



**BEST**

Workplaces  
for Commuters<sup>SM</sup>



## Telework Programs:

Implementing Commuter Benefits  
as One of the Nation's  
Best Workplaces for Commuters<sup>SM</sup>

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United States Environmental Protection Agency  
Office of Air and Radiation  
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## **Telework**

# Implementing Commuter Benefits as One of the Nation's Best Workplaces for Commuters<sup>SM</sup>

- ▶ Telework is an arrangement between employers and employees in which employees work part- or full-time from alternate locations, such as their homes or telework centers.
- ▶ Telework has a number of important benefits for employers: it can serve as a valuable recruitment and retention tool, increase employee morale and productivity, and reduce costs through office space and parking savings.
- ▶ Current estimates show that there are approximately 44 million teleworkers in the United States.<sup>1</sup>
- ▶ Studies have shown that teleworkers tend to drive less on the days they telework, which reduces both road congestion and air pollution.
- ▶ To be recognized as one of the Best Workplaces for Commuters<sup>SM</sup> (BWC) program, employers must offer at least one of three primary commuter benefits to employees. One such option is to implement a telework program that reduces overall commute trips by at least 6 percent on a monthly basis (the other two are subsidizing transit or vanpool passes and cash in lieu of free parking [parking cashout]).

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<sup>1</sup> [www.benefitnews.com/detail.cfm?id=6491&terms=|00||ar||96||95||telework||eb||nw2||01||99||nw||97||98|](http://www.benefitnews.com/detail.cfm?id=6491&terms=|00||ar||96||95||telework||eb||nw2||01||99||nw||97||98|)

This document is one in a series of briefing papers designed to help employers implement commuter benefits to achieve the Best Workplaces for Commuters<sup>SM</sup> designation.

The U.S. Environmental Protection Agency (EPA) and the U.S. Department of Transportation (DOT) have established a voluntary National Standard of Excellence for employer-provided commuter benefits. Commuter benefits help American workers get to and from work in ways that cut air pollution and global warming pollution, improve public health, improve employee recruiting and retention, improve employee job satisfaction, and reduce expenses and taxes for employers and employees. Employers that meet the program-established National Standard of Excellence are recognized as Best Workplaces for Commuters<sup>SM</sup> and agree to:

- ▶ Centralize commute options information so that it is easy for employees to access and use.
- ▶ Promote the availability of commuter benefits to employees.
- ▶ Provide access to an emergency ride home (ERH) program.
- ▶ Provide one or more of the following primary commuter benefits:
  - ✓ Vanpool or transit subsidy of at least \$30 per month.
  - ✓ Cash in lieu of free parking worth at least \$30 per month.
  - ✓ Telework program that reduces commute trips by at least 6 percent on a monthly basis.
  - ✓ Other option proposed by employer and agreed to by EPA. These services must reduce the rate at which employees drive to work alone and be perceived by employees as a significant workplace benefit.
- ▶ Provide three or more of the following additional commuter benefits:
  - ✓ Active membership in a Transportation Management Association (TMA) or participation in a voluntary regional air quality management program (e.g., Spare the Air, Air Awareness, SEQL, Clean Air Coalition) or another employer-based commuter program.
  - ✓ Active membership in a local ozone awareness program, in which you agree to notify employees of expected poor air quality and suggest ways that they might minimize polluting behaviors.
- ✓ Ridesharing or carpool matching, either in-house or through a local or regional agency.
- ✓ Pre-tax transit benefits.
- ✓ Pre-tax vanpool benefits.
- ✓ Parking cash out less than \$30 per month or less than 75 percent of the actual parking benefit.
- ✓ Shuttles from transit stations, either employer-provided or through a local TMA or similar service provider.
- ✓ Provision of intelligent (i.e., real-time) commuting information.
- ✓ Preferred parking for carpools and vanpools.
- ✓ Reduced parking costs for carpools and vanpools.
- ✓ Employer-run vanpools or subscription bus programs.
- ✓ Employer-assisted vanpools.
- ✓ Employer-provided membership in a carsharing program (visit <[www.carsharing.net](http://www.carsharing.net)> to learn more).
- ✓ Secure bicycle parking, showers, and lockers.
- ✓ Electric bicycle recharging stations.
- ✓ Employee commuting awards programs.
- ✓ Compressed work schedules.
- ✓ Telework (less than 6 percent of commute trips on a monthly basis).
- ✓ Lunchtime shuttle.
- ✓ Proximate commute (where employees work at locations closer to their homes).
- ✓ Incentives to encourage employees to live closer to work.
- ✓ Incentives to encourage employees to use alternative transportation (e.g., additional vacation time).
- ✓ On-site amenities (e.g., convenience mart, dry cleaning, etc.).
- ✓ Concierge services.
- ✓ Other options proposed by employers.
- ▶ Employers commit to ensuring that within 18 months of applying, at least 14 percent of commute trips are taken using an alternative mode.

#### Disclaimer

EPA provides this briefing as a service to employers participating in the Best Workplaces for Commuters<sup>SM</sup>. Information about private service providers is intended for informational purposes and does not imply endorsement by EPA or the federal government.

The information presented here does not constitute official tax guidance or a ruling by the U.S. government. Taxpayers are urged to consult with the Internal Revenue Service of the U.S. Department of Treasury or a tax professional for specific guidance related to the federal tax law.

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## Telework: A Summary

Telework is a workplace arrangement in which employees work part- or full-time away from the primary workplace. Most teleworkers work from their homes, but a smaller number work from “telecenters”: offices with communications access to the main workplace, but closer to the employee's home<sup>1</sup>. Telework is generally based on exchanging information via telephone and computer.

Telework has increased as communications technology improves and becomes cheaper, and as employers and employees have become more comfortable with it. However, many employees and employers have also begun to regard telework as having a positive impact on employees by reducing long commutes. As a result, in addition to providing emissions benefits, telework is also a valuable recruitment and retention tool for employers.

## Brief History

Telework is linked to the proliferation and advance of telecommunications technology. Until the 1980s, most office arrangements required employees to be physically present to perform their jobs. However, with the ability to exchange documents over phone lines via modems, many jobs (in whole or in part) can be performed from remote sites. Such tasks as entering and analyzing data, writing and editing documents, and computer programming are no longer tied to specific locations. Telework has increased dramatically over the past several decades for several reasons: advances in computer and remote access technology; longer commutes; and the desire of employees to spend more time with family. However, the actual number of teleworkers is difficult to measure accurately because of varying definitions and the small sample size of many surveys. Current estimates from *Benefit News* put the number of U.S. teleworkers at approximately 44 million<sup>2</sup>. In 2003, IDC put the total number of home-based offices at 32.5 million and forecast to reach 34.6 million by 2007<sup>3</sup>.

## Employer Benefits

Telework can assist a business in several key areas.

### Recruiting and Retention

Many employers look at telework primarily as an employee benefit, not a cost- or space-saving measure. Related literature contains significant anecdotal evidence that employees seek out jobs and firms that offer telework options.

In addition, many employers have found that telework allows them to retain employees who would otherwise leave for personal reasons, such as moving out of the area or the birth of a child. Some companies have come to view telework options as important components of their competitive strategies for attracting and retaining valuable talent. For example, a Connecticut-based insurance company arranged for one of its most productive software programmers to telework from Canada. The company calculated it was less costly to pay for the employee's regular office visits and for installation of the needed technology in the worker's home than to lose the programmer's business knowledge and creativity.

Moreover, telework has no geographic limitations for finding employees. This makes the quality of the applicant pool much stronger for an employer who offers telework as opposed to an employer who does not offer telework and is limited to a regional and less diverse selection of employees. The competitive advantage of offering commuter benefits, such as telework, not only improves employee retention levels, but also tends to improve employee talent levels.

### Cost Savings

Many companies find that telework saves money in the long run because cost savings can be achieved in a number of areas:

- ▶ Reduced rent costs if teleworking employees use less office space
- ▶ Reduced costs due to employee turnover

Information from Michael J. Dziak, a 10-year veteran telework consultant and general manager of the Metro Atlanta Telecommuting Advisory Council (MATAC), indicates that in 2001 about \$14,000 could be saved per year per teleworking employee.<sup>4</sup>

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<sup>1</sup> Telework does not include the following employment arrangements: home-based businesses (small companies with their main offices co-located in a residence), work in branch offices, and employment in which the regular work location is not fixed (for example, truck drivers and airplane pilots would not be considered teleworkers).

<sup>2</sup> <http://www.benefitnews.com/detail.cfm?id=6491&terms=|00||ar||96|95||telework||eb||nw2||01||99||nw||97||9>

<sup>3</sup> <http://www.marketresearch.com/map/prod/1008711.html>

<sup>4</sup> <http://www.bizjournals.com/atlanta/stories/2001/10/15/focus8.html>

Another powerful driver spurring the use of telework is potential real estate cost savings from housing fewer employees on-site. These savings easily offset the expense of equipping teleworkers with hardware, software, and other needed supplies.

### **Increased Productivity**

Many teleworkers report higher productivity while working from home due to reduced workplace distractions. In addition, use of sick leave tends to decline when employees telework. This may be due to several reasons: employees are less likely to call in sick for invalid reasons, less likely to need

time off for doctor's appointments, and less likely to need time off because of a sick child.

Employees will also frequently avoid missing days of work due to inclement weather conditions.

### **Benefits at Individual Employment Sites**

Employers that institute telework programs may be able to reduce parking needs at their workplace if the number or percentage of teleworkers is sufficiently high.

## Tax Considerations

There are currently no federal tax incentives or implications for establishing a formal telework program. Legislation introduced at the federal level would allow a \$500 tax credit for employers or employees who begin teleworking over 75 days per year. Rep. Frank Wolf (R-VA) introduced a bill in March 2001 (a February 2000 introduction of identical legislation died in committee), and Sen. Rick Santorum (R-PA) introduced companion legislation in the Senate. Either the employer or the employee, depending on who incurred the expense of setting up a home office, could take the tax credit.

For tax purposes, teleworkers are considered regular employees (not persons running a business out of a home). If a teleworking employee lives in a different state than the employer's main office, s/he should consult a tax expert to determine applicable state tax laws. Generally, most teleworkers will not be eligible to claim the home-based office tax deduction. According to IRS regulations, in order for a teleworker's home office to qualify for the home office deduction, it must be regularly and exclusively used for business, and the arrangement must be at the employer's request.

At the state level, Oregon allows employers to take a tax credit of 35 percent for investments made in telework (i.e., costs of purchasing and installing office and computer equipment). The credit, which employers must be approved for in advance of their investments, is spread over a five-year period: 10 percent in the first two years, and five percent annually for the next three years. Teleworkers must work from their home or telework center at least 45 days per year for their employer's program to be eligible. A more complete list of telework state incentives can be found at the following address: <[www.nctr.usf.edu/clearinghouse/statestatutes.htm](http://www.nctr.usf.edu/clearinghouse/statestatutes.htm)>.

## Employee Benefits

Employees generally react very positively to telework programs. The main benefit is commute time savings, which can amount to several hours per day or more. Employees can spend this extra time with their families or on other personal needs.

Employees also enjoy the following benefits:

- ▶ **Decreased stress.** Many drivers find solo commutes in heavy traffic stressful. Telework allows them to avoid traffic.
- ▶ **Reduced costs.** Teleworkers save on gas, depreciation, and general wear and tear on their vehicles.

- ▶ **Community life.** Telework allows people to find a healthier balance between work and social life. Studies have shown that teleworkers find it easier to get involved in local community activities<sup>5</sup>.
- ▶ **Time Savings.** According to the Bureau of Transportation Statistics, the average commute for American workers is approximately 26 minutes<sup>6</sup>. The average teleworker avoids going to work 1-2 days per week. Therefore, the average time saved by a teleworker is 45 to 90 hours per year.

## When Telework Makes Sense

Many factors affect employers' ability to offer telework as well as the effectiveness of telework programs. While the following discussion is not exhaustive, it covers the main factors.

### Employers with Information Workers

Only employees who can perform their tasks away from the main workplace can telework. The U.S. Office of Personnel Management (OPM) suggests the following types of jobs as most suitable for telework (OPM, 2001):

- ▶ Jobs that involve thinking and writing
- ▶ Data analysis
- ▶ Writing decisions or reports
- ▶ Telephone intensive tasks
- ▶ Computer-oriented tasks (data entry, Web site design, word processing, programming)
- ▶ Payroll transaction processing
- ▶ Analysis-type work (investigators, program analysts, financial analysts)
- ▶ Engineers
- ▶ Architects
- ▶ Researchers
- ▶ Customer service jobs

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<sup>5</sup> [http://www.att.com/telework/article\\_library/sustainable.html](http://www.att.com/telework/article_library/sustainable.html)

<sup>6</sup> [http://www.bts.gov/publications/omnistats/volume\\_03\\_issue\\_04/html/entire.html](http://www.bts.gov/publications/omnistats/volume_03_issue_04/html/entire.html)



Offices with high concentrations of the types of workers listed above are good candidates for telework programs. On the other hand, jobs that require face-to-face communication, access to on-site materials or files (including confidential material), and site-specific occupations are not as amenable to telework.

Within companies whose primary occupations are not right for telework, there may still be positions with the potential to telework (for example, a large construction company with an in-house human resources department might allow an employee in the payroll section to telework). There may also be positions whose duties would be more appropriate for teleworking on a part-time basis. In general, however, telework has the most promise in offices with large concentrations of information workers, whose outputs depend largely on computer access.

### **Established Employees**

Because telework requires supervising employees not at the workplace, it tends to work better for employers who are already assured of their employees' work quality and reliability. Most employers are reluctant to allow new employees to telework because of concerns that they may not perform well or that they will not become sufficiently acquainted with the company's internal structure and culture. Similarly, at a very new company, the importance of face-to-face interaction among all employees may outweigh the potential benefits of telework.

### **Employees with Personal Needs**

Employers may use telework to retain established employees who would otherwise resign for personal reasons (moving, child, or eldercare issues). In addition, some employers have found that disabled employees can be accommodated through telework when physical access issues at the worksite are problematic.

### **Competitiveness in a Crowded Employment Field**

Some companies view telework as primarily an employee benefit, rather than a transportation strategy or means to reduce costs, and promote it to prospective and current employees as such. However, employers should be careful when promoting their telework program as an "employee benefit". Since not all positions are suitable for telework, they may wish to simply publicize the telework program or arrangement, so as to minimize the perception that telework will be available to all employees.

## **Implementation Issues and Costs**

This section addresses a variety of implementation issues, including employee supervision and evaluation.

### **Eligibility**

An employer should establish guidelines for determining which employees can telework.

There may be two components to eligibility:

- ▶ which activities within a company are suitable for telework, and
- ▶ which employees have the job skills that make them eligible to telework

Even if a particular activity or position lends itself to telework, the employee may not be allowed to telework until s/he is properly trained or obtains a certification. Telework guidelines and policies should address both issues.

### **Amount of Time Spent Teleworking**

Few teleworkers spend their entire workweek off-site. The average number of days teleworkers spent working off-site is one to two per week. While this may vary with the type of work performed, most firms find that full-time telework is far less common than occasional telework.

### **Telework Program Turnover**

If programs are solidly implemented and teleworkers selected well, telework programs are generally successful. However, a few studies suggest that some employees encounter problems with the arrangement and return to working on-site full-time.

Most reasons for this turnover were job-related (e.g., a change in position or request from supervisor to return to a regular office schedule), rather than personal dissatisfaction with the arrangement. Also, turnover may be higher at telecenters than for home-based teleworkers, and some telecenter employees find it is just as easy to work at home.

### **Costs**

Employers sometimes pay the costs of telework arrangements for their employees. Costs might include computer equipment, network access (including internet, intranet, and/or company servers), additional phone lines, fax machines and printers, and in some limited cases general office equipment (ergonomic chairs, files, cabinets, etc).

Costs to implement a telework program will vary dramatically depending on the type of equipment currently owned by the employer. The average investment per employee ranges from \$1,000 to \$5,000, with an additional \$1,000 operating in costs each year.

JALA International's general estimate claims that the average employer will spend \$5,500 establishing each individual employee as a teleworker (estimate available at <[www.jala.com/homecba.php](http://www.jala.com/homecba.php)>). Most costs are depreciable, so the bottom-line costs will be less.

In addition, employers should consider liability issues, such as responsibility for lost data, theft of equipment, or damage due to power spikes, and insure teleworkers appropriately. There is a small field of telework law that considers the circumstances under which employers could be held liable for workplace injuries incurred in the employee's home.

### Cost Savings

Although implementing a telework program requires investment, many find that it produces long-term savings. Potential cost savings depend on many factors: current operating costs, investment in telework infrastructure (for example, if a firm invests in a computer server for only one teleworker, savings will be much less than if the same investment handled 10 teleworkers), and whether telework is linked to changes in organizational structure.

### Telework and Use of Office Space

Telework can be performed:

- ▶ From the employee's home.
- ▶ From an employer's satellite office close to the employee's home.
- ▶ From a telecenter (an office in which employers rent space for teleworkers).
- ▶ Entirely remotely (from locations such as hotels, airports, or client offices).

Most telework is currently done from the employee's home. According to ITAC's Telework America survey, only seven percent of teleworkers work exclusively from telecenters, while another four percent work from both home and telecenters. Entirely remote work is uncommon; it is most likely to be practiced by a mobile sales force or other employees who travel extensively. In a "hoteling" arrangement, employees no longer have a permanent workspace in the main office, but are assigned an office based on their need for space. This arrangement can reduce real estate costs, since several teleworking employees can share a single office, on

different days. This arrangement tends to work best when teleworking employees use the main office infrequently, and need relatively few physical files—that is, they need only phone and computer access. However, there are many varieties of hoteling and space sharing, and in some cases they are used by teleworkers in the office as many as three days a week.

### Management Issues

Managing employees who are not at the workplace daily poses a number of challenges. Duxbury and Neufeld studied how workplace communication changed when employees began teleworking, and reported that employees and managers raised three main issues:

- ▶ Communications between managers and employees became more formal (increased use of phone and memos, with a concurrent decrease in face-to-face meetings).
- ▶ Ability to make spontaneous work assignments and decisions decreases and there is a loss of informal office culture.
- ▶ Perceptions by co-workers that the teleworker was not working while at home (e.g., "Co-workers seem afraid to call me at home. They think they'll be bothering me.") and occasional jealousy of teleworkers.

These potential problems can be avoided through careful selection of telework participants and training.

## Guide to Implementation

Telework can reward businesses in terms of recruitment, retention, and cost savings. However, implementing a telework program involves a high degree of investment in information technology, trust in workers, changes in supervisory techniques and expectations, and support from management. The following suggested 12 steps are drawn from the Office of Personnel Management (OPM) and the American Health Information Management Association (AHIMA). These steps are meant to be a rough guide for interested employers; specifics may vary depending on the size of the firm, the nature of the work, and the potential number of teleworkers.

### 1) Designate a telework coordinator and/or implementation committee.

Before proceeding with a telework project, key stakeholder personnel should be identified. This committee might include representatives from human resources, information management, risk management, facilities management, senior management, and select employees.

## **2) Obtain support from senior management.**

Senior management should be involved and supportive from the inception of the program. Implementation of a telework program may raise issues such as changes in supervisory techniques and productivity measurement of which senior management should be aware. In addition, a telework program will involve both start-up and on-going costs.

## **3) Determine employee interest.**

The program coordinator or committee should determine the extent of employee interest in telework, perhaps through a survey or orientation sessions. General parameters of a possible program could be discussed. Two other groups of employees should be considered at this time. First, unions should be included in the decision-making process.

Employers sometimes encounter concern from unions, including fear that employees will be forced to work at home when they prefer to remain in an office setting, or that telework may become a way to squeeze more work out of employees. Second, managers will benefit from orientation and education about telework. Early involvement by managers may avoid the fear that telework is something being “done to them,” and can also alert the coordinator or committee to real or perceived problems.

## **4) Explore which arrangement (home-based, hoteling, telework center, or other) will be most feasible and productive.**

Companies can set up telework programs in many ways, as described above. The best arrangement for a particular employer will depend on many factors—the type of work (for example, data entry from home one day per week, or most time at sales and client meetings), the size of the company (will there be enough employees to make setting up or renting telecenter space economically feasible?), and the type of remote computer access needed. If there are area telecenters, the committee should make a recommendation as to whether they are a possibility. The decision should be made with input from affected departments and senior management.

Telecenters offer the advantage of being already set up with computing equipment and in many cases professional staff; on the other hand, fees may be several hundred dollars per month or more to use the facility one day per week.

## **5) Identify specific positions appropriate for telework arrangements.**

Not all positions are suitable for telework. Generally the positions most suited for telework are knowledge- and infor-

mation-intensive positions (analysts, researchers, data entry, programming, etc.), positions that require outside meetings (sales representatives, etc), and other positions whose duties can be performed out of the office (telephone work, reading, writing).

Positions that require face-to-face interaction with co-workers or clients (medical/nursing, receptionist, elementary school teaching), access to site-specific files (military personnel dealing with classified information), and other jobs that require presence in a particular location (photographer) are generally not suitable for telework.

Also, telework participation does not have to be all or nothing; many positions may require some face-to-face contact, but can still be suitable for part-time telework.

## **6) Determine equipment, technology, security, and liability needs and costs.**

Telework requires, in most cases, sophisticated information technology equipment to give employees access to company files, internal networks, and e-mail. In addition, many employees may require additional phone lines, fax machines and printers, and standard office equipment.

A company's information technology department should assess the company's current infrastructure to determine whether upgrades or new equipment are needed and what level of security should be provided. Employees should have access to similar equipment that they have in the office to maintain the same level of productivity. In general, the older the current equipment, the more costly and difficult it will be to implement telework. The technical issues related to remote access are too complicated to explore in depth in this paper. A useful list of articles reviewing broadband and DSL options can be found at <[www.gilgordon.com/resources/reports.htm](http://www.gilgordon.com/resources/reports.htm)>. The ITAC e-Work Guide available at <[www.telecommute.org/resources/eworkguide.htm](http://www.telecommute.org/resources/eworkguide.htm)> also has a chapter dedicated to technology issues.

Cost estimates for equipment procurement and installation may take time to prepare, especially if a company has complex security or proprietary information issues to address.

In addition, employers should explore potential liability issues regarding loss or damage to home-based employer-owned equipment, loss of valuable company information through computer failure or hacking, and workplace injuries that occur off-site. The company's insurance policies should be updated accordingly.

## 7) Prepare and present a telework proposal.

Before beginning any telework program, the following parameters should be well defined:

- ▶ **Pilot program.** Will there be a pilot program to be evaluated before an organization-wide adoption of telework? If so, appropriate guidelines should be developed.
- ▶ **Telework policy for the organization.** This policy would define eligible positions, guidelines for participation (e.g., an employee must work full-time for a year before becoming eligible, or have certain defined work skills), financial responsibility (e.g., the employer pays for equipment and installation, but the employee agrees to pay for additional insurance against theft), and any change in status or benefits for teleworkers.
- ▶ **Telework agreement.** Both OPM and AHIMA recommend formal agreements between employers and individual employees who want to telework. The agreement should include such topics as trial period, official duties, work schedule, timekeeping and leave, equipment and supplies (including ergonomic standards and other OSHA issues), security and liability, worksite criteria, costs, injury compensation, and performance evaluation. Sample agreements are available at <[www.opm.gov/telework/policies/Tele-Sam.asp](http://www.opm.gov/telework/policies/Tele-Sam.asp)> and <[www.telecommute.org/resources/eworkguide.htm](http://www.telecommute.org/resources/eworkguide.htm)>.
- ▶ **Screening criteria.** Subject to equal employment opportunity criteria, an employer should screen potential teleworkers via survey form or personal interview. Criteria might include the type of job duties to be performed, the degree to which the employee can be evaluated based on work products, not physical presence, and suitability of employee's home as office space. The company should have a clear policy on telework eligibility to diminish perceptions or possible accusations of favoritism or discrimination.  
  
Similarly, employees should screen themselves if their home situation is not suitable in some way, or if the person does not have the self-discipline needed to work from home. Also, employees should be clear that they cannot both telework and care for dependents simultaneously.
- ▶ **Evaluation criteria.** If the employer sets up an initial pilot program before implementing a full-scale telework program, evaluation criteria should be selected. Such criteria could include employee productivity (along with basis for measurement), employee satisfaction, client or customer satisfaction (for example, if a customer service representative begins working from home), and degree to which

other employees in a section are affected by a teleworker (e.g., is other employees' work hindered by the teleworker's absence). If a formal evaluation is to be completed, baseline benchmarking data should be established so before-and-after comparisons can be made.

## 8) Take final steps toward implementation.

This includes procuring and installing equipment, selecting teleworkers, disseminating telework guidelines and policies, signing telework agreements, and setting an implementation date.

## 9) Train all personnel involved.

Telework involves new ways of working as well as supervising and evaluating, so participating personnel—whether employees or supervisors—should receive training. Some companies even set up a simulation lab in which potential teleworkers can work for several weeks under conditions similar to their potential home office set-up: no face-to-face contact with other employees and remote computing access. This allows them to determine their suitability for telework.

In addition, a company may wish to develop a training program for supervisors to familiarize them with the demands and issues raised by teleworking—lack of direct personal contact, potential difficulties with on-site employees, and measuring productivity. Some consider supervisor training as important as employee training.

## 10) Administer pre-telework evaluation.

If a before-and-after benchmarking survey is to be done, the pre-telework survey should be administered at this point, before program implementation begins.

## 11) Implement the program.

Once equipment, guidelines, agreements, and training have been signed and completed, telework can be implemented.

## 12) Assess results.

After a period of time, the company should assess the program's efficacy. If a before-and-after survey was conducted, the after data should be assessed. Those results, as well as other measures of cost, productivity, and morale, should be compared to evaluation criteria established earlier. This will form the basis for determining whether the program should be continued in its current form, expanded, or otherwise modified.



## Implementation Costs and Administrative Burden

Unlike many other commuter benefit programs, telework involves a major commitment of both financial and staff resources. The heaviest burdens tend to fall on two groups:

Supervisors must revise their methods of managing employees out of their direct contact and deal with the tensions that can arise between employees at the workplace and those working remotely. However, this can yield benefits, according to one telework expert:

*In fact, we consistently hear that managers who manage remotely report that doing so makes them better managers not only of the remote workers but also of their in-office staff. (Gordon, 2001)*

Information technology departments will be responsible for carrying out an IT gap analysis to determine telework infrastructure start-up needs and costs and providing ongoing support to teleworkers, who rely more heavily on computer networks and remote access.

## Employer Questions and Answers

Employers (e.g., a human resources administrator or business manager) considering a telework program might commonly ask the following questions:

### Does telework negatively affect productivity?

No, in fact productivity may increase. Many employees report that they experience fewer distractions when teleworking. Some employers have been pleasantly surprised to find that employees are more accessible when they are working from home because managers know exactly where they are, and they have fewer meetings and/or spend less time with co-workers. Examples of measured increases in productivity from existing telework programs include AT&T (20%-35%), Blue Cross Blue Shield (20%), and Cisco Systems (18%).<sup>7</sup>

### What does it take to set up and administer a telework program?

It depends on several factors—the scale of the program (size of company and number of employees who will telework), the type of information technology selected, and the goals of the program (will telework mean a few employees performing their regular duties out of their homes, or a more fundamental re-engineering of the workplace?)

Large-scale programs require substantial commitment for planning and implementing the program, and the involvement of the information technology departments will be much more significant and critical. In addition, telework programs require continuing investments of both money and staff time. There should also be agreements between managers and employees. This agreement should cover what the work hours will be, what the deliverables are, how often voicemail at the office will be checked, etc. Many telework agreements may actually help managers uncover areas for further development and performance for employees.

### How does working at home affect dependent care issues?

Teleworking employees should not expect to simultaneously work and care for their dependents (children or elders). Although many employees who telework do so because they prefer to be near home in case of an emergency or to have additional time to spend with their families, employees must make arrangements for dependent care. This understanding should be part of a formal telework agreement, so that employees are aware of the need to separate dependent care from work.

### Who typically pays for increased electricity and telephone costs?

This is generally covered under the telework agreement. In the federal government, OPM guidelines allow reimbursement for official telephone calls, but not for increased electricity costs resulting from use of computer equipment.

### Is there an ideal percentage of employees that should be teleworking?

No. Some firms have only a small percentage of employees teleworking; others have near-virtual offices, where employees work independently. It depends on the nature of the business, the type of work performed by the employees, employees' suitability to work independently, the company culture, and the technological capabilities available.

However, in order to qualify for the Best Workplaces for Commuters<sup>SM</sup> program, you must have a telework program that reduces on average at least 6 percent of commute trips on a monthly basis.

### Do employees and supervisors need training before starting a telework arrangement?

Training is generally a good idea because of the major change in the working relationship and risk management issues relat-

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<sup>7</sup> Connecticut Department of Transportation, Bureau of Public Transportation, 2004 Telecommute News

ed to telework. Some guidelines even recommend setting up a simulation for employees who want to telework, so that they can experience remote work for several weeks and judge whether they would be suitable candidates for the arrangement. Supervisors might also be trained in management techniques for distance employees, such as how to manage by results and assess productivity. Guidelines should be implemented to create an official set of operating procedures. Guidelines can clear up any misunderstandings and act as an indicator for success. Managers should also focus on deliverables and quantifiable measures that show whether an employee is doing a good job.

### Do any state or local governments offer incentives for implementing telework?

Some regional organizations offer technical assistance for implementing telework programs (see below under Associations and Contacts for more information). In addition, the state of Oregon offers a tax credit for implementing teleworking programs (see the Tax Considerations section above for more information). In spring 2001, Virginia introduced a Telework!VA pilot program through which employees in northern Virginia could receive state reimbursement for certain telework start-up or expansion costs, up to \$35,000 over two years.

### Telework Technology

Recently, the use of high speed broadband Internet has increased dramatically. In 2003 there were 4.4 million teleworkers working at home with broadband. In 2004 there were 8.1 million telework—an 84%<sup>8</sup> increase. Prices for high-speed Internet access have not gone down significantly and they remain at a monthly fee of approximately \$30 to \$35 for DSL and \$40 to \$45 for Cable. In addition, there has been rapid growth in the number wireless hotspots, which often provide free high-speed Internet access. Broadband teleworkers reported an average productivity increase of 33.3 percent.<sup>9</sup>

There are also many Web-based Internet services that provide useful tools for businesses that telework, requiring no installation or IT assistance.

The use of video conferencing and Web conferencing is a valuable productivity tool. Web conferencing allows work groups to set up video meetings, which often results in more efficient communication between employees. Employees can enjoy the benefits of a standard “round table” meeting while sitting at their computer in any geographical area. This serv-

ice also requires no software installation and therefore limited IT assistance or training.

There are also project management services that make communication more efficient than in an office. These services provide a central platform that is password-protected and easily accessible by all members of a work group. These Web-based services require no installation and very limited IT assistance and training.

### Resources:

Wireless hotspot locations can be found at <[www.boingo.com/search.html](http://www.boingo.com/search.html)>.

Broadband availability can be searched for at <[reviews.cnet.com/Broadband\\_power\\_search/4002-6549\\_7-5114723.html?tag=tool](http://reviews.cnet.com/Broadband_power_search/4002-6549_7-5114723.html?tag=tool)>.

Video conferencing information is available at <[www.webex.com](http://www.webex.com)>.

Information on project management tools is available at: <[www.intranets.com/default.asp](http://www.intranets.com/default.asp)>.

## Employer Case Studies

### Case Studies

#### AstraZeneca

AstraZeneca created its telework program as a result of a headquarters relocation. In 2000, Astra merged with Zeneca and moved its headquarters from Pennsylvania to Delaware. For the employees who worked in the Pennsylvania office, the move added an hour to their commute time. Management recognized the amount of talent they would lose if these employees were not willing to commute an extra hour. They also recognized the costs of retraining new employees and hoped to avoid the danger of employees working at competing companies. As a result, they decided to increase overall workplace flexibility, which included a telework program.

In addition to the motivation of retaining valued employees and avoiding retraining costs, AstraZeneca also faces a Delaware state traffic mitigation law that mandates at least 15 percent of their employees not drive in single-occupancy vehicles. The telework program helps AstraZeneca meet this mandate. The program now includes 600 employees who

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<sup>8</sup> <http://www.ccnmag.com/?nav=headlines&id=3197>

<sup>9</sup> [http://www.workingfromanywhere.org/pdf/TWA2003\\_Executive\\_Summary.pdf](http://www.workingfromanywhere.org/pdf/TWA2003_Executive_Summary.pdf)



have signed contracts and received training on effective teleworking, and 275 employees are actively teleworking. The major costs in setting up the commuter benefits program consisted of the following: broadband Internet service, shuttle services, Transportation Management Association (TMA) membership, and membership in the Association for Commuter Transportation (ACT). These costs were outweighed by the overall benefits of the program. This number does not include the non-monetary benefits of keeping valued employees.

### **LexisNexis**

The LexisNexis telework program is called "Alternate Work Solutions," and supports people who telework from home part-time or full-time. In 1995, the company began a pilot program, encouraging select employees to work from home. Within a year, the company had saved \$6 million in operating costs. By 1996, the program was completely established and has been profitable for LexisNexis ever since. According to an April 4, 2004, Best Workplaces for Commuters<sup>SM</sup> Phone Forum, the Senior Director of corporate Services for LexisNexis, Debra McKenzie, offered the following lessons:

- ▶ It is important not only to train employees to connect to the office network from home, but also to train managers to direct a team that is not physically present.
- ▶ Strong commitment from company executives eases the implementation of telework programs.
- ▶ By evaluating an employee's performance, employers can determine if the employee would be a productive teleworker or if the employee should continue to work on-site. And it is equally important that the manager be evaluated on their capability to manage virtually.
- ▶ To ensure that the employee remains productive while working at home, managers require the employee to sign a contract that details working hours and the communications process the employee will use to stay in contact with management.

### **Sun Microsystems**

Sun Microsystems started its telework program by organizing a group of employees from the finance, tax, legal, and human resources departments. The group researched other companies that already had telework programs in place and tested pilot programs. Preliminary research indicated that a telework program would improve both the employee culture and the company's bottom line.

Sun is involved with telework in two dimensions: it offers telework to employees, and it also uses its established tele-

work program to help set up other companies with the necessary telework technology and infrastructure. Their internal telework program is called the iWork program, which enables over 3,000 employees to work from all over the country, in Canada, and in ten European countries. Sun also distributes information about commuter benefits and other regional commute programs via email in their SMART (Sun Microsystems Alternative Resources for Transportation) internal commute program Web site. Employees have reported a 34 percent increase in productivity and increased job satisfaction. Most recently, in a September 2004 media release, Sun Microsystems was ranked 5<sup>th</sup> in the list of the top 20 Best Workplaces for Commuters<sup>SM</sup> (BWC) for Fortune 500 companies with 60 percent of its employees working at BWC-designated work sites.

## **Services That Support Implementation**

Many regional and local governments provide services to help employers implement telework programs. Metropolitan planning organizations (MPOs), city and county transportation agencies, transportation management associations (TMAs), and transportation management organizations (TMOs) throughout the U.S. provide assistance to employers in starting and maintaining transportation demand management programs such as telework. They often provide information to employers about options to reduce driving to work, implementation issues, and local programs that support employer initiatives. Some of these resources are listed in the next section.

Depending on the nature of the work, the ability to telework effectively may be linked to the availability of high-speed Internet connections. Access to these services varies throughout the country.

## **Associations and Contacts**

This section includes information on regional and national groups that EPA and regional, state, and local governments might wish to utilize for expertise in understanding, promoting, or providing technical information on telework.

Individual employers are directed to contact EPA, their local MPOs, telework consulting firms, or other groups that provide services to support telework implementation.

## Organizations That Promote Telework

### International Telework Association and Council

204 E Street N.E.  
Washington, DC 20002  
Tel: (202) 547-6157  
Fax: (202) 546-3289  
[www.telecommute.org](http://www.telecommute.org)

The International Telework Association and Council (ITAC) is a membership organization for businesses that sponsors research and surveys on telework. ITAC maintains an extensive list of member consultants, available at [www.telecommute.org/resources/consultant\\_members.shtml](http://www.telecommute.org/resources/consultant_members.shtml).

### The American Telecommuting Association

1220 L Street, NW, Suite 100  
Washington, DC 20005  
Tel: (800) ATA-4-YOU  
[www.knowledgetree.com/ata.html](http://www.knowledgetree.com/ata.html)

The American Telecommuting Association (ATA) is a membership organization whose members are employees that telework.

### National TDM and Telework Clearinghouse

University of South Florida  
4202 E. Fowler Ave.  
CUT100  
Tampa, FL 33620-5375  
Tel: (813) 974-3120  
[www.nctr.usf.edu/clearinghouse/](http://www.nctr.usf.edu/clearinghouse/)

The National TDM (Transportation Demand Management) and Telework Clearinghouse is a compendium of research and information on TDM and telework. TDM refers to a set of programs and policies that are designed to make the best use of existing transportation resources without additional infrastructure investment. Much of the Clearinghouse information is available electronically at their Web site. The site contains information for employers interested in establishing various kinds of trip reduction programs, including teleworking.

### Clean Air Council

135 South 19th Street Suite 300  
Philadelphia PA 19103  
Tel: (215) 567-4004  
Fax: (215) 567-5791  
<http://www.cleanair.org/Transportation/greenCommute.html>

The Clean Air Council supplies information on telework as a means to reduce air pollution.

## Online Resources

Several other private firms and organizations have online information regarding telework; the list below is a sample.

Gil Gordon Associates maintains a Web site with a wide variety of information, including links to research articles and “how-to” tips.

[www.gilgordon.com](http://www.gilgordon.com)

JALA International is a consulting firm founded by Jack Nilles, who originally coined the terms “telecommuting” and “telework”.

[www.jala.com](http://www.jala.com)

The “Work At Home Success” Web site is aimed more at employees who wish to begin teleworking, but it also offers advice to employers thinking of implementing telework programs.

[www.workathomesuccess.com/telecomm.htm](http://www.workathomesuccess.com/telecomm.htm)

## Regional Resources

Some regions have programs offering technical assistance to local businesses that are interested in setting up telework programs. The type of assistance offered depends on the program; it may include technical assistance tailored to a company's individual needs, presentations for business audiences on telework issues, and/or compilations of case studies of other area employers.

### Atlanta, Georgia

Metro Atlanta Telecommuting Advisory Council  
704 Beacon Cove  
Lawrenceville, GA 30043  
Tel: (770) 831-6630  
[www.matac.org](http://www.matac.org)

### Arizona

Valley Metro  
302 N First Avenue  
Suite 700  
Phoenix, AZ 85003  
Tel: (602) 262-7433  
[www.valleymetro.maricopa.gov/telecommute](http://www.valleymetro.maricopa.gov/telecommute)

### Colorado

Telework Colorado  
Tel: (303) 458-8353  
[www.teleworkcolorado.org](http://www.teleworkcolorado.org)

## Connecticut

Telework Connecticut  
C/o Rideworks  
389 Whitney Avenue  
New Haven, CT 06511  
Tel: (203) 777-RIDE  
Fax: (203) 773-5014  
[www.telecommutect.com/](http://www.telecommutect.com/)

## Houston, Texas

Commute Solutions  
Houston-Galveston Area Council  
P.O. Box 22777  
3555 Timmons Lane  
Houston, TX 77227  
Tel: (713) 627-3200  
Fax: (713) 993-4508  
[www.commutesolutionshou.com/telework/index.htm](http://www.commutesolutionshou.com/telework/index.htm)

## Los Angeles Area

Southern California Economic Partnership  
21865 E. Copley Drive  
Diamond Bar, CA 91765  
Tel: (909) 396-5757  
Fax: (909) 396-5754  
[the-partnership.org](http://the-partnership.org)

## Minneapolis, Minnesota

Midwest Institute for Telecommuting Education  
1900 Chicago Avenue  
Minneapolis, MN 55404  
Tel: (612) 752-8010  
Fax: (612) 752-8001  
[www.mite.org](http://www.mite.org)

## Oregon

Oregon Office of Energy  
625 Marion Street, NE  
Suite 1  
Salem, OR 97301  
Tel: (503) 373-7560  
[www.energy.state.or.us/telework/teletax.htm](http://www.energy.state.or.us/telework/teletax.htm)

## Seattle, Washington

Commuter Challenge  
1301 Fifth Avenue  
Suite 2400  
Seattle, WA 98101-2611  
Tel: (206) 389-8656  
[www.commuterchallenge.org](http://www.commuterchallenge.org)

## Washington State

WSU Cooperative Extension Energy Program  
925 Plum Street SE, Bldg. #4  
P.O. Box 43165  
Olympia, WA 98504-3165  
Tel: (360) 956-2178  
Fax: (360) 956-2217  
[www.energy.wsu.edu/telework/](http://www.energy.wsu.edu/telework/)

## Washington, DC/Northern Virginia

Commuter Connections  
777 North Capitol Street, NE  
Suite 300  
Washington, DC 20002  
Tel: (202) 962-3286  
Fax: (202) 962-3202  
[www.mwcog.org/commuter/telresctr.html](http://www.mwcog.org/commuter/telresctr.html)

Commuter Connections also administers the Telework!VA financial assistance program for employers located in Northern Virginia.

## Best Workplaces for Commuters<sup>SM</sup>

For more information on Best Workplaces for Commuters<sup>SM</sup>, contact the BWC Information Request Line at (888) 856-3131, or visit <[www.bwc.gov](http://www.bwc.gov)>.

# Emissions and Transportation Benefits

Telework has great potential to reduce vehicle travel and emissions of air pollutants and greenhouse gases because it eliminates many commute trips. Most studies of the air quality and emissions benefits of telework agree that teleworkers drive significantly less when teleworking. That is, the vehicle miles traveled (VMT) reduced are not usually replaced with more local non-work driving.

A review of the telework research by the National Environmental Policy Institute found that the average round-trip commute distance for teleworkers is 36.1 miles, and that on the days they telework they saved an average of 26.3 miles. However, only 74 percent of teleworkers drive alone, so that even on the days they telework, total vehicle miles traveled may remain unchanged (for example, if the teleworker rides with a carpool). (NEPI, 2000)

Two studies that looked at total travel by teleworkers (including non-work trips on days they telework) found that the average number of miles traveled per day was 52.9

before teleworking and 13.1 miles per day on telework days. (NEPI, 2000)

A study using travel diaries found similarly positive results. An evaluation of the Puget Sound (Washington State) Telework Demonstration project compared a control group of non-teleworkers to a group of teleworkers, and telework days to non-telework days. Telework had demonstrable effects in reducing VMT and emissions. On telework days, the number of daily trips decreased by 30 percent, VMT decreased by 63 percent, and the number of cold starts decreased by 44 percent. A “cold start” is particularly problematic for emissions, because a car’s engine and emissions control systems work well only after warming up. A substantial portion of a car’s total trip emissions occur at start-up, so avoiding a trip altogether is far more “valuable” from a pollution perspective than shortening the trip. The study calculated, using an emissions model, that for each telework day, the teleworker’s vehicle released 50 to 60 percent less pollutants than if the teleworker had worked in the office. This includes additional non-work trips made while at home—teleworkers drove less on the days that they teleworked than they did on regular commute workdays.

While this study concluded that telework has a demonstrable effect on emissions, it also noted several reasons why more widespread telework might not produce proportionally larger results. First, teleworkers had average commutes 2.5 times longer than the control group. Indeed, this is probably one of the reasons this group chooses to telework, since they save more time by not commuting.

This implies that as telework increases, and teleworkers’ commute length falls, the relative benefits produced by new teleworkers will fall somewhat, although they should still be positive.

Second, the benefits are confined to the days teleworked; if people telework only one day per week, those benefits amount to only 20 percent of the potential benefit of teleworking five days per week. Finally, the study notes that emissions benefits will differ with the time of year since atmospheric conditions affect both the amount of pollutants released by vehicles and the formation of ozone. (Henderson, et al, 1996)

Telework is one of the most effective transportation demand management (TDM) emissions reductions measures. A study done by the Metropolitan Washington Council of Governments of four transportation emission reduction measures found that its Telework Resource Center (a program that assists businesses in implementing teleworking)

was the most effective of the four, reducing the number of vehicle trips by almost 35,000 per day. The program was also estimated to reduce nitrogen oxides (NO<sub>x</sub>) emissions by .9 tons per day, and volatile organic compounds (VOC) by .5 tons per day. However, the evaluation also noted that the effectiveness of telework as a measure to reduce emissions is limited by two factors. First, although it was predicted that teleworkers would work remotely 2.65 days per week, the average was only 1.59 days. Second, only 71 percent of teleworkers drove alone on the days that they go into the office. (Metropolitan Washington Council of Governments, 2001).

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<sup>7</sup> Example from: [www.bwc.gov/employ/csparking.htm](http://www.bwc.gov/employ/csparking.htm).



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## For More Information

This guidance document and other information about Best Workplaces for Commuters<sup>SM</sup> are available at <[www.bwc.gov](http://www.bwc.gov)> or by calling the BWC information request line at (888) 856-3131.



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