc.) and generated final tabulations of all survey responses. This survey also includes detailed verbal comments. As these comments are rarely gathered in transportation surveys, we use them as illustrations in the text and report them in the Appendices.

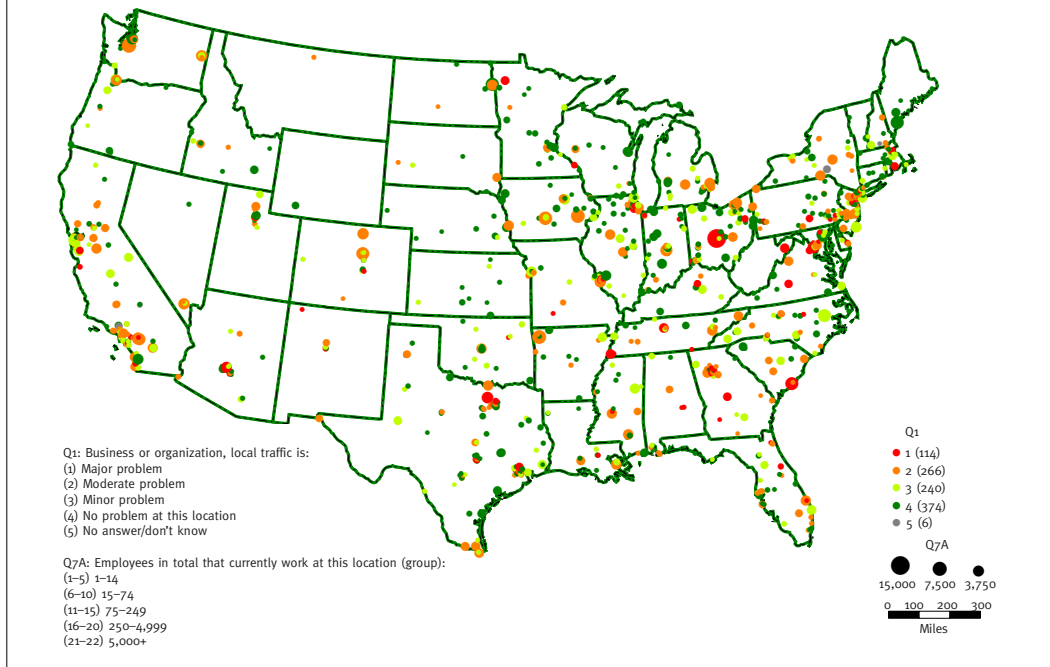
All surveys have limitations. This survey has three primary limitations:

1) *Knowledge of the issue*: This is a bigger problem at large companies. A single respondent at a large company might not be knowledgeable in all topics discussed, but a CEO at a smaller company is likely to be very familiar with local congestion issues.

2) *Perceived rather than actual causes*: Determining causal relationships is challenging. (A causal relationship is when the independent variable influences the dependent variable.) Responses generally reflect *perceived* causes of congestion, which may be different from actual causes. This means that suggested actions are not necessarily cost-effective or feasible.

3) *Response bias*: If the responders noticed that the researcher was overly concerned about congestion's negative impact on businesses, the responder may have given what he thought was the right answer rather than what he actually believed. Alternatively, respondents might view issues based on personal experience rather than corporate experience.

Figure 1: Organizations Surveyed



Results

Business Size and Location

Employer Size: In this (expanded) survey, 82% of organizations employ 10 or fewer people, but such companies employ only 19% of workers (Figures 2 and 3). Only 1.1% of organizations employ more than 150 persons, but those organizations account for about 51% of all employment.

Figure 2: Organizations by Size

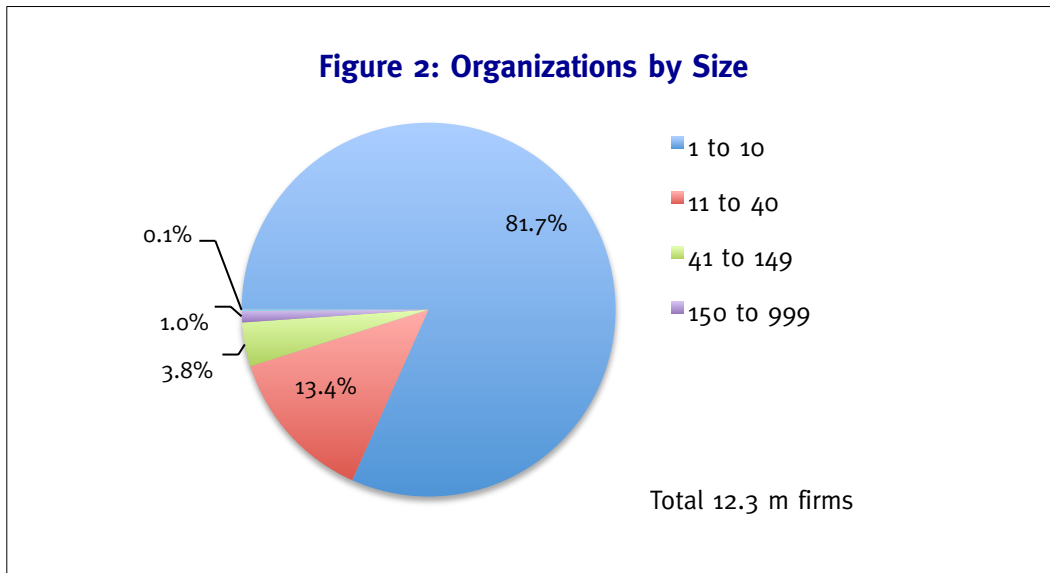
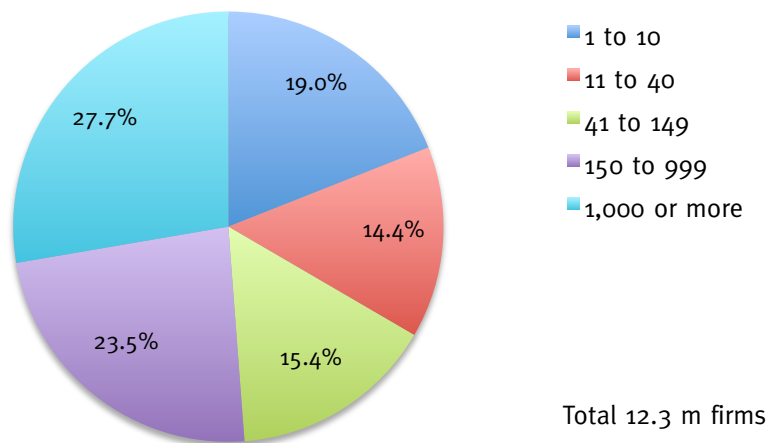
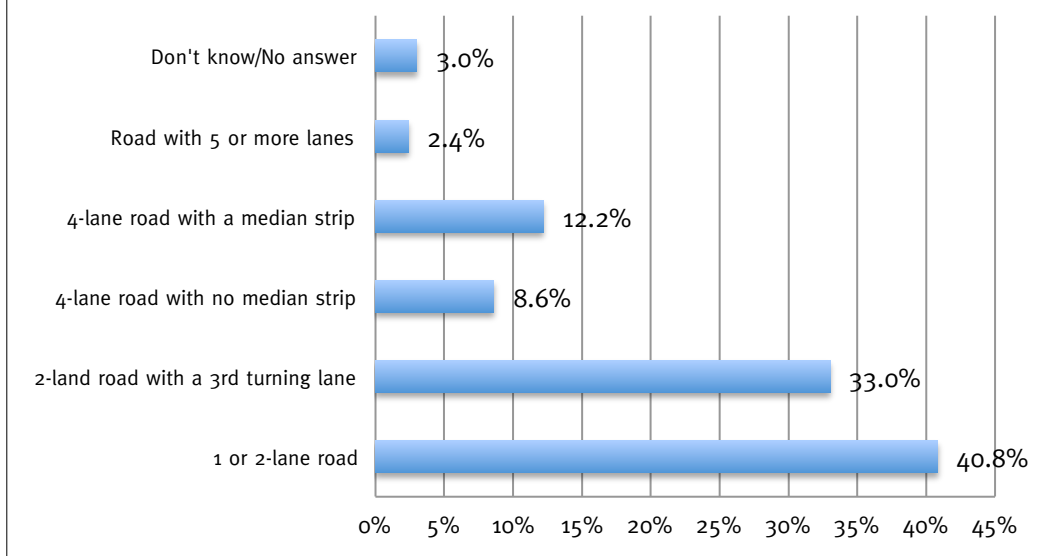


Figure 3: Employees by Organization Size

Type of Location: Responding organizations are from all contiguous U.S. states and the District of Columbia. The sample distribution is stratified to ensure responses from both large and small firms. About 19% of organizations indicated that they were located in a downtown area, 32% in the central city outside of downtown, 24% in a suburban area and 22% in a rural setting. About 65% of respondents indicated that they were located near a highway/freeway exit, 51% in an office or industrial park, 37% in a residential area, 16% in a self-contained campus, 10% in a special tax district, 6% in a mall or shopping center and 4% in a tower or skyscraper. (Respondents could choose more than one category.)

Of respondents viewing congestion as a “major” problem, about 24% were located in downtowns, 45% in central city areas outside of downtown and 21% in suburbs. Forty-six percent of “downtown” respondents viewed congestion as either major or moderate, compared to 15% of “rural” respondents.

About 41% of respondents indicated that they were located on a one- to two-lane road, and another 33% indicated they were on a two-lane road with a third turn lane (Figure 4). Only 12% indicated they were on four-lane road with a median strip, but of those indicating that traffic congestion was a major problem, 31% indicated they were on such a road.

Figure 4: Type of Road Organization is Located On (% Respondents)

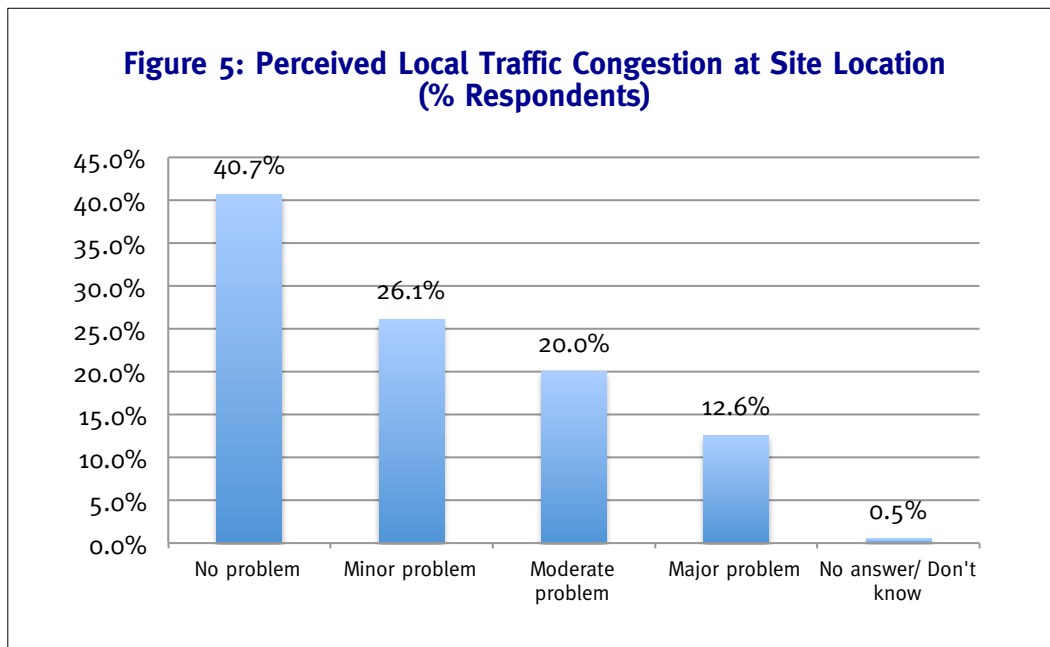
Eighty-two percent of respondents indicated that their area was in an “established development” area, 5.3% indicated it was a “new” area and 9% indicated the area was “undeveloped.” The majority of downtown locations reported being in “established” development (93.3%) compared to 68% of “rural” areas.

Forty percent of respondents indicated that their area was “growing,” 48% indicated it was “stable” and 10% indicated it was “declining with businesses moving out.”

About 45% of respondents reported they were within $\frac{1}{4}$ mile of public transit service and another 13% were within $\frac{1}{4}$ – $\frac{1}{2}$ mile. About 68% of respondents from a downtown area reported being within $\frac{1}{4}$ mile of public transportation, with only 17% being over one mile away. In contrast, only 24% of rural respondents reported being within $\frac{1}{4}$ mile of public transportation while 61% reported being over one mile away. Sixty-four percent of large firms reported being within $\frac{1}{4}$ mile of public transportation.

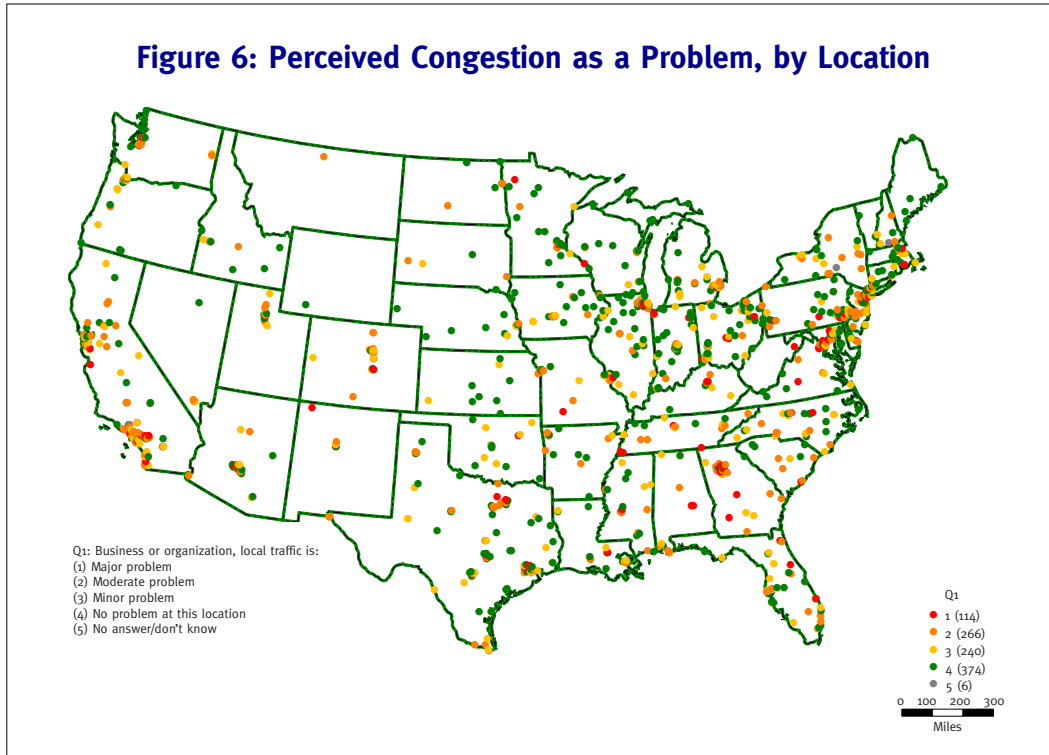
Views of Local Traffic Congestion

Since technical definitions of “congestion” vary widely by circumstances, this survey instead asked employers a perceptual question: “*For your business or organization, would you say local traffic congestion is a . . . (major, moderate, minor, or no) problem at this location?*” **Overall, about 33% of organizations think local traffic congestion is a major or moderate problem for their businesses** (Figure 5). Responses indicate that traffic congestion concerns businesses throughout the U.S. (Figure 6), but concerned businesses are clustered in the northeast corridor and growing Sunbelt cities in California, Georgia, North Carolina and Texas. Concerns are highest among CBD employers (47%) and central-city employers (38%), but suburban employers (30%) and even some rural employers (12%) also express concerns. As a region, the South has the highest percentage of businesses (42%) that view traffic congestion as a problem. Fifty-three percent of large employers (those with more than 1,000 workers) think traffic congestion is a major or moderate problem.



Employers most concerned with congestion are:

- In downtown on 4-lane roads with a median (71% concerned);
- In central city (not CBD) at/near freeway exit (52% concerned);
- In suburb in a growing area (47% concerned), and
- In downtown, on 2-lane, 5-lane, or 4-lane road with no median (41% concerned).

Figure 6: Perceived Congestion as a Problem, by Location

Site-specific characteristics can have a significant impact on employers' views of congestion. Different circumstances impact a business's view of congestion.

How Congestion Affects Employers

Congestion affects employers in several ways. Primarily, it impacts corporate activities such as shipping/receiving, logistics and distribution, client meetings and other business activities. Secondly, it limits worker availability and productivity by affecting employees' commutes.

About 65% of organizations regularly send or receive materials or products, about 53% regularly require some employees to drive as part of the job, and about 51% regularly host visits by customers or clients. These businesses are affected by traffic, either through their own activities or activities of customers using their services.

About 16% of organizations indicated that congestion's *effects on workers* were a key issue. This includes "workers arriving late" (10%), commuting hassles for workers (3.5%), "frustration/stress" (1.7%), "long work commutes" (0.8%), "long travel time" (0.2%) and "loss of personal time" (0.01%).

About 12% of organizations saw the primary problem as *site accessibility*. This includes congestion/difficulty getting around (4.1%), location accessibility (3.6%), “parking issues” (3.5%), “decrease in business due to congestion” (0.3%) and “difficulties for pedestrians” (0.1%).

About 5% of respondents viewed *street, traffic or system problems* as major issues. These include “construction” (1.2%), “accidents/incidents” (1.0%), “inconvenient roads for customers” (1.0%), “other causes of traffic” (0.6%), “safety issues” (0.6%), “poor road design” (0.3%), “traffic signals” (0.1%) and “delays on specific roads” (0.004%).

About 3% of respondents reported that congestion creates problems for *business meetings and/or operations*. This includes reductions in business (1.2%), “delays/lost time” (1.2%), “meetings and work attendance” (0.1%), “lost production time” (0.05%), “work arranged to suit traffic” (0.03%) and “productivity” (0.01%).

About 2% saw *delivery delays* as a major problem, including actual “site or route delays” (1.9%) and “long delivery times” (0.03%).

Finally, about 1.2% reported that traffic congestion created *customer problems*. This included “late arrival and delays” of customer/client (0.6%), “customer time” (0.5%), and “loss of customers” (0.1%).

Shipping and Receiving

“Traffic congestion creates delays. I would also say [it delays] getting loads to the consumers.”

—Trucking Company, MW Region, 10 employees

A significant proportion of shipments, 12%, have delays that are attributed to local traffic congestion. About 25% of respondents indicated that 6–10% of shipments are delayed, and 2.6% indicate that more than 50% of shipments are delayed (Figure 8). So although shipment delays are not pervasive, they do disproportionately affect some organizations and employers.

Figure 7: Number of Shipments per week Organization Receives/Sends from Location (% Respondents)

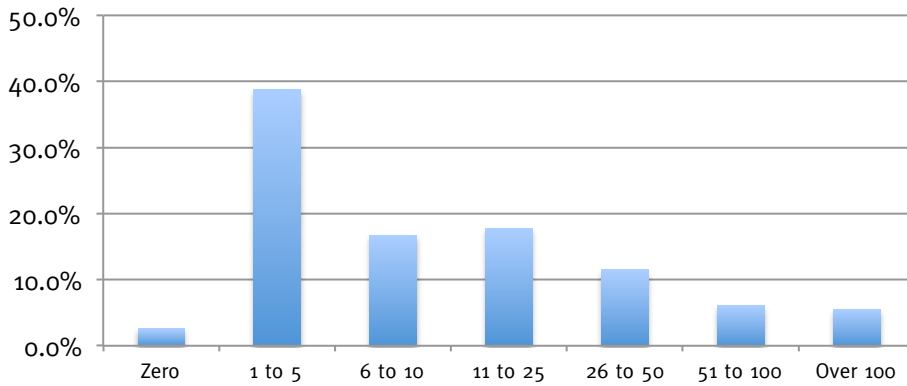
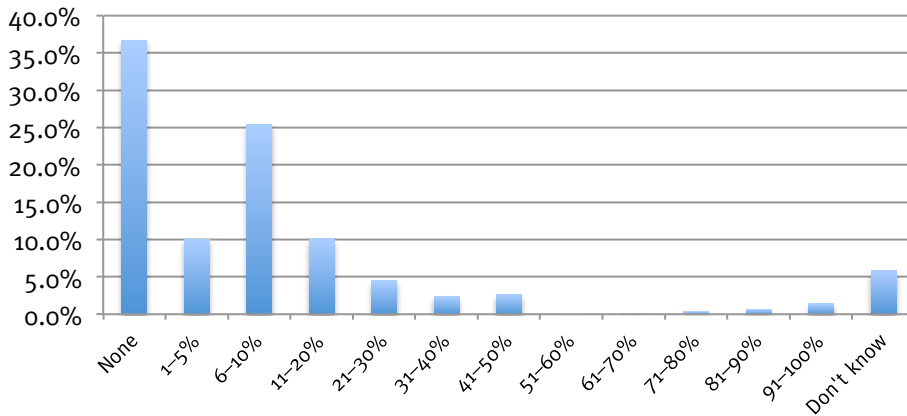
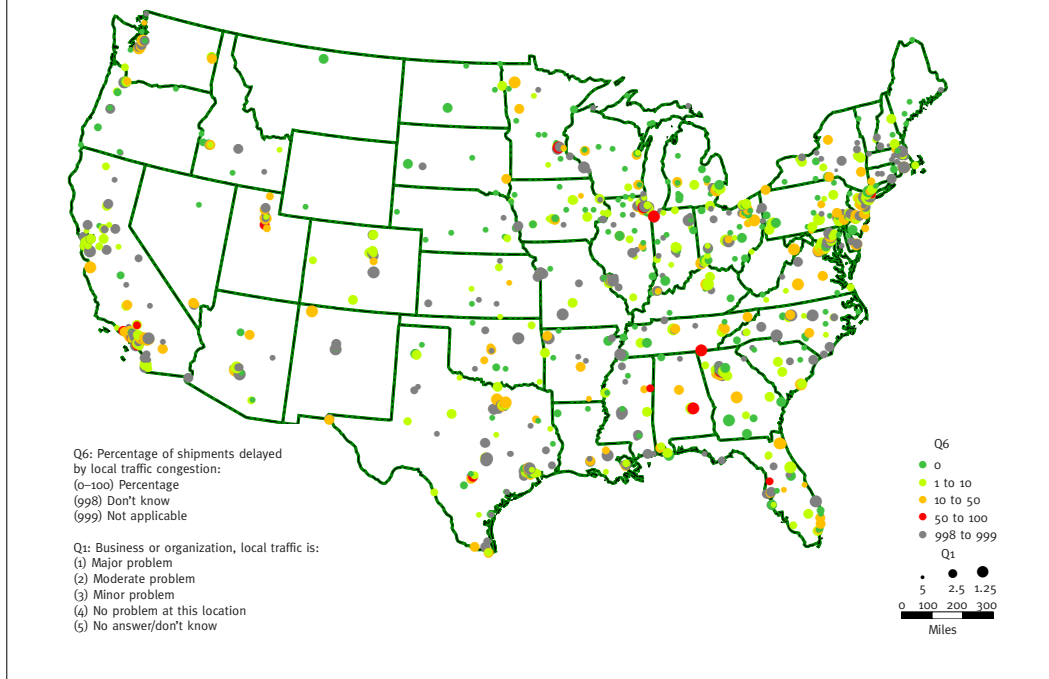


Figure 8: Percentage of Shipments Delayed by Local Traffic Congestion (% Respondents)



Shipping delays are a substantial cost to employers. If the average shipment delay is just 15 minutes, at typical labor rates for shipping firms (\$21/hour), the cost of shipping delays caused by traffic congestion (expanded from this survey) is about \$5.3 billion annually in the U.S.

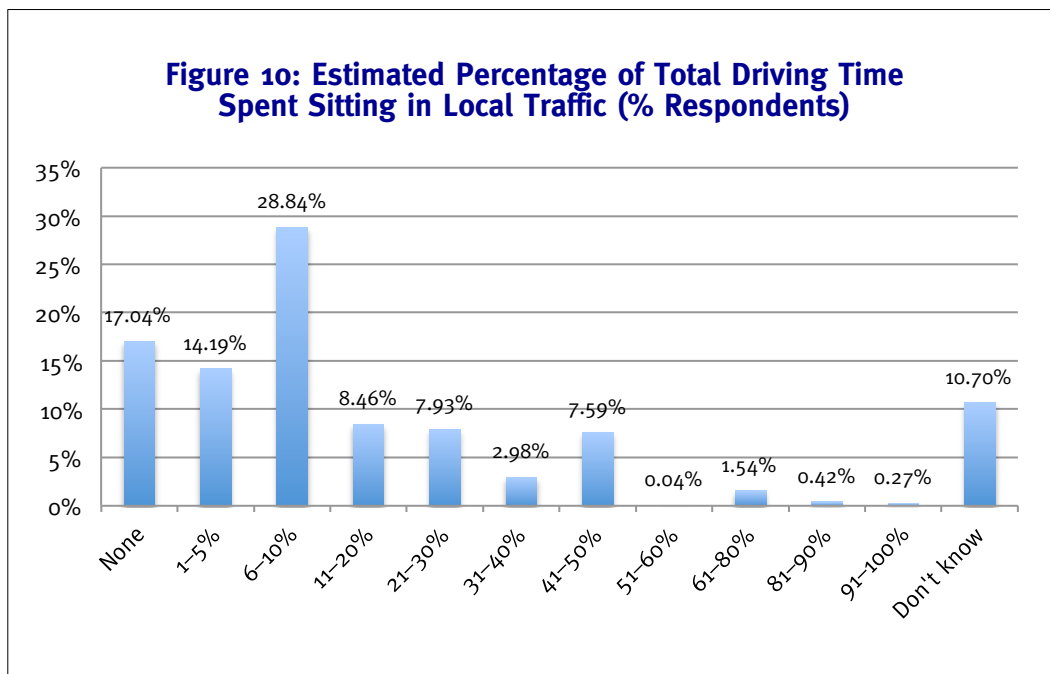
Shipment delays are not limited to only a few locations, but occur throughout the country. Figure 9 (showing both percent of shipments delayed and concern about congestion) indicates that modest shipment delays are reported by organizations in all regions of the U.S.

Figure 9: Perceptions of Shipment Delays Caused by Congestion

Business Activities

Many organizations require employees to drive regularly as part of work, to meetings with clients, sales and operational/service activities. On average, about 39% of businesses require regular driving by employees. However, the percent of workers driving varies widely. About 30% of organizations require 1–10% of workers to drive, 39% require 11–50% of workers to drive and 13% require 91–100% to drive.

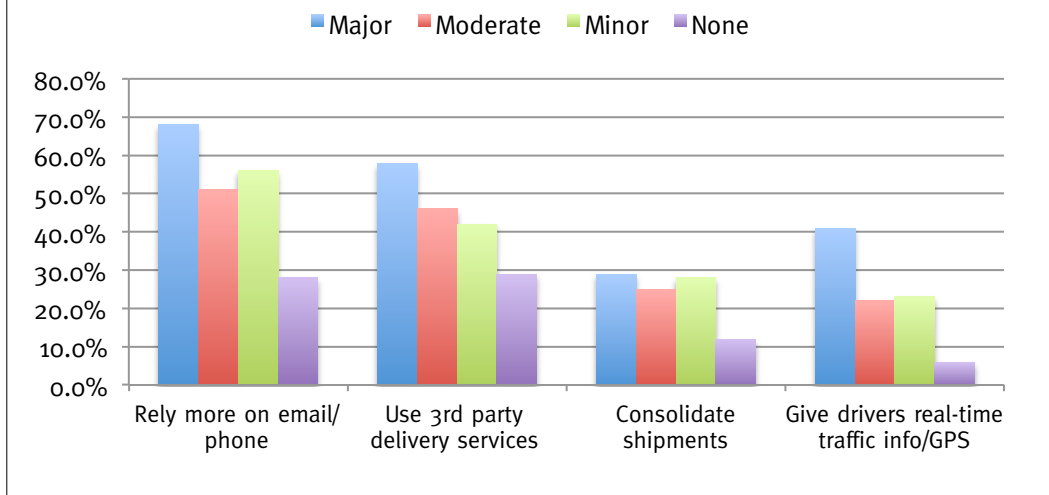
Of those employees required to drive, about 56% spend less than two hours/day driving, on average. Not all employees' driving is delayed by local congestion, but on average, about 16% of total employee business driving time is spent sitting in traffic congestion (Figure 10).



Expanding the survey results to all 157 million workers nationally, local business-related driving consumes 23.5 billion annual hours, somewhat less than the total time estimated to commute (33 billion hours annually). Businesses lose 3.81 billion annual hours (16.2%) as a result of employees sitting in traffic congestion. At \$20/hr, *the business related driving loss is about \$76 B, about equal to the value of commuting time lost due to congestion.*⁴

Employers have taken a wide range of actions to reduce the impacts of congestion on their businesses, versus the perceived severity of congestion as a problem for their organization. The most frequently mentioned actions are increased use of email and telephone (45%), use of third-party carriers (39%), consolidation of shipments (21%) and use of real-time traffic information (18%) (Figure 11). But the figure shows that some of these actions are being taken by firms with little or no perceived congestion. Therefore, the maximum effect of perceived congestion on “using 3rd party delivery parties” is about a doubling of the base level of 29% (58% - 29%).

Figure 11: Actions Taken to Reduce Impact of Traffic Congestion versus Traffic Congestion (% Respondents)

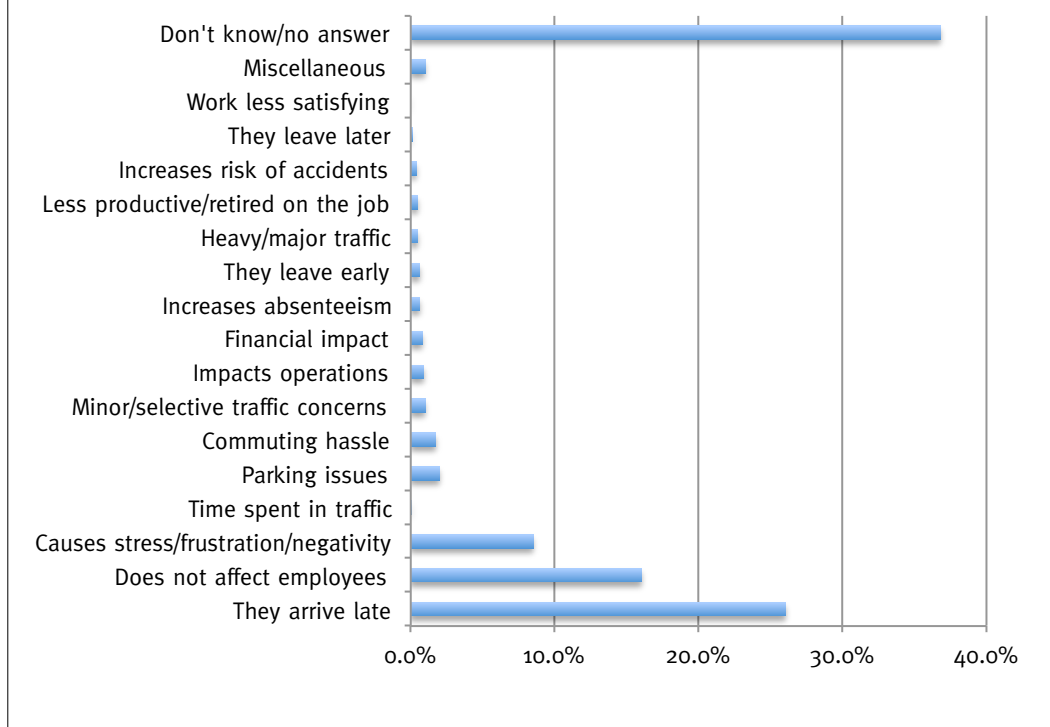


Workers

Traffic congestion is one of employees' biggest complaints. Traffic congestion affects employee arrival and work schedules and causes disruptions in productivity. Specifically, about 17% of employers indicated that workers complained about congestion "very often," 9% "often" and 34% "occasionally". Of those employers perceiving a "major" traffic congestion problem, 73% reported "very often" or "often" frequencies of employee complaints about the commute.

Traffic congestion causes employees to arrive late at work (Figure 12). Fully 26% of responding firms noted this problem. Furthermore, 38% of large firms indicated that late arrivals were the primary way traffic congestion affected employees. The next largest problem caused by congestion (behind "does not affect employees") is "stress/frustration" at 8.5%, then "time spent in traffic" at 6.8%, and "parking issues" at 2.0%. Only 4.3% of large employers (those with more than 1,000 workers) indicated that traffic congestion does not affect employees.

Employers have taken a variety of actions to reduce the impact of traffic congestion on employee commutes. The primary actions include allowing more flexible work hours (36%), scheduling meetings at less congested times (23%), letting employees work at home (15%), providing incentives for time/expenses (11%), granting passes or subsidies for transit use (10%) and relocating activities or employees (7%).

Figure 12: Ways Traffic Congestion Affects Employees

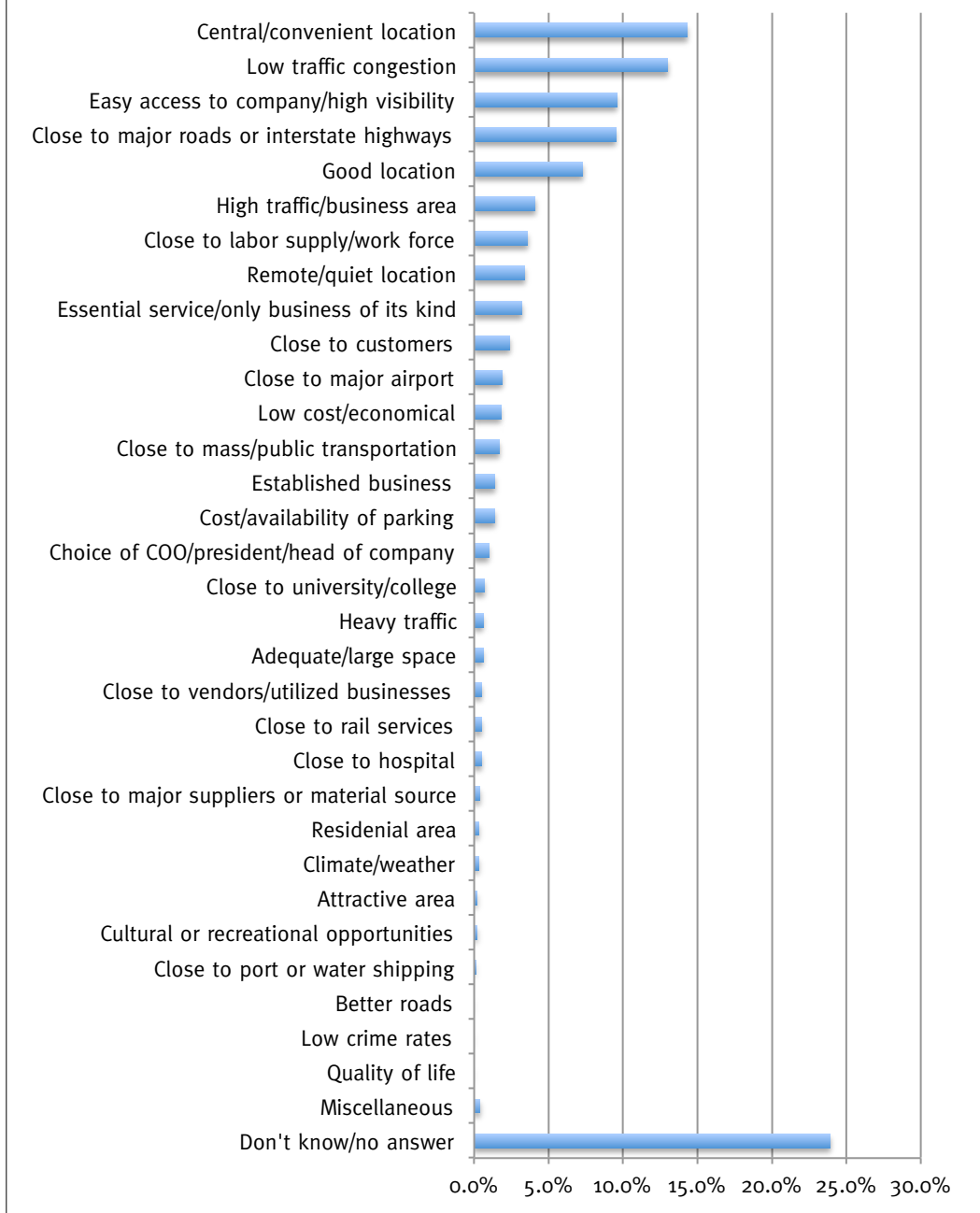
Customers

Employers also are sensitive to customer complaints of traffic congestion. About half of employers reported never hearing complaints, 32% said that they occasionally hear them, 9% said they often hear them and 7% said they very often hear them. Employers have actually taken fewer actions to assist their customers than their employees. The most frequently mentioned action is “provide on-line shopping/service,” mentioned by 21%, followed by “schedule deliveries at less congested times” mentioned by 16%.

Relocation Considerations

When asked about the primary advantages of their current locations, respondents provided a wide range of answers (Figure 13). The most frequently mentioned response was “central/convenient location” (14%), followed by “low traffic congestion” (13%), “easy access to company/high visibility” (10%), and “close to major roads or Interstate highway” (9%). Lower frequencies were noted for airport access, rail service, hospital access, university access, climate/weather and low crime rates. These responses indicate that employers view access and visibility as key positive factors in site selection, perhaps more importantly than site relocation firms realize.

Figure 13: Main Advantages of Organization Location

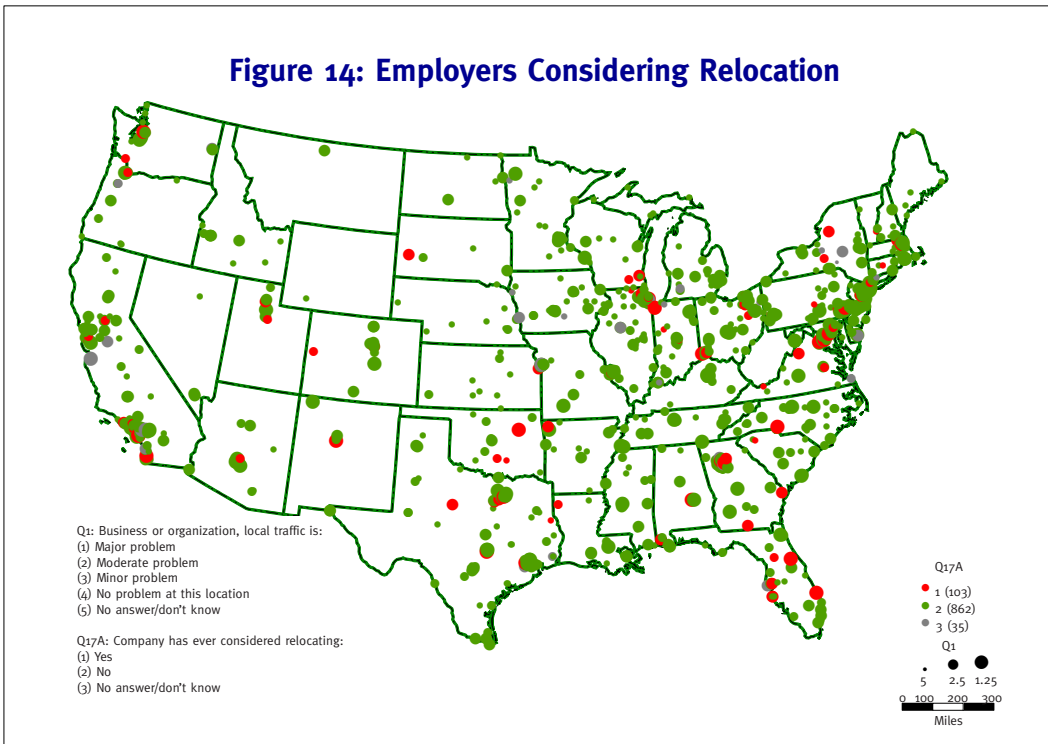


While 34% of employers in a “downtown” location gave “convenient location” as the main advantage of the current location, only 4% of those in a “rural” location agreed. In contrast, 32% of these “rural” employers indicated that the main advantage to their location was “low traffic congestion” compared to 13% in “downtown” areas. In the Northeast 7.8% of employers indicated proximity to public transportation as the main advantage, but the percent is much lower in other areas of the country (Midwest 0.3%, South 0.1%, and West 0.3%). **Only a relatively small portion of employers, about 16% overall, reported ever**

considering relocation, but this portion was considerably higher for Southern and Western employers (23% and 22% respectively), and even higher, 27%, for those who thought traffic congestion was a major problem.

Figure 14 indicates several geographic “pockets” of employers seriously considering relocation: San Francisco, Los Angeles, Dallas, Chicago, Atlanta, Maryland-PA-NJ-NY and Florida. Those employers that have most likely considered relocating are:

- Those employers who say traffic has increased and have a significant number of employees who drive for work six or more hours/day (75% considering relocation);
- Those who say traffic has increased and have 51–151 employees (25% considering relocation), and
- Those who say traffic has increased and have less than 51 employees (17% considering relocation).



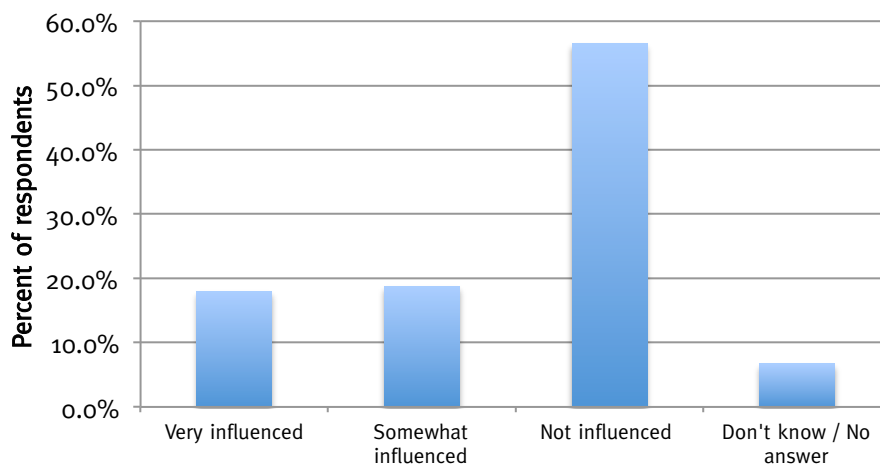
On the other hand, those employers who have not considered relocating are mostly:

- Those employers who say traffic has increased, but also have more than 2,000 employees (0%);
- Those who say traffic has increased, but whose workers drive less than one hour/day on company business (0%), and
- Those who say traffic has decreased or stayed the same in the last five years (5% considering relocation).

For most employers, congestion is not the major factor in a relocation decision; labor, taxes, crime, schools, etc., are more significant. But in conjunction with other circumstances, such as moderate firm size and high rates of employee work-related driving, *traffic congestion can be an important factor leading to a consideration to relocate. It also suggests that employers losing significant employee time in traffic are prime “relocation” candidates, particularly if they have fewer than 150 workers.*

For those employers noting that they had considered relocation, about 18% indicated that they were “very influenced” by local traffic congestion and another 19% indicated “somewhat influenced” (Figure 15). However, among those indicating that traffic congestion was a major problem, fully 38% indicated that the relocation consideration was “very influenced” by traffic congestion.

Figure 15: Consideration to Relocate Influenced by Traffic Congestion



Suggestions for Improvement

Although employers do not view dealing with traffic congestion as one of their responsibilities, they do have some suggestions for its improvement (Figure 16).

About 5% of respondents suggested some form of “demand shift,” for instance reducing the number of vehicles on the road (1.6%), offering incentives for carpooling (1.5%) or flexible work hours (0.8%), altering commute times (0.6%), limiting growth/development (0.2%), and allowing work-at-home and telecommuting (0.2%).

“I think it would be nice if the business allowed employees to work from home.”

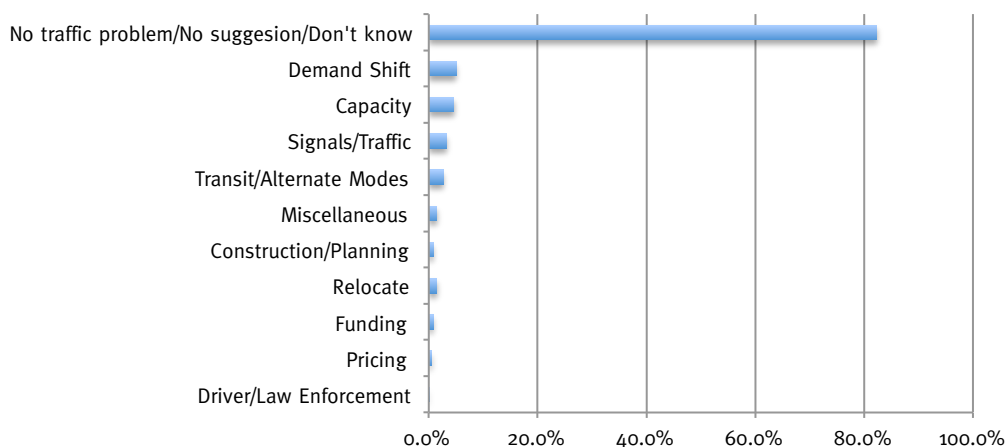
—Cabinet Manufacturing Company, NE Region, 15 employees

Another 5% of respondents suggested some form of change in “road capacity.” This includes road widening (1.3%), increased parking (1%), creating alternative routes (0.9%), adding more entrances/exits on site (0.5%), increasing lanes/turning lanes (0.4%), adding new roads (0.4%), adding new freeways (0.1%), adding exits on freeways (0.03%), building wider freeways (0.02%), and building new arterials (0.01%).

“I believe they need to put turning lights for left turns on the street and also they need to add an extra lane to the two lane road there is right now because when someone needs to turn everyone behind that vehicle has to wait till they turn.”

—School, MW Region, 90 employees

Figure 16: Suggestions for Dealing with Traffic Congestion in Organization Area



“I think if some of the roads would be a one-way certain times of the day. I think that in the morning it should go one way coming in and in the evening it should be one way going out.”

—Children’s Hospital, West Region, 2000 employees

About 3% of employers offered suggestions relating to signals or traffic. This includes new traffic lights (2.2%), signal optimization (0.2%), removal of traffic signals (0.7%) and minor improvements with no widening (0.1%). Another 3% of employers suggested transit/alternate modes options. This includes alternate modes of transportation (1.1%), improved local transit (1%), bike path suggestions (0.7%) and rapid transit-light rail (0.1%).

“I say it would be nice if there was more mass transit in this area.”

—Semiconductor Manufacturer, NE Region, 200 employees

“I think I would like to see more public transportation available. I think a light rail would be nice if it were more available.”

—University, South Region, 7000 employees

About 2% of respondents suggested miscellaneous options. About 1.5% of companies suggested construction/planning alternatives. This includes completing current construction work (0.8%), reducing or eliminating construction (0.3%), coordinating planning and growth (0.3%), planning roads to reduce/eliminate congestion (0.1%), and improving highway project scheduling (0.1%).

“They have to finish fixing the road. That is how to deal with some of the congestion.”

—Asphalt Company, MW Region, 20 employees

About 1% of respondents suggested relocation, and 0.5% suggested more funding for roads. A very small portion, about 0.1%, suggested a change in pricing such as avoiding road use charges. Finally, about 0.1% of respondents offered suggestions relating to driver/law enforcement. This includes driver restrictions (0.03%), managing school traffic (0.03%), and general law enforcement improvements (0.01%)

Recommendations

Based on the impacts of traffic congestion on employers, this study recommends several actions. Firstly, there is little research on congestion's effect on businesses during off-peak hours; off-peak congestion causes and solutions should be studied in depth. Further study of rush hour traffic's effect on businesses is also vital. Secondly, businesses should work with transportation professionals to implement short and long-term solutions. Businesses can work through chambers of commerce or business groups, or join a specialized group focused on business congestion. Finally, policymakers should examine the tradeoffs of creating specific programs and providing more funding to remediate congestion. Potential solutions include new freeways, new arterial roads, road widenings that include new turn-lanes, additional transit service, and more effective use of intelligent transportation systems (ITS) such as traffic signal synchronization and freeway ramp metering. Regardless, congestion is a major problem for businesses that needs to be examined and remedied.

Conclusion

This report quantifies employers' views of traffic congestion, their internal actions to deal with it and the financial impact of congestion on employers. It identifies congestion as an issue of significant concern to many employers and quantifies the magnitude of this impact. The amount is significant, estimated to cost about \$5.3 B annually in shipping delays and \$76 B annually in employee day-to-day business travel delays. In other words, **direct employer costs of congestion appear to be about the same as better-quantified commuting costs of congestion.**

Employers do not believe that external transportation improvements or traffic congestion relief are their responsibility. They are primarily focused on running their organizations and expect governments and transportation carriers to provide adequate transportation facilities and services. The significant number of "no problem" and "no comment" responses to our survey suggests that even when local traffic congestion threatens business activity and causes losses in time and operations, many employers do not focus on it. And each employer also has unique size, location and functional characteristics that render simple one-size solutions ineffective.

Employers located in downtown areas, in suburbs, on higher volume roads and those with a large number of employees are very concerned about traffic congestion. Many employers have taken every action possible to remediate the effects of congestion. These employers have focused on things within their control such as shipping/receiving policies, work hours and employee business travel.

Traditionally, rush hour has been the focus of congestion remediation. But this survey suggests that much of the congestion actually occurs during off-peak hours. Attention should be paid to congestion's effects during both rush hour and non-peak hour time periods.

About the Authors

David T. Hartgen, Ph.D., P.E. is a senior fellow at Reason Foundation and emeritus professor of transportation studies at the University of North Carolina at Charlotte, where he established the Center for Interdisciplinary Transportation Studies. He now heads The Hartgen Group (www.hartgengroup.net), a consulting company specializing in transportation planning. Before coming to Charlotte in 1989, he held senior analysis positions at the New York State Department of Transportation and was a policy analyst at the Federal Highway Administration. He is the author of about 355 papers and reports on transportation policy and planning, is U.S. co-editor of the international academic journal *Transportation* and is active in professional organizations, particularly the Transportation Research Board. He holds engineering degrees from Duke University and Northwestern University and has taught at SUNY Albany, Union University and Syracuse University. His recent studies of congestion, urban growth and road performance for Reason Foundation (at www.reason.org), urban growth for the Urban Land Institute (at www.hartgengroup.net) and transit and congestion in North Carolina (at www.johnlocke.org) have attracted wide national attention. He can be contacted at david@hartgengroup.net or by telephone at 704-405-4278.

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Elizabeth San Jose is a research analyst with The Hartgen Group. She has contributed to studies of Charlotte's light rail line, congestion in mid-sized regions and Highway Trust Fund revenues. She holds a BS in Aviation Studies from Indiana State University.

Endnotes

- ¹ David T. Hartgen, M. Gregory Fields, Anthony L. Layzell and Elizabeth San Jose, "How Employers View Traffic Congestion," *Transportation Research*
- ² David T. Hartgen, *Business Views of Charlotte Traffic Congestion* (Charlotte, North Carolina: Piedmont Public Policy Institute, June 2007).
- ³ Clark and Chase, Inc. See www.clarkandchase.com.
- ⁴ Commuting is typically valued at about half the wage rate, but in-vehicle business time is valued at average wage rates.