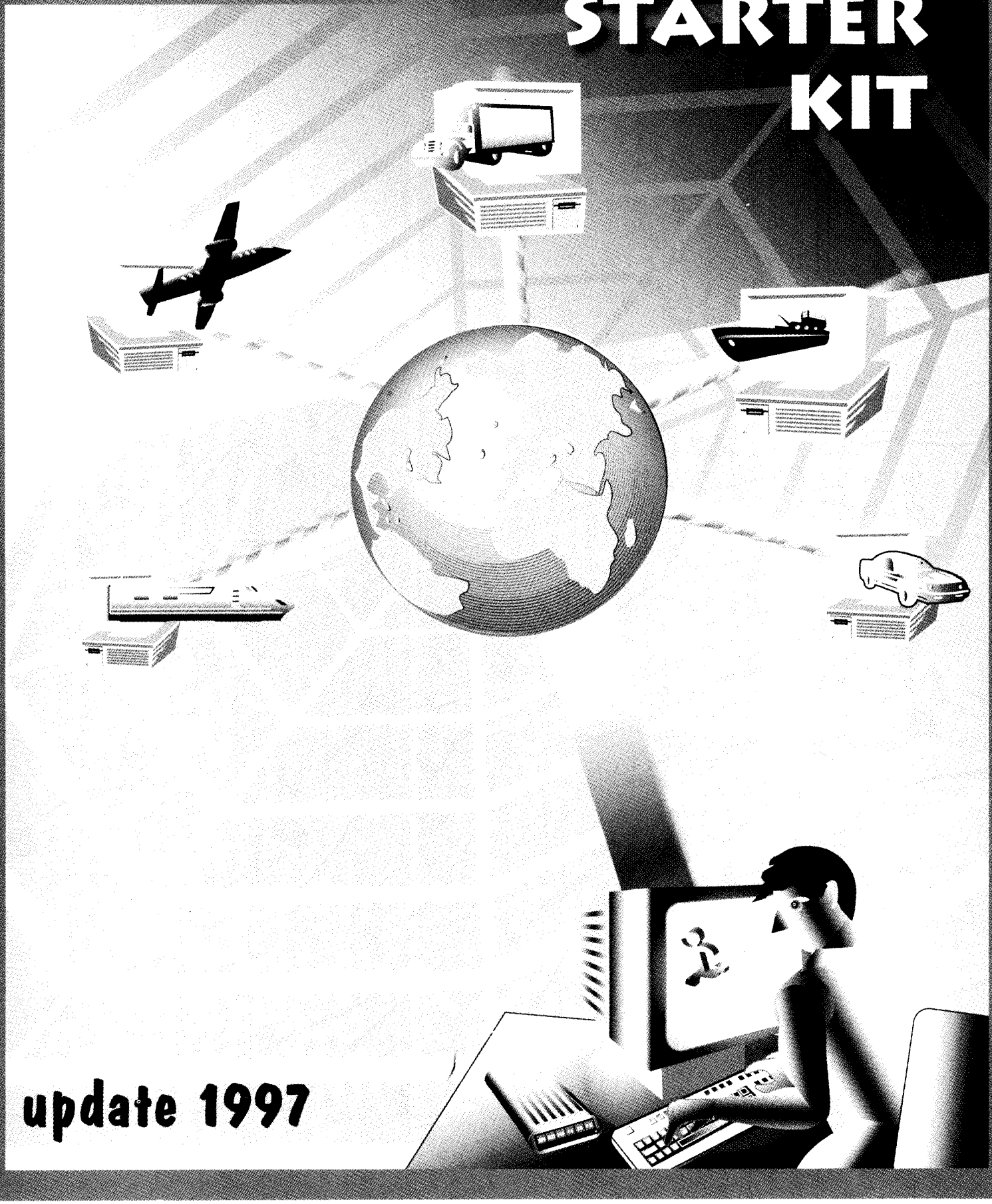
Bureau of Transportation Statistics

U.S. Department of Transportation

INTERNET STARTER KIT



update 1997

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Bureau of Transportation Statistics
U.S. Department of Transportation

INTERNET STARTER KIT
Update

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T.R. Lakshmanan
Director

Robert A. Knisely
Deputy Director

Rolf R. Schmitt
Associate Director for Transportation Studies

Philip N. Fulton
Associate Director for Statistical Programs and Services

Lisa Randall, Author

Image Crew Multimedia, Design and Illustration

Marsha Fenn, Editor

Madeline Gross, Secretary

Elizabeth Sheley, Copy Editor

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modem
Hello, how are you?

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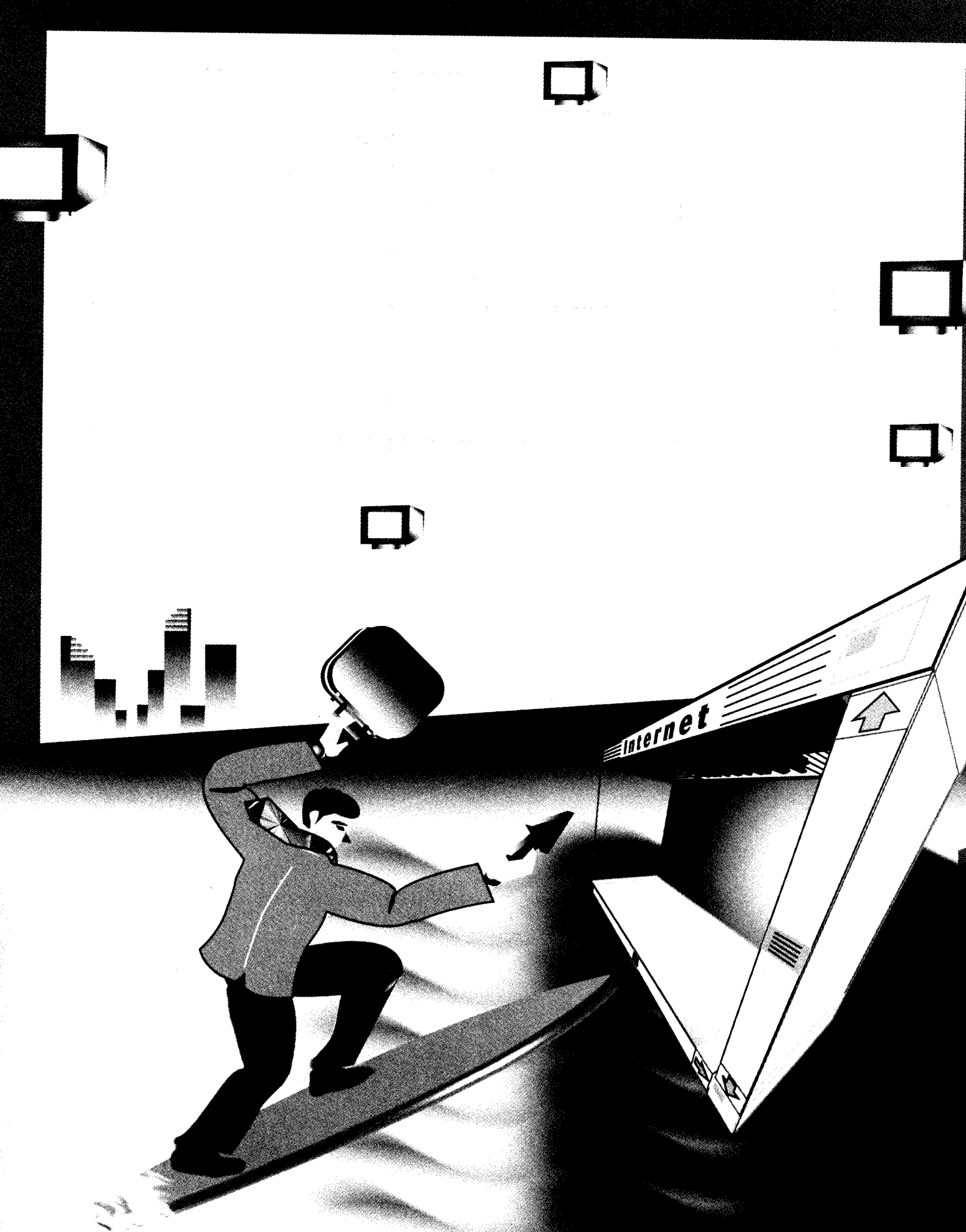
In January 1995, the Bureau of Transportation Statistics (BTS) -- recognizing that the emerging information highway had become an important means of communicating with and meeting the statistical needs of the nation's transportation community -- established an Internet site. Later that year, BTS produced the first Internet Starter Kit not only to assist transportation professionals in accessing the new Internet site, but also to give them a basic overview of the Internet and its offerings, particularly in the area of transportation.

Technology on the information highway doesn't stand still, and thus, almost two years later, we've updated this book. Although the chapters in this new Internet Start Kit still cover Internet history, Internet tools, connections options, search tools, and transportation-related resources on the Internet, the substance of each chapter has been revised to reflect the latest information.

Once you're familiar with the Internet, you'll want to visit our site, which is accessible through a variety of Internet tools, including the World Wide Web and File Transfer Protocol (FTP). At these sites, you can access information about BTS products and services, download or query data sets for specific BTS products, participate in online discussions of transportation issues, contact representatives in various transportation fields, or complete an online order form to receive the print, diskette, or CD-ROM version of any BTS product.

The Bureau's World Wide Web site is available at www.bts.gov, and our FTP site can be accessed at ftp.bts.gov. BTS is committed to providing the best customer service possible. If you have questions not answered in this book, or would like to provide feedback and suggestions on the Internet Starter Kit, please contact us via e-mail (info@bts.gov) or call (202/366-1270).

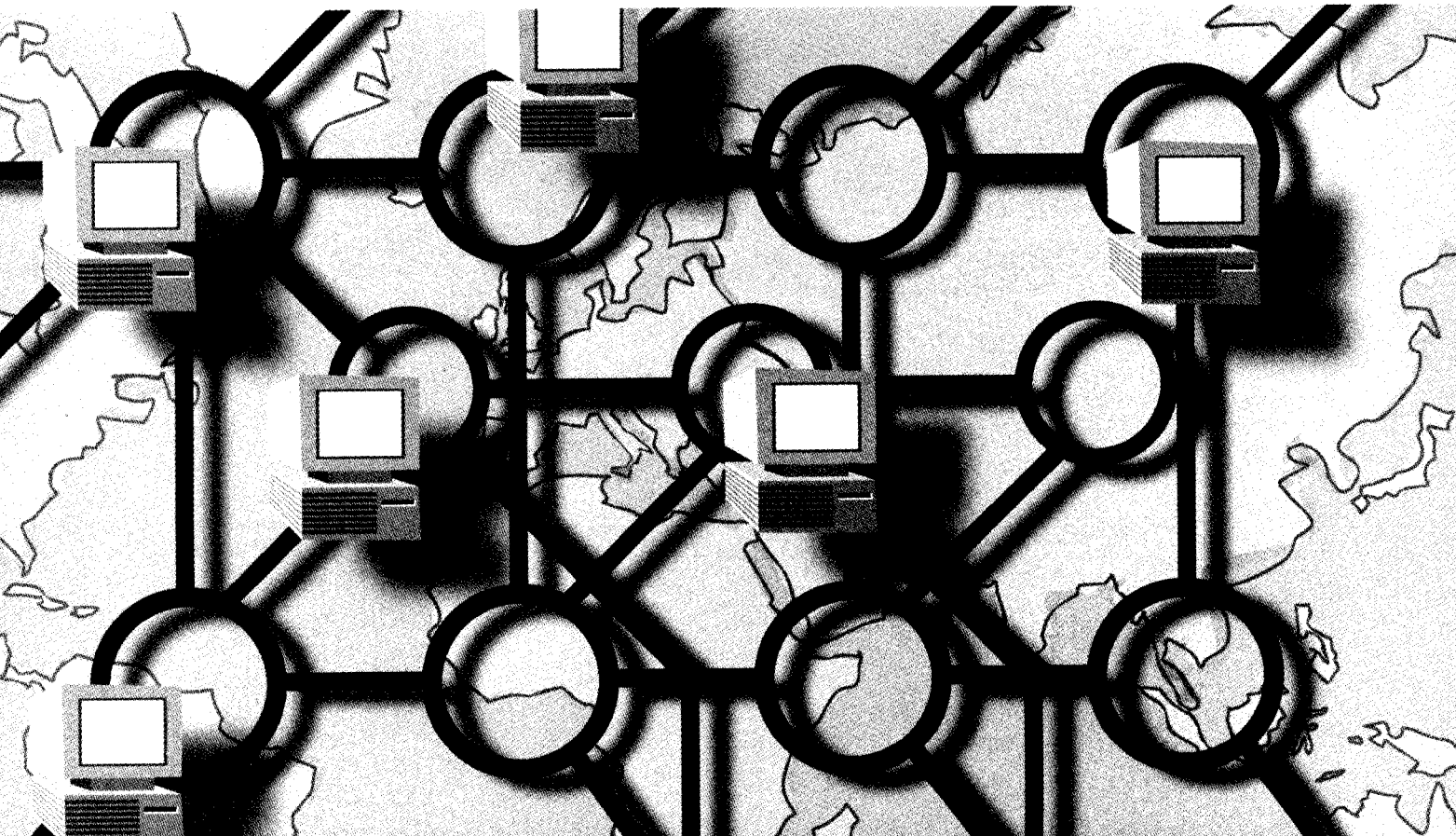

internet

What Is This Thing Called Internet?

Internet. You've heard of it. You've read about it. You may have even seen parts of it. But what is "it," and why is it generating such excitement? The Internet is often described as a "network of networks," seamlessly linking computers and users across the globe.

If you're asking yourself, "Well, what does that mean--network of networks?", try thinking about the Internet in more personal terms. Think of it as your "toolbox" for electronic communication and information. You open up the toolbox and find resources that let you communicate with other people and access vast quantities of electronic data and information. Each tool has its own unique abilities, and is useful under certain conditions and for particular reasons.

However you think of the Internet, as a network of networks, electronic toolbox, or any other metaphor of your choosing, it--along with other cutting-edge information technologies--is leading us into the Information Age of the 21st century.

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A Little Internet History

Today's Internet originated with a network designed by the U.S. Department of Defense's (DOD's) Advanced Research Projects Agency (ARPA) in the late 1960s. The network, called ARPANet, was designed to provide information on distributed computer systems that were being used for military purposes. Through ARPANet, DOD hoped to learn how wide area computer networks, dispersed around the globe, could withstand the loss of connections due to military attack. A robust and reliable network required a dispersed system so that if certain portions were destroyed, communications would simply be directed elsewhere on the network.

To enable such a robust network, a "protocol," or standard of communications for computers on the network, had to be established. Eventually, ARPANet adopted a suite of communication protocols or standards. These protocols defined how certain applications would be accomplished: electronic messaging, online connections, and the transfer of files. Today, these same protocols are used on the Internet and are known as TCP/IP (Transmission Control Protocol/Internet Protocol).

In 1986, the National Science Foundation (NSF) established a network known as NSFNet to facilitate communication between research organizations and college and university laboratories across the country. NSFNet served as the "backbone" or main communications link between the dispersed research and education organizations. To facilitate transfer of electronic messages and data, NSFNet relied on the same TCP/IP suite originally developed for ARPANet. NSFNet worked so well for the research and education communities that other smaller organizations with publicly and privately funded networks soon linked their systems into NSFNet. Other countries also became interested in linking their public networks to the growing NSFNet. Canada became one of the first countries to do so in 1988. This linking of separate networks formed the foundation for the Internet we know today.

The real growth of NSFNet, however, started in 1987 when commercial organizations began working with NSF to manage the growing traffic on NSFNet. In 1991, NSF officially removed commercial restrictions on NSFNet. People began to refer to NSFNet as the "Internet." Soon a variety of commercial Internet access options and information services began to appear. Popular Internet communications tools such as Gopher and the World Wide Web were developed. Since then, the Internet has continued to experience rapid growth, expand its range of services, and foster an unparalleled degree of communication, collaboration, resource sharing, and information access.

An Internet Timeline

The Internet continues to evolve almost on a daily basis. What the Internet is today may not be exactly what it is tomorrow. The timeline on pages 6 and 7 gives you an idea of the most significant changes that have occurred during the Internet's development.

1965 A U.S. Department of Defense organization, the Advanced Research Projects Agency (ARPA), begins sponsoring a variety of research on computer networking. The primary research objective is to develop robust and reliable communications and computer networks for U.S. military purposes.

1969 ARPANet is created to facilitate communication between the different research groups working on ARPA activities and projects.

1982 ARPA establishes the communications standards, Transmission Control Protocol (TCP) and Internet Protocol (IP) for ARPANet. TCP/IP continue to comprise the communications protocols of today's Internet.

1986 The National Science Foundation creates NSFNet, using the same communications protocols developed for ARPANet. NSFNet acts as the backbone of a national series of networks, providing free service to U.S. research and education organizations. Other regional and commercial networks begin to establish electronic links to NSFNet.

1987 NSF signs cooperative agreements with commercial organizations to help it manage the NSFNet backbone.

1988 Other countries (Canada, Denmark, Finland, France, Iceland, Norway, and Sweden) begin linking their networks to NSFNet.

1989 Australia, Germany, Israel, Italy, Japan, Mexico, the Netherlands, New Zealand, and the United Kingdom connect their countries' networks to NSFNet.

1990 ARPANet ceases operations.

NSFNet begins to be referred to as the Internet.

Argentina, Austria, Belgium, Brazil, Chile, Greece, India, Ireland, South Korea, Spain, and Switzerland connect their countries' networks to the Internet.

1991 NSF lifts commercial restrictions on the Internet.

Commercial Internet service providers in the United States begin offering a variety of Internet access options.

Gopher, an Internet information access tool, is developed at the University of Minnesota.

World Wide Web, an Internet information access tool, is developed at

CERN, the European Laboratory for Particle Physics in Geneva, Switzerland.

Croatia, Czechoslovakia, Hong Kong, Hungary, Poland, Portugal, Singapore, South Africa, Taiwan, and Tunisia connect their countries' networks to the Internet.

1992 Cameroon, Cyprus, Ecuador, Estonia, Kuwait, Latvia, Luxembourg, Malaysia, Slovakia, Slovenia, Thailand, and Venezuela connect their countries' networks to the Internet.

1993 NSF creates InterNIC (Internet Network Information Center) to provide specific Internet services, including site registrations.

Mosaic, a graphical browser for the World Wide Web, is developed at the National Center for Supercomputing Applications at the University of Illinois.

Bulgaria, Costa Rica, Egypt, Fiji, Ghana, Guam, Indonesia, Kazakhstan, Kenya, Liechtenstein, Peru, Romania, the Russian Federation, Turkey, Ukraine, the United Arab Emirates, and the British Virgin Islands connect their countries' networks to the Internet.

1994 World Wide Web's popularity continues to increase.

Algeria, Armenia, Bermuda, Burkina Faso, China, Colombia, French Polynesia, Jamaica, Lebanon, Lithuania, Macau, Morocco, New Caledonia, Nicaragua, Niger, Panama, Philippines, Senegal, Sri Lanka, Swaziland, Uruguay, and Uzbekistan connect their countries' networks to the Internet.

1995 NSFNet reverts back to a research-only network. The U.S. network backbone is now maintained by interconnected commercial providers.

Proprietary online information services, such as America Online, CompuServe, and Prodigy, begin offering Internet access to their subscribers.

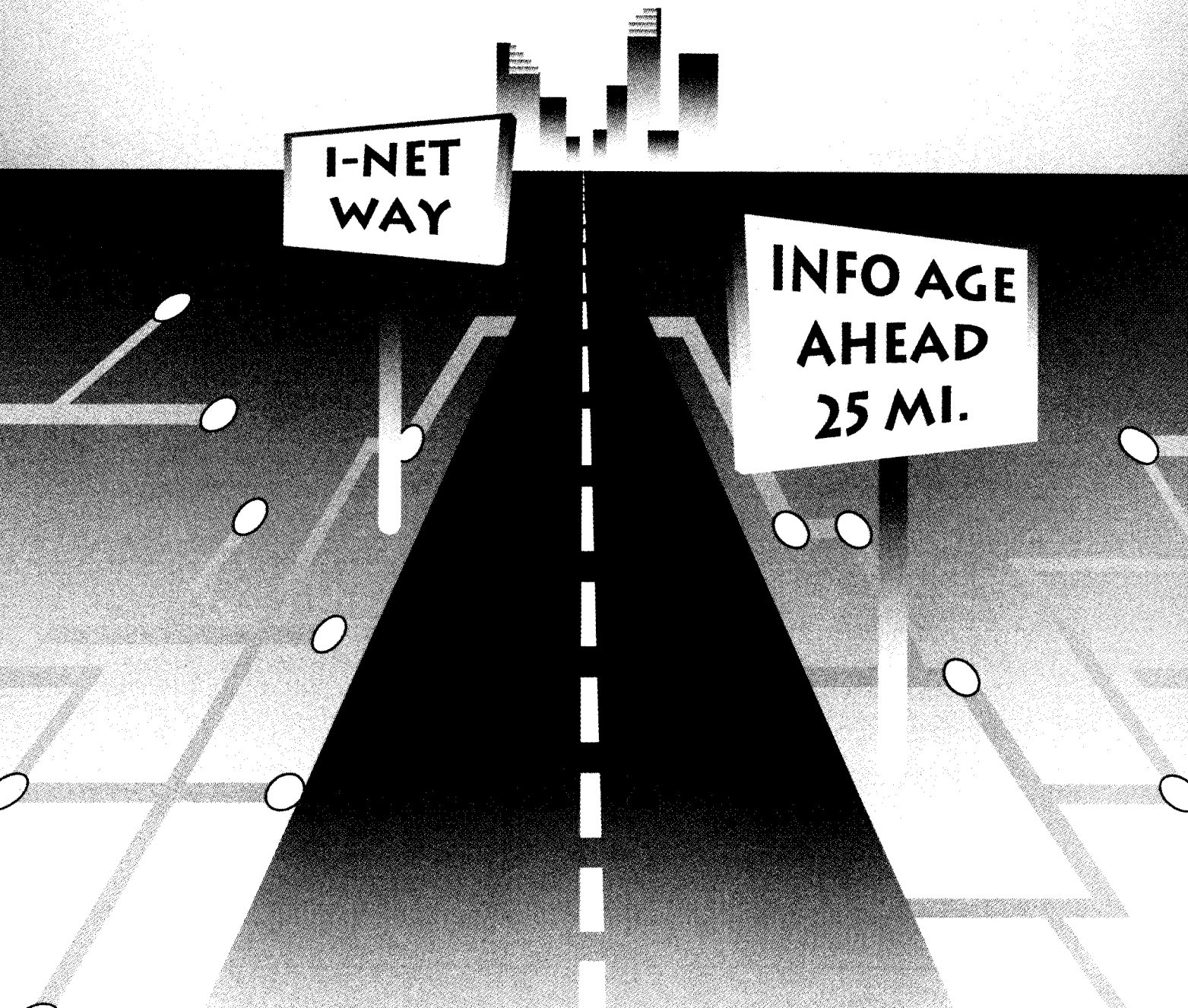
1996 U.S. Congress passes the Telecommunications Act of 1996 allowing for increased integration of and competition between the computer, cable, and telecommunications industries.

Telecommunications companies such as AT&T, Sprint, and MCI begin offering Internet access.

1997 and Beyond

More interesting developments...

- Exchange Information Quickly and Conveniently
- Access Experienced and Expert Individuals in Thousands of Fields
- Receive Regular Updates on Topics of Specific Interest
- Build Teams and Enhance Teamwork Across Geographic Distances
- Translate and Transfer Data
- Disseminate Information



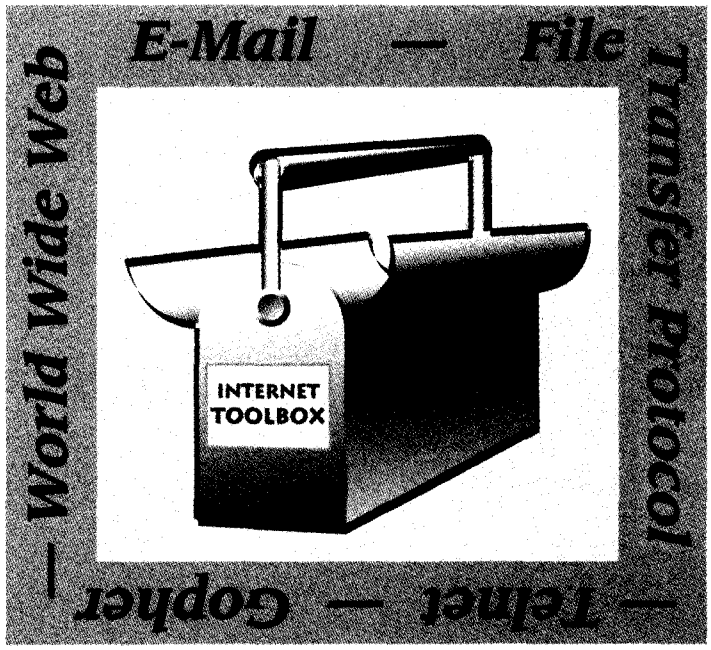
What Can the Internet Do for You?

If you're thinking, "This Internet stuff is all very interesting, but really, why should I bother?" there are some specific answers to your question. Fundamentally, you should bother because the Internet is more than just technology: it is a way to improve human communication, and it is leading us straight into the Information Age. Despite the fact that the Internet is changing rapidly, there are several specific things you can do that will put you in a good position when the next round of technological change begins. Here's just a starter list of what the Internet can do for you.

- *Exchange information quickly and conveniently*
- *Access experienced and expert individuals in thousands of fields*
- *Receive regular updates on topics of specific interest*
- *Build teams and enhance teamwork across geographic distances*
- *Translate and transfer data*
- *Disseminate information*

More on the Internet Toolbox

The Internet can be your electronic communications link to individuals, data, and information. As a user, to access the Internet, you will need special software applications, which can be thought of as your online tools to electronic communications and information resources. In this sense, then, it is helpful to think of the Internet as a large electronic toolbox, with basic and sophisticated tools such as Email, the World Wide Web, File Transfer Protocol, Gopher, and Telnet. All of these individual Internet tools are more fully discussed in chapter 2, The Internet Toolbox.

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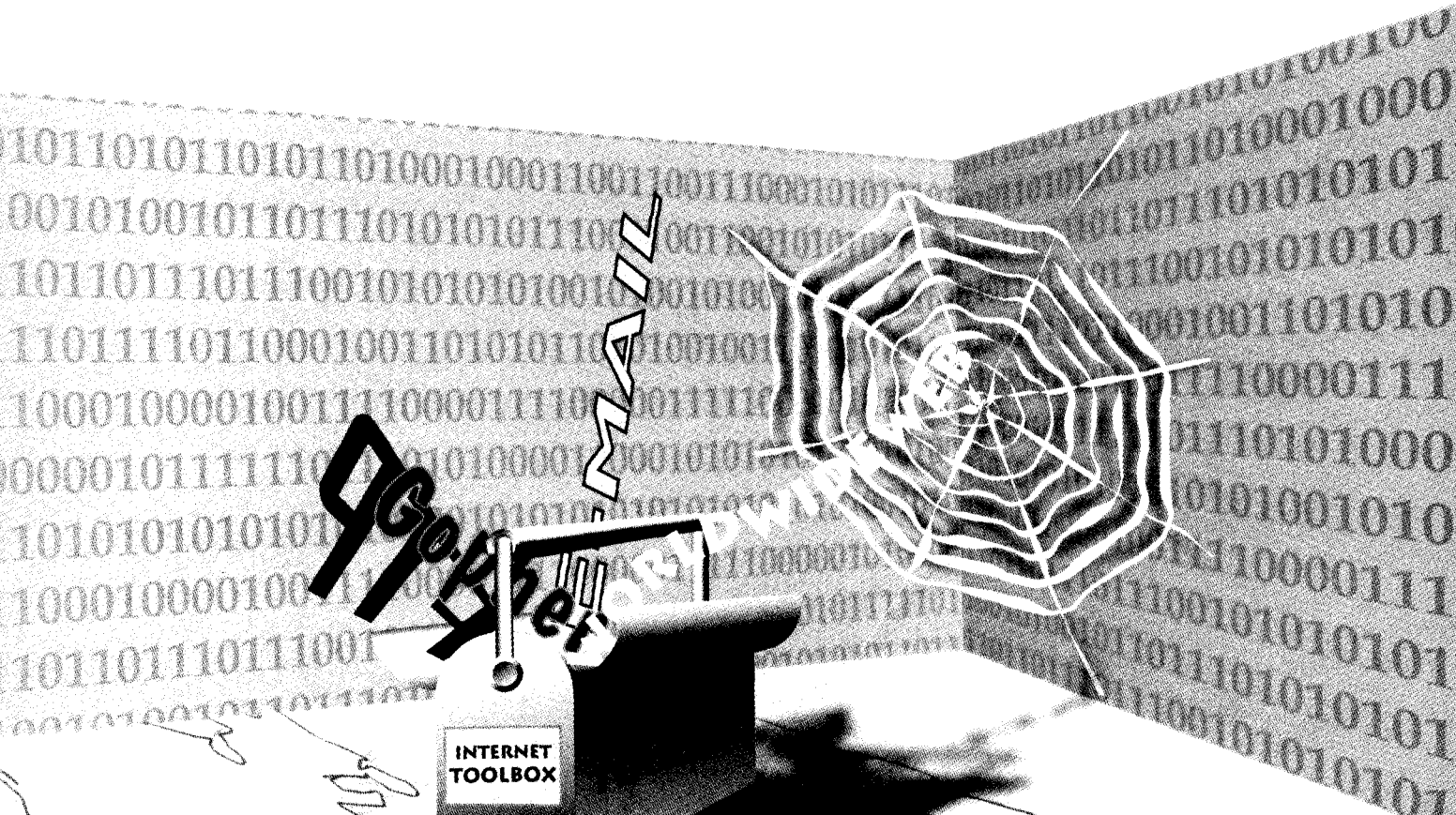
Overview

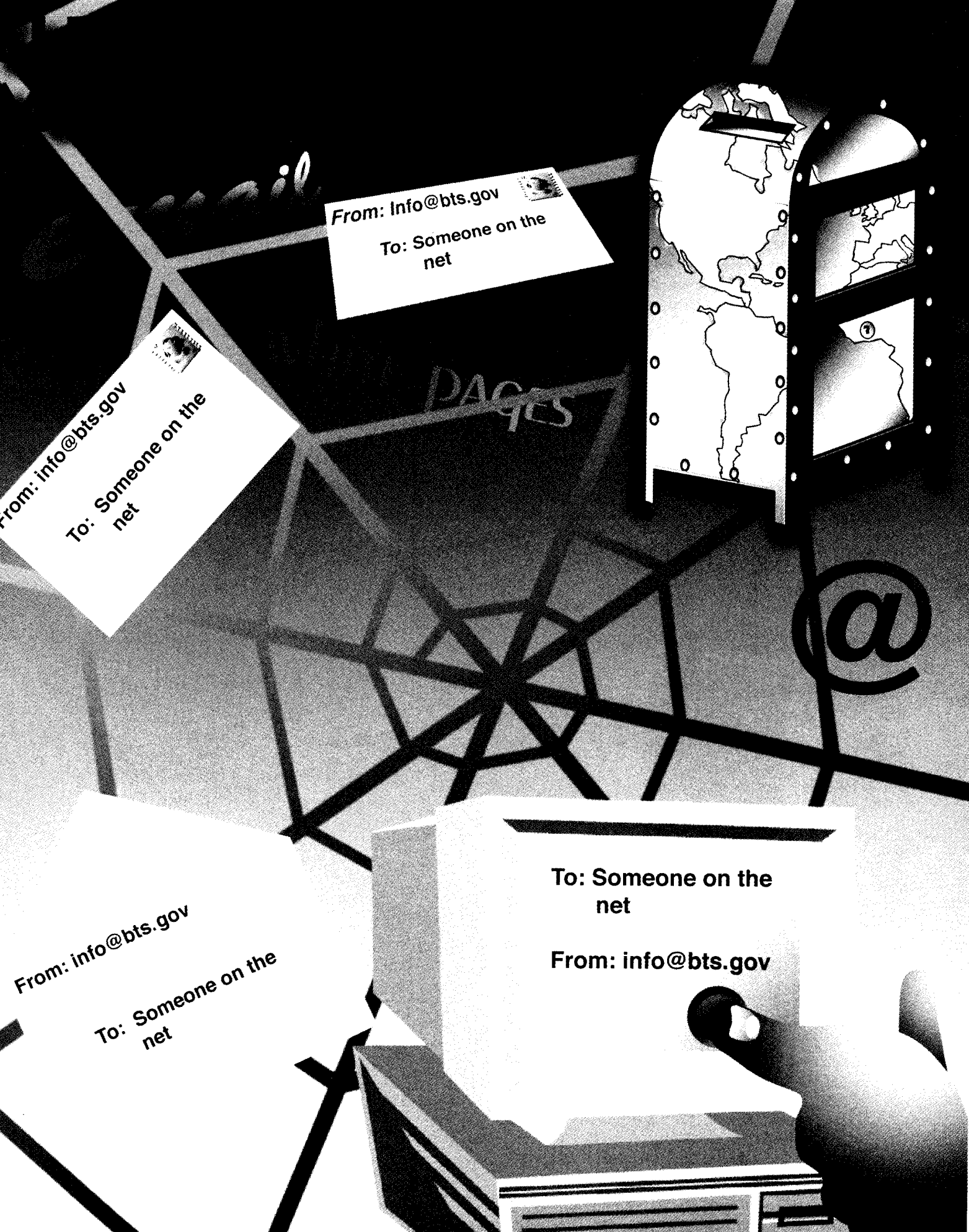
In practical terms, the Internet toolbox is made up of several specific software applications and programs. But it may be more helpful to think of these as your set of electronic communications and information access tools.

As in any toolbox, some tools are used frequently while others come in handy only for specific tasks. The Internet toolbox is no different. The two most popular and often used Internet tools are Electronic Mail (Email) and the World Wide Web (WWW or the Web). In contrast, tools such as File Transfer Protocol (FTP), Gopher, and Telnet are less commonly used, but are valuable in performing specific tasks on the Internet.

In addition, as in traditional toolboxes, some tools are the old, well-known, and trusted "basics," while others are recent innovations. Similarly, the Internet has its own set of "original" tools, including Email, FTP, and Telnet, which were created so that the early users of the Internet could share software and research results more easily. These tools formed the building blocks for newer Internet tools such as the Web and Gopher. The Web and Gopher were created to facilitate easier access to information and data, and their development greatly enhanced the usability and "friendliness" of the Internet.

The Internet toolbox offers you a set of resources, each with its own unique set of features and utilities. Which tool (or tools) you use most frequently will depend largely on what you are trying to accomplish. Understanding the basic features of all the Internet tools will not only make you a more proficient user, but will also make your Internet experiences more productive.

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To: Someone on the net
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PAGES
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From: info@bts.gov
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To: Someone on the net
From: info@bts.gov

Electronic Mail

Electronic mail is the most basic and most used of all Internet tools. Email is a quick, easy, and inexpensive way to communicate with other Internet users around the world.

Email's popularity and utility is understandable. In some respects, Email is much like sending traditional mail. You compose a message (letter), address it, and then send it (drop it in the mailbox). Unlike traditional mail, however, Email is almost always faster, frequently taking only seconds to arrive at its destination, and usually costs less than regular mail (or even a phone call).

Internet Email vs. Local Email

Before exploring the details of Email further, a little clarification is in order. First, Email is not unique to the Internet. If you work on a local area network (LAN), you've probably already used some form of Email that allows you to send and receive messages within your office. Or perhaps you've had an account with an online service provider such as America Online (AOL), Prodigy, or CompuServe. All of these networks enable their users to send and receive Email within their proprietary internal networks. In contrast to local or proprietary email networks, Internet Email allows you to send and receive messages from anyone who has an Internet connection. In essence, with Internet Email, you can electronically communication with millions of people.

Email Software Programs

To use Internet Email, you'll need to have access to an email software program; a variety of these programs is available. Which one you use will depend on where you're accessing the Internet (home or office) and what type of connection you have. For instance, if you're accessing Internet at work, you'll probably be using an email LAN software program such as cc:Mail, GroupWise, or MSMail. If you're accessing the Internet from home, your software interface may be provided by your Internet service provider or your online services company. For instance, AOL provides its subscribers with access to its own proprietary email software. On the other hand, if your Internet access is through a local Internet service provider, you may be offered a stand-alone email software program such as Elm, Pine, or Eudora. In addition, many Web browsers (discussed in more detail below) now offer built-in email capabilities. This means that your Web browser software will allow you to send and receive email messages in addition to browsing the Web.

Despite the variety of email programs, there are basic features that are standard across all, although names for these may differ slightly. The most common things you'll do with Email are: send, receive, read, reply, forward, and delete. Of course, you can't do any of these until you've begun to run your email program. This may be as easy as clicking on an icon or choosing the program from a menu. Or it may require you to log into a Unix environment and type specific commands. Again, how you do this depends on what type of Internet access you have. In any case, once you're actually running an email program, you'll be presented with a graphical or text interface that will offer you several basic options including: In Box, Out Box, and Trash. These may have slightly different names depending on your email software. For instance, Trash may be called

Deleted Messages. Now that you understand what's behind Email, it's time to use it.

Sending Email Messages

Sending email messages will likely be one of your heaviest uses of the Internet, and the process is relatively simple. In any email program, to send mail, you either click on the appropriate icon, enter a keyboard command, or choose this option from a drop-down menu. Once you've selected "send mail," you will most likely see a blank window with several lines: "To," "From", and "Subject." In addition, a large message box will generally appear where you can type in your message. In most cases, the From line will automatically be entered with your personal email address. Next you need to complete the To and Subject lines, which represent the email address of the person to whom you're sending the message (also known as the recipient).

Email Addresses

Just like traditional mail, to send Internet Email, you will need to know your recipient's address. Unfortunately, a comprehensive White Pages of Internet email addresses does not yet exist, so the most efficient way to get someone's address may be to call and ask for it. Email addresses are increasingly appearing on business cards, so check there as well. Another way to get someone's email address is when they send you a message first. If this is an address you won't be using again, all you have to do is Reply to their message. If you will be electronically communicating with this person again, either make a note of their address as shown on the From line or save their message. Sometimes only the name is on the From line; if so, double click on it and the actual address should come up on your screen.

Now that you have the address, what do you do with it? Understanding the structure of an Internet address will help you get started. Indeed, if you have ever seen an Internet email address, you've probably wondered what all those symbols and letters mean. Actually, the components of the Internet email addressing scheme are like the exchanges and area codes that make up a telephone number. Although the specific format of a particular email address may vary by service provider, the basics are pretty well established. Consider the following example:

jdoe@bts.gov

"Jdoe" tells you who the individual user is. This user identification is usually based on some truncated form of the person's actual name. The "@" sign signifies that the user is "at" a particular location. Next comes the "host" address or "subdomain" name, which tells you the name of the organization that is running a given email site. In the example above, the host address or subdomain name is "bts," or Bureau of Transportation Statistics (BTS). The "domain" name in the United States is the final three-letter code. The domain provides information on type of organization. In this case, Bureau of Transportation Statistics is a governmental site, which is always indicated with ".gov".

In the United States, sites generally end with one of the following suffixes:

.org	*(nonprofit organizations)*
.edu	*(schools, colleges/universities)*
.com	*(businesses)*
.gov	*(government agencies)*
.mil	*(military organizations)*
.net	*(companies and organizations that run large networks)*

Outside the United States, individual countries are usually represented by a two-letter code that follows the organizational domain. For example, ".ca" stands for Canada.

Most email programs will also require you to type in special text before and after your recipient's address to "tell" the software that this is an Internet email message. For example, when we send Internet Email at BTS, here's what we type to send mail to "jdoe".

inet:"jdoe@university.edu"

When typing in your recipient's address, it's important to remember, however, that electronic mail delivery is not as forgiving as traditional mail delivery. One typing error, reversed number, or misspelled name will mean that your message will be "bounced" back to you or inadvertently sent to someone else. In either case, the intended recipient of your message does not receive it!

Of course, you can always send the message to more than one person by typing in the additional addresses. You can also copy the email message to another person by entering that person's address on the cc: line. Once you've completed addressing your message, you should type in the Subject line, which is usually a general description of what your message is about. The recipient of your message will see this line in their mailbox, along with your name. Next, of course, you'll actually need to compose and type in your text message. Then, you'll need to decide if your message is complete, or if you'd like to send some additional information along with it, such as attached electronic files.

Email Attachments

In most programs, you have the option of attaching electronic files to go with your text message. The basic message you just typed in is straight text; it may also be called straight ascii, ascii format, or ascii text. Whatever it's called, it has no special formatting and requires no special programs to run it. Therefore, it is the easiest type of email message to send.

But what if you wanted to send an electronic file along with your text message? Electronic files may also be referred to as "binary" or attachment files. This includes any type of non-ascii format file such as word processing files, spreadsheets, data sets, and graphics. Sending these types of files or attachments via email is getting easier and easier, but depending on your email program and service provider, it still might present a few challenges. To successfully send attached files, your email software program will have to "encode" these files before sending them. This means the files are translated into an equivalent of a text message format for transfer over the Internet.

The recipient of your message must have an email software program that can automatically "decode" or "uncode" the attached files. The majority of email programs now contain encoding and uncoding capabilities built into the software. This means that the actual process of encoding or decoding will be invisible to you as a user. If, however, the recipient of your email message has a problem reading attached files, it may mean that your two email software programs do not have compatible encoding/decoding features.

One of the most common encoding/decoding protocols currently in use is MIME, or Multipurpose Internet Mail Extensions. MIME has been built into a variety of email software programs to facilitate the sending and receiving of attachment files.

With MIME, if you receive an attached file, you should be able to click on it or press enter to open the file in the appropriate software. Without MIME or a similar protocol, you may have to first save and then manually run a decoding program before you can view and/or read the attachment.

Aside from the encoding/decoding concerns, another important point to remember when sending attached files is the type of software application these files are in. For instance, if you're sending an attached file in WordPerfect, and your recipient(s) only has Microsoft Word, they may not be able to read the files even if they are encoded and decoded properly.

Even though this may sound a little complicated, sending attachments via Email does work and is an extremely useful way of quickly transferring materials and documents. Of course, if you find you have specific problems sending or receiving attached files, your best resource for advice is your system administrator, online service company, and/or Internet service provider.

Once you've completed addressing and composing the message (and attaching files if you choose to), you're ready to send it. Depending on the type of Internet access you have, you can do this immediately by clicking on send, pressing enter, or using another similar feature; or you may need to first "activate" your Internet connection before sending the message. Once you've sent the message, a copy of it usually appears in your Out Box, or Sent Mail or Outgoing Messages box.

Reading Email Messages

Reading email messages is quite simple. Once you're in your email software program, you'll need to check your In Box for a listing of your incoming messages.

Generally, the newest (or most recently received message) is at the top of the list. From the list, you can see the sender's name and/or email address and the subject line of the message. You can "open" or read any of these messages by double-clicking or pressing enter in most email programs. After reading a message, you can choose to close it (thereby leaving it in your In Box), transfer it to another subject-oriented "sub" In Box (which you've previously created), delete it (or place it in Trash), reply to it, and/or forward it on to others.

Replying To and Forwarding Email Messages

Replying to email messages is easy. You don't have to type in the To or Subject lines. When you reply to a message, the original sender's address automatically becomes the address. If the original message was sent to you and others, you can choose to reply to everyone who received the original message or only to the sender of the message. The subject line will remain the same (generally with the word "reply" added at the end) unless you choose to change it. Some email programs may also automatically include the original message in your Reply To message. Others will give you choice as to whether you'd like the original message included or not. In many cases, it's helpful to include the original message with your reply so the recipients have the context when they read the new message.

The forwarding mail feature on most email programs allows you to "resend" or "forward" a copy of messages to others. In most cases, you can also type in your own personal message to accompany the forwarded mail. The subject line on the forwarded message will remain the same as

the original message, but you'll have to type in the new recipient's email address on the To line.

Deleting Email Messages

Once you start using Email frequently, read and unread messages can pile up in your In Box. To prevent In Box clutter (and information overload), you'll want to take time to delete (or put in the Trash) the messages that you don't need to save. With some email programs, you may have to take an additional step to permanently delete a message. This feature provides you with a safety net, in case you decide you really needed that message after all. It's also important to note that in many organizations, email files are often backed up and stored for recordkeeping purposes, so although a message may be deleted from your personal In or Out boxes, copies of deleted messages may be retained elsewhere.

Mailing Lists

Mailing lists, or "listservs," are one of the most popular ways to extend the capabilities of Email. One of your most frequent uses of Email will probably be to send messages to and receive messages from certain individuals on a regular basis. You may, however, also want to consider participating in mailing lists. Mailing lists enable the sending of Email to groups of people rather than individual to individual. Mailing lists are created around specific themes or subjects, and anyone with Internet Email can participate in them. Hundreds of mailing lists have been established on almost every conceivable topic. Finding specific mailing lists is discussed in chapter 4, "Searching the Net."

Information on transportation-related mailing lists is provided in chapter 5, "Transportation and the Internet."

To join a mailing list, you must "subscribe" to it. The subscription process is relatively simple, and requires only a few steps. First, you'll need to know the subscription address for the mailing list. Almost all subscription addresses will take one of the following formats:

list@
listproc@
listserv@
majordomo@

Following the @ sign would be the domain name of the organization hosting or sponsoring the mailing list. If the subscription address begins with "listproc@," "listserv@," or "majordomo@," then the subscription process is being administered automatically by a computer program. If the subscription address begins with "list@" where "list" is generally the name of the mailing list, then a person rather than a computer is administering the subscription process. When a person administers a mailing list, you subscribe by sending Email to the appropriate address with a text message saying that you'd like to join the list. Then you have to wait for a reply from the list administrator to confirm your subscription. Smaller mailing lists generally have this type of subscription process. In contrast, larger, more active mailing lists are likely to have a computer-administered subscription process, where you have to follow a set of standard instructions to subscribe. They are:

1. *Address the message to the subscription address for the list (i.e., listproc@, majordomo@, or listserv@)*
2. *Leave the subject line blank.*
3. *Type "subscribe list firstname lastname" where list is the name of the mailing list followed by your name in the body of the message or message box.*

This is generally the standard subscription process for any mailing list. If this process doesn't work for a specific mailing list, you can often send mail to the subscription address, leave the subject line blank, and in the message box, type "help." This should provide you with complete instructions for subscribing to that specific list.

To better illustrate the subscription process, here's an example of what you would do to subscribe to the transportation mailing list (named transp-l) at George Mason University (GMU):

1. *Subscription address: listproc@gmu.edu*
2. *Subject line: (leave blank)*
3. *Body of the message: Type "subscribe transp-l john doe"*

If your subscription attempt succeeds, you should receive a confirmation that you've been added to the list. This confirmation message will also contain important information about posting to the list, participating in the list, and unsubscribing to the list. It's often helpful to save confirmation messages, in case you every have any questions about the mailing lists.

Once you've successfully subscribed to and joined a mailing list, you'll then begin to receive messages related to that theme or subject--all delivered directly to your email inbox. You'll find that some mailing lists are extremely active. You may receive 10 or 20 messages a day. Other lists are less active, and you may only receive one message a week, often in a digest format (where messages are accumulated, and sent out in a larger message at one time).

In addition to receiving messages, you'll also have the opportunity to send your own messages, or "post" to the list. To do this, you generally send your individual message to a specific address. This address will be different from the address you used to originally subscribe to the list, and is only used to post messages to the mailing list. Once you send your message to this address, your message gets forwarded to the other subscribers.

Mailing lists are an extremely important resource tool, especially for those users who can only access the Internet via Email. Several mailing lists have been established to help you get started on the Internet. Here is the subscription information for two you might find valuable:

RoadMap

The RoadMap list is especially helpful for new users of the Internet. Once you subscribe, you are provided with an online Internet training workshop in the form of text-based email messages. The messages are designed to teach new users about specific Internet tools and applications. More information on RoadMap is available at the Web site, http://ua1vm.ua.edu/~crispen/roadmap.html.

1. *Subscription address: listserv@lists.internic.net*
2. *Subject line: (leave blank)*
3. *Body of message: Type "subscribe roadmap96 [first name last name]"*

Internet Tourbus

The Internet Tourbus list provides an overview of "best" of the Internet by Email. Biweekly messages are sent to list participants. More information on the Internet Tourbus is available at the Web site, http://www.worldvillage.com/tourbus.htm.

1. *Subscription address: listserv@listserv@aol.com*
2. *Subject line: (leave blank)*
3. *Body of the message: Type "subscribe tourbus [first name last name]"*

Using Email To Access Other Internet Resources

The above mailing lists can help you get started with your exploration of Email and the Internet. But what if your only access to the Internet is via Email, and you still want to access all the information Internet has to offer? Well, the good news is that you still can explore and find resources. The bad news is that it will take longer (potentially a lot) and a good deal of perseverance on your part.

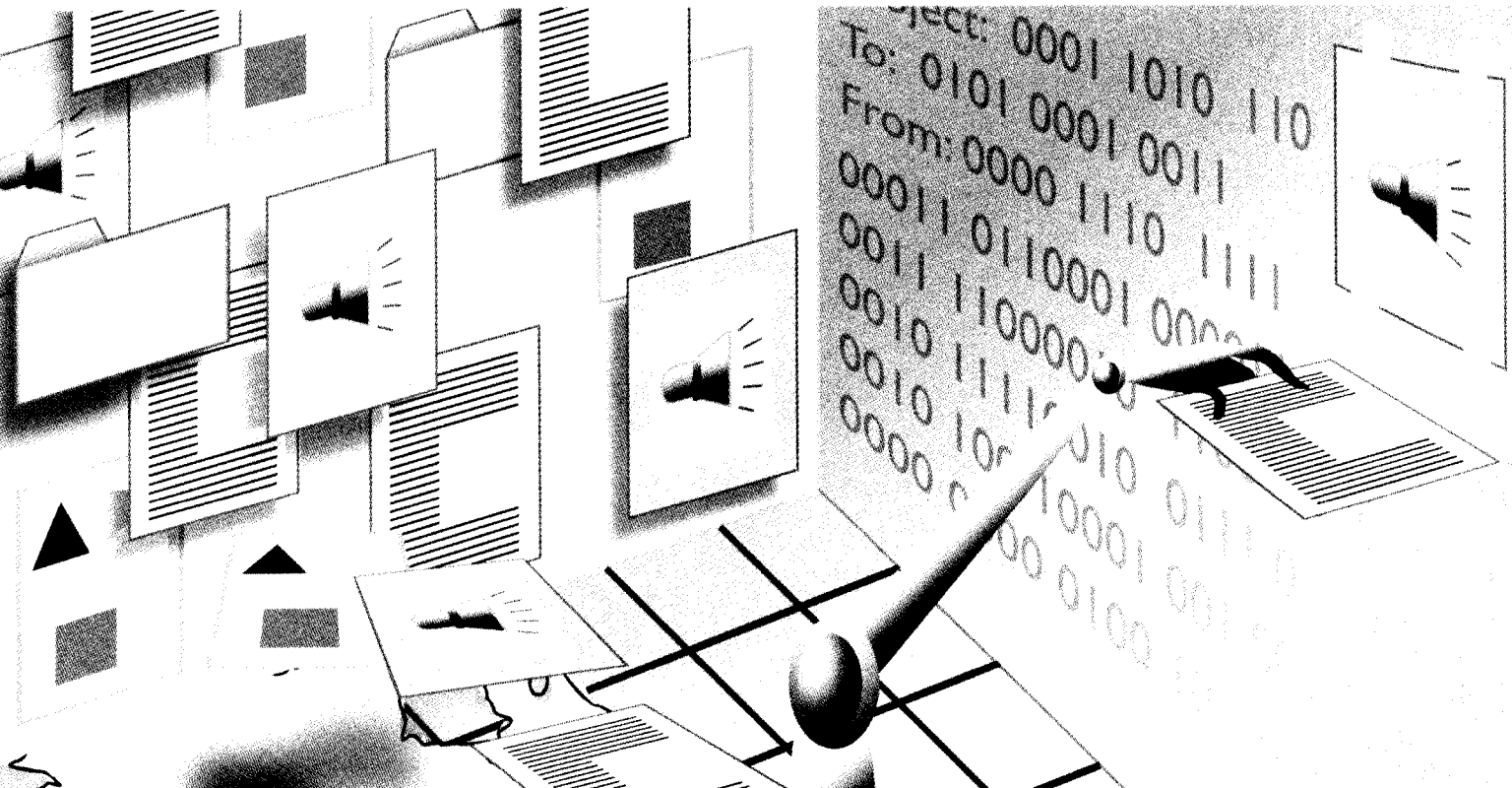
An excellent electronic guide to accessing information on the Internet via Email is "Doctor Bob" Rankin's Accessing the Internet by E-mail, which explores how to access FTP, explore Gopher sites, and tap into the World Wide Web with Email as your only tool. Email versions of this report can be obtained from one of two addresses.

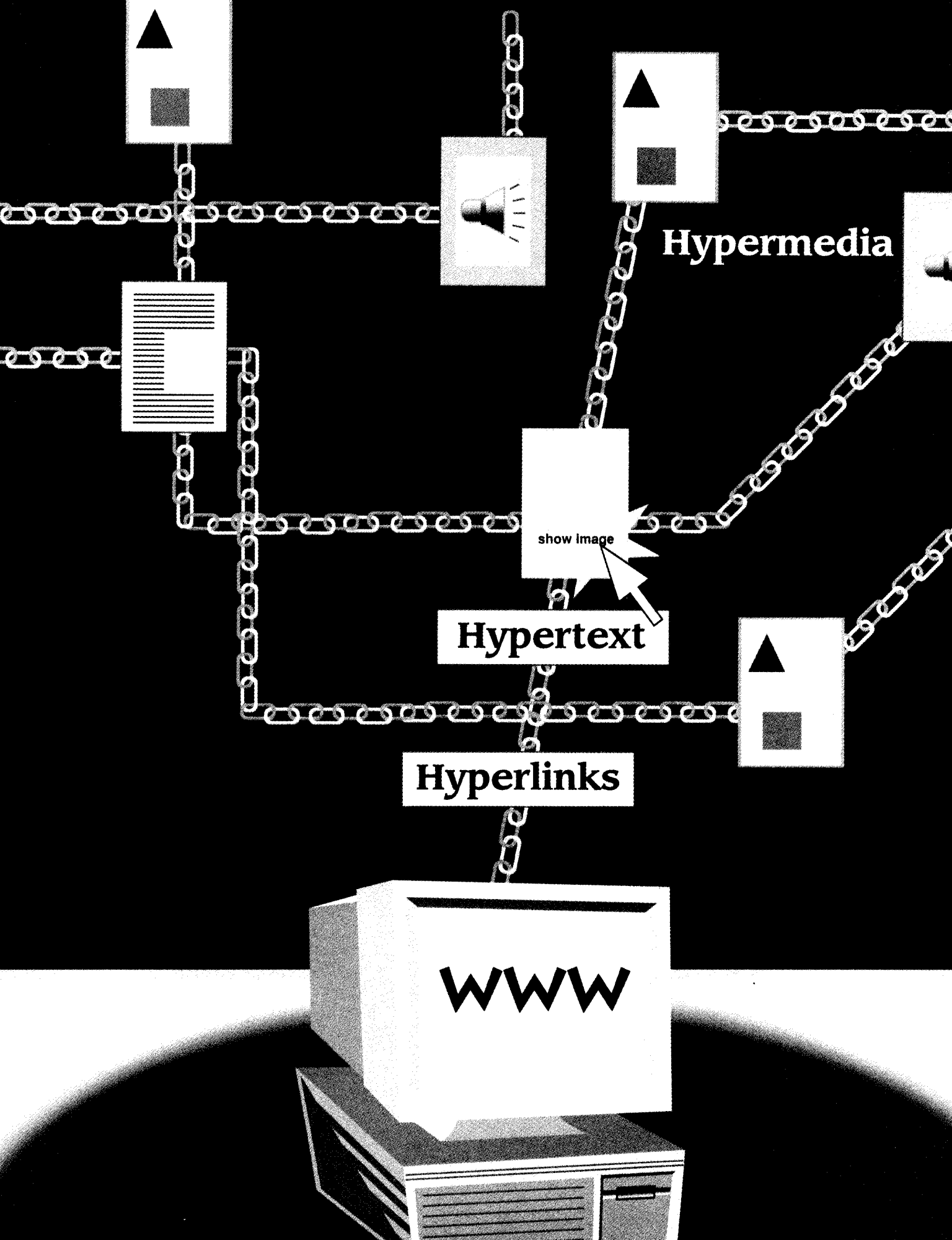
Address 1

1. *Address: mail-server@rtfm.mit.edu*
2. *Subject line: (leave blank)*
3. *Body of the message: Type "send usenet/news.answers/internet-services/access-via-email"*

Address 2

1. *Address: mailbase@mailbase.ac.uk*
2. *Subject line: (leave blank)*
3. *Body of message: Type "send lis-iis e-access-inet.txt"*




Hypermedia
show image
Hypertext
Hyperlinks
WWW

World Wide Web

The World Wide Web is a key reason for the recent explosion in the popularity of the Internet. The Web's popularity with new and advanced users is well deserved: of all Internet tools, it is undoubtedly the easiest to use.

Developed in the late 1980s at CERN (the European Laboratory for Particle Physics) in Geneva, Switzerland, the Web was originally designed as a hypertext system to help the global physics community share information. The World Wide Web drew mass interest in 1993 when a "graphical browser" was developed and released by the National Center for Supercomputing Applications (NCSA) at the University of Illinois. For the first time, a user could view and access information on the Internet through an easy point-and-click process known as "hypertext."

Key Features

Hypertext, hyperlinks, and hypermedia are at the heart of the Web. But what exactly are they? The easiest way to think about these is that they put you in the driver's seat to information. Basically, by pointing and clicking on certain text and graphics on a Web page, you can rapidly access related documents, graphics, photos, sound, and video. The term hyperlinks refers to special computer code that links related text or media. Hypertext is a specific type of hyperlinks. It refers to words or sentences in a text document that are highlighted in some way and then linked to another text document. You simply click on a highlighted word or sentence and are linked to a related text document. The term hypermedia is similar, except that it refers to the linkage of multimedia elements. The actual linkage process will be transparent to you as the user; all you need to do is point and click.

In addition to ease of information access through hyperlinks, the Web also brought the world of multimedia to the Internet. The World Wide Web is the only Internet tool that supports a full range of multimedia (sound, image, video, graphics). These multimedia capabilities have made it an exciting and popular tool for Internet users. With the Web's multimedia support, you can choose to read text, hear sound, or view images. For example, via the Web, you can now view real-time traffic conditions, observe planned highway construction projects, and generate transportation-related maps.

Web Browsers

To access the Web, you need a Web software program, often called a "Web browser." A browser lets you read or view a particular Web site. A browser can either be text-based or graphical. A text-based browser will only read the text portions of a Web site. One of the more popular text-based Web browsers is Lynx, which was developed at the University of Kansas. In contrast, graphical Web browsers allow you to fully access the multimedia capabilities of the Web. Since the development of Mosaic (the first graphical Web browser developed at NCSA in 1993), many more graphical Web browsers have become available. These include Netscape Navigator, Internet Explorer, NetCruiser, AirCruiser, WebNavigator, and Enhanced Mosaic.

Although Web browsers were originally developed to read and view information at Web sites, newer browsers now can support most of the other Internet tools. In a sense, many of the Web browsers are offering one-stop Internet capability. If config-

ured properly, many browsers allow you access to and use of other Internet tools such as Email, Gopher, and Telnet.

What's a URL?

To access one of the numerous sites that are continually being added to the Web, you will need to know that site's uniform resource locator (URL). A URL is nothing more than a Web site's electronic address. Web addresses generally begin with the following set of characters: "http://". Http refers to hypertext transfer protocol, and basically identifies a particular Internet resource as a Web site. Following http://, a Web address generally includes the site name followed by the subdomain name and then the domain name.

For instance, the URL or Web address for the Bureau of Transportation Statistics World Wide Web site is:

http://www.bts.gov

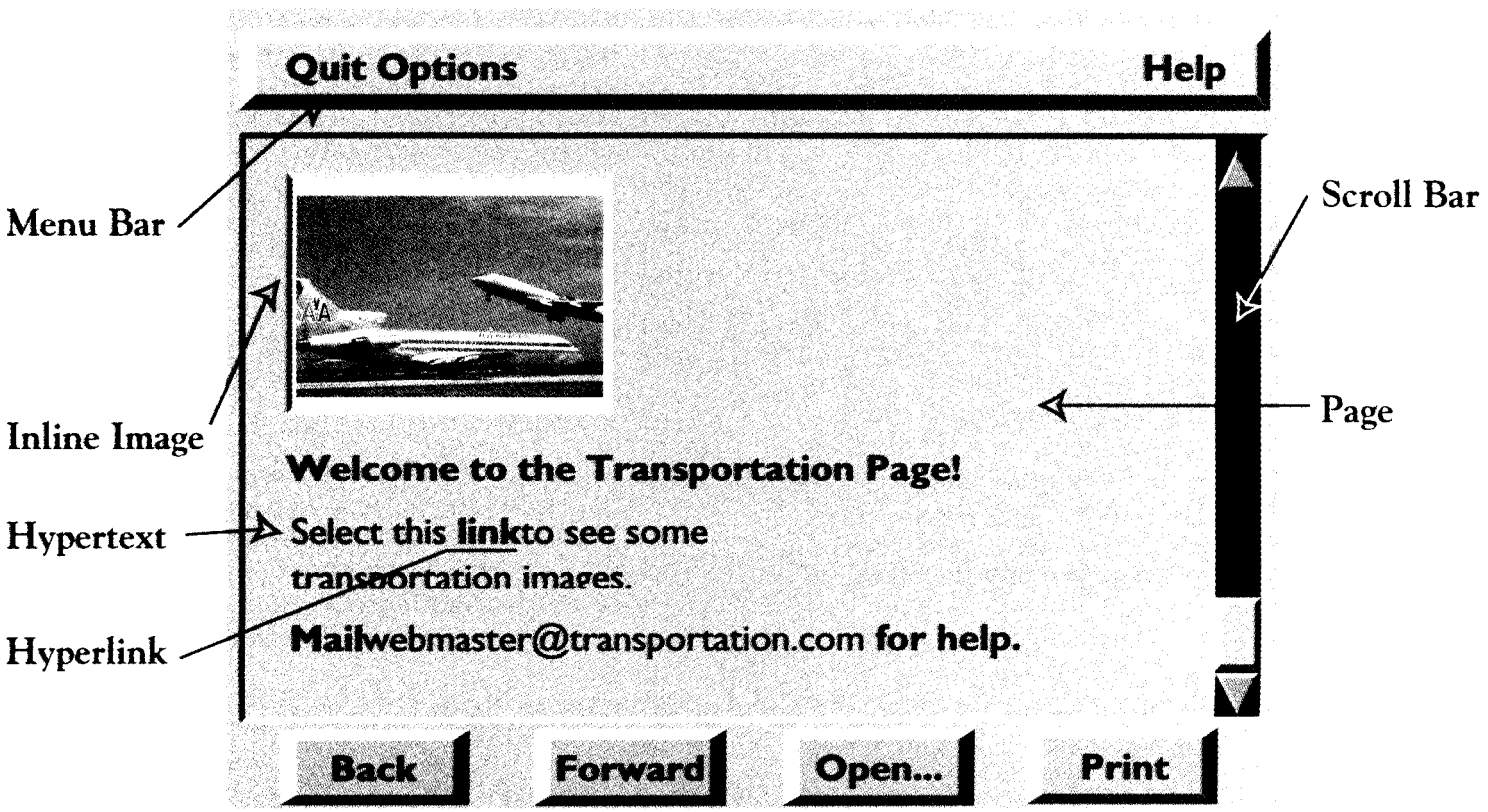
(Some Web addresses may also have ".html" following the domain name. Html refers to hypertext markup language and is the primary means of formatting documents on the Web.)

If you are not sure of a Web site's URL, or would like to know about sites focused on a specific topic, you'll want to use one of the search engines and/or indices that have been developed to help users find resources on the Web. (For a more detailed discussion, see chapter 4).

Home Pages

Once you've entered a Web address, your browser goes out and contacts that site, and then transmits back that site's "home page." A home page is the first page, or starting point for a particular Web site. Home pages generally provide you with an overview of the information available at that site, through clickable text or graph-

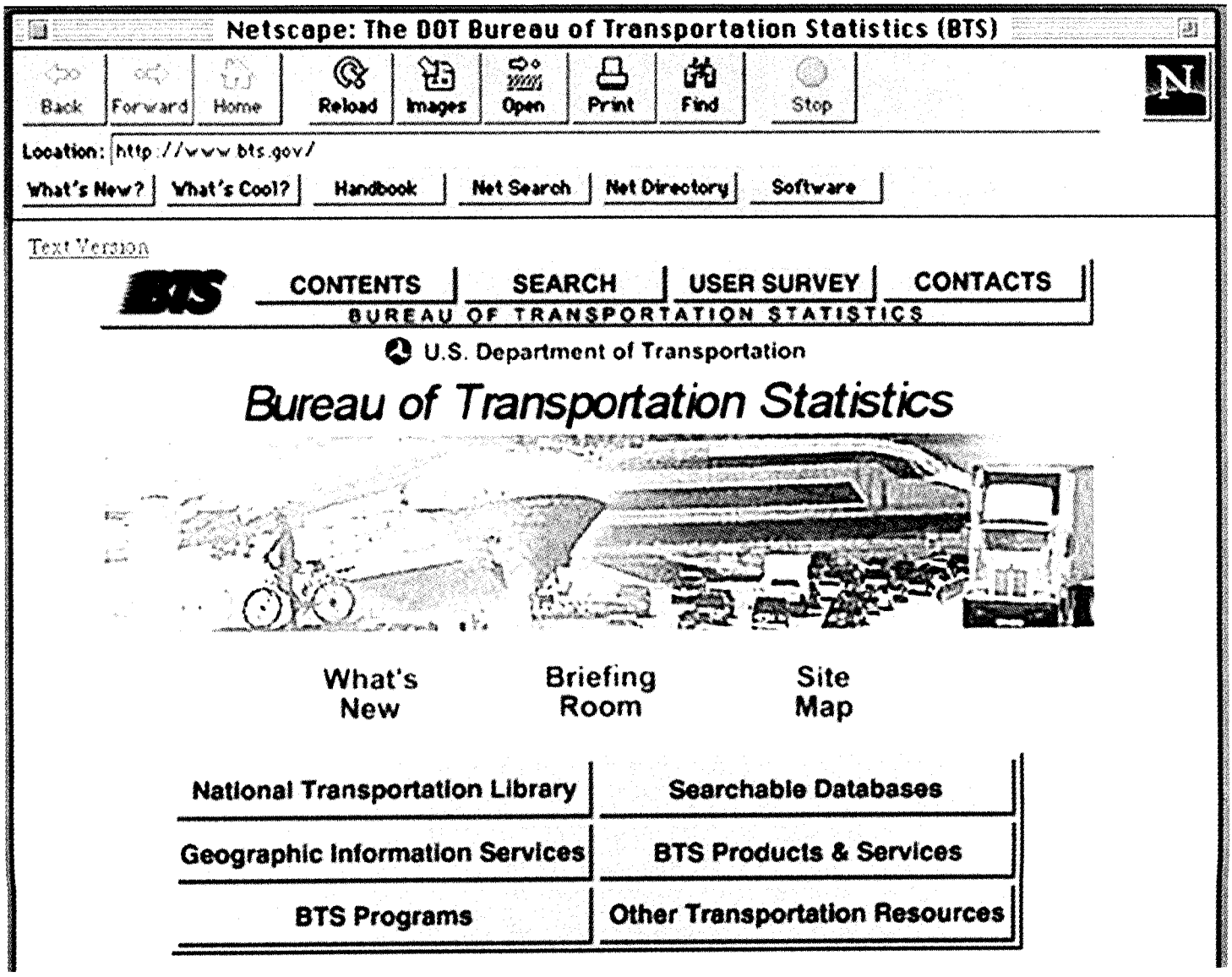
Sample Web Browser



ics. The BTS home page, illustrated on this page , provides an organizational map to the information resources available at the Bureau's Web site. The home page provides hyperlinks to resources organized into the following six main categories: National Transportation Library, Geographic Information Services, BTS Programs, Searchable Databases, BTS Products and Services, and Other Transportation Resources. In addition to these six main sections, links are also provided to the BTS Briefing Room, What's New, and a Site Map. The BTS site, like other Web sites, may be browsed by following links off of the main home page. In addition the BTS site, like many of the larger Web sites, provides users with the option of automatically searching the site's resources by keywords or concepts, and then receiving ranked results of resources that match your query terms in return. (For more information on the BTS site, see chapter 5.)

More on Multimedia

One of the key draws of the Web is its multimedia features. The Web can offer you information in a variety of media formats, including text, pictures, sound, animation, and movie/video clips. To fully use all of these formats, you'll need to have a pretty fast Internet connection, sufficient memory on your computer, appropriate hardware (such as sound and video cards), and spe-



cific software applications. The software applications are needed to interpret the different media formats (i.e., sound, video, and so forth).

Some Web browsers have integrated specific software helper applications referred to as "plug-ins." If your browser has plug-ins for certain types of media formats, then you will immediately be able to view or listen to that media format just by clicking on the appropriate link. If your browser does not have plug-in features, you can still access different media formats by installing a viewer on your computer or by associating a "helper" application with your browser.

A viewer (also called a "reader" or "player") is a program that you install on your computer to view or listen to a specific media format. It is an entirely separate program from your Web browser. For example, say that you're at a particular site that has some audio recordings you would like to hear, but your Web browser doesn't have an audio plug-in. To listen to the recording, you could install an audio viewer such as "Real Audio" or "Sound Recorder" on your computer. Then you would download (save) the audio recording file from the Web to your computer's hard drive. To listen to the recording, you would activate the Real Audio or Sound Recorder and play the downloaded file.

This process takes a little time and is a bit complicated, but it works. If you wanted to save on time, however, you could instruct your browser to automatically extend its capabilities through helper applications. By doing this, you instruct your browser to seek the assistance of a specific software program whenever it encounters a particular media format on the Web. This will allow you to automatically view or listen to the media file without having to launch a separate viewer program.

Two of the most popular media formats currently used on the Web are neither for sound nor images, but for presenting preformatted print publications. These are the Adobe Portable Document Format (PDF) and the Postscript format. PDF and Postscript media formats have become popular due to the design and presentation limitations that html imposes on Web documents. In response, many Web sites have opted to present documents, originally developed as print publications, in alternative formats such as PDF or Postscript, which allow the special design and layout characteristics of print publications to be maintained in electronic format.

Helpful Hints

The Web, undoubtedly, will continue to grow in use and popularity, but there are a few helpful hints that can make your exploration of the Web more productive. With these in mind, take the reins in your hands, and wander the Web.

1. Watch the Multimedia

Multimedia is one of the key features of the Web. And yet, because of the demands it places on your machine and your Internet connection, multimedia can also significantly slow down your experience. This is due to a variety of factors, including the overall speed of the networks comprising the Internet and the speed of your personal connection to the Internet. One way to increase your speed of transmission while on the Web is to consider using the option in graphical browsers of turning off multimedia images. If you select this option when you access a site, only the text portions will be transmitted to you. In addition, many Web sites are also accessible in text-only formats.

2. Time Your Access

With the increasing popularity of the Web, you may experience delays in accessing particular sites or you might notice a general lag in overall performance. Sites that are

especially popular may have too many people trying to access them at the same time. In these cases, you may get a message of "connection timed-out" or something similar from your Web browser. If you try to connect again and get the same message, it generally means that the Web server at that site is either too busy to accommodate you or is experiencing some difficulties. In either case, don't give up. Try again in a few hours, and you'll probably get through successfully. Another point to remember when using the Web is that there are definite peaks and valleys to overall Web and Internet use. The busiest time on the Internet is weekday afternoons, eastern standard time, because people in Europe and across North America are all trying to use the Internet at the same time. Consequently, overall speed of transmission may lag slightly for everyone.

3. Remember Where You've Been

Once you start using the Web, you'll be visiting a lot of different sites as you click on hypertext links that take you from resource to resource and site to site. If you find some of these sites particularly helpful, you will probably want to note the site's address so you can come back to it later. Writing all of these down on scraps of paper obviously isn't a great solution. Instead, many Web browsers offer a means of "saving" a particular Web page address. Depending on the browser, this feature may be called "bookmarks," "favorites," or something similar. When you're at a particular Web page, just click on "add to bookmarks (favorites)," and your browser will store the address for that page. The next time you want to access that page, all you have to do is open up your list of bookmarks or favorites and click on the one you want.

4. Download What You Need

When you're exploring the Web, you'll likely come across a number of resources that you'll want to have access to in the future. There's a number of ways to do this. If the computer you're using while browsing the Web is hooked up to a laser printer, you have the option of printing out specific Web pages and documents. If the document has a number of graphs, charts, or images, printing can take significantly longer than a straight text document. Alternatively, most graphical Web browsers also offer "save" options. For instance, if you'd like to electronically save a particular document or file, you can select the "save as" option. Your browser should then give you the option of saving the document or file to your hard drive or floppy disk. The document or file will be saved in the format it was originally available in on the Web, unless you instruct that it be saved in another format.

FTP SESSION

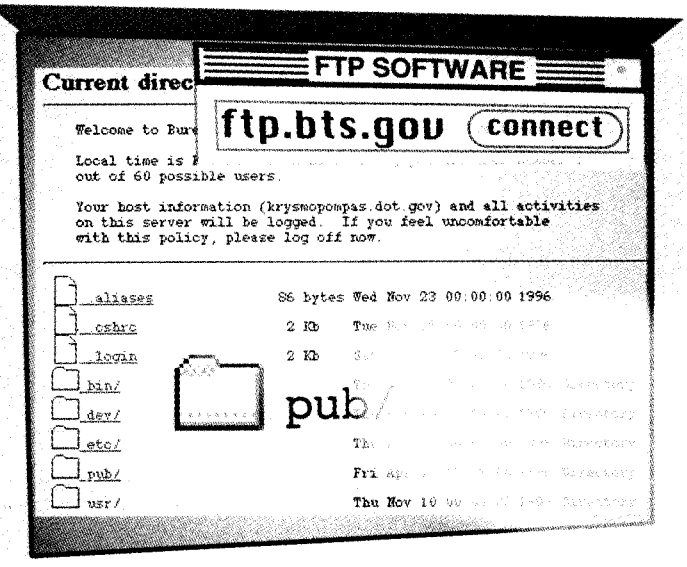
Online

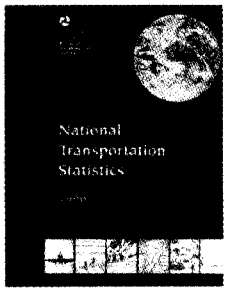
Offline

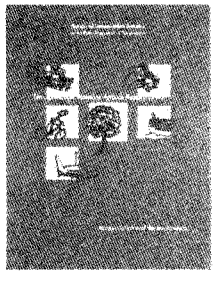
Connect to ftp Site...

Retrieve File...

Decompress File...







File Transfer Protocol

File Transfer Protocol is an Internet tool that lets you transfer (send and receive) files from one Internet connected computer to another. This is an important tool because it enables you to find data and information of interest to you, and then transfer it back to your own computer.

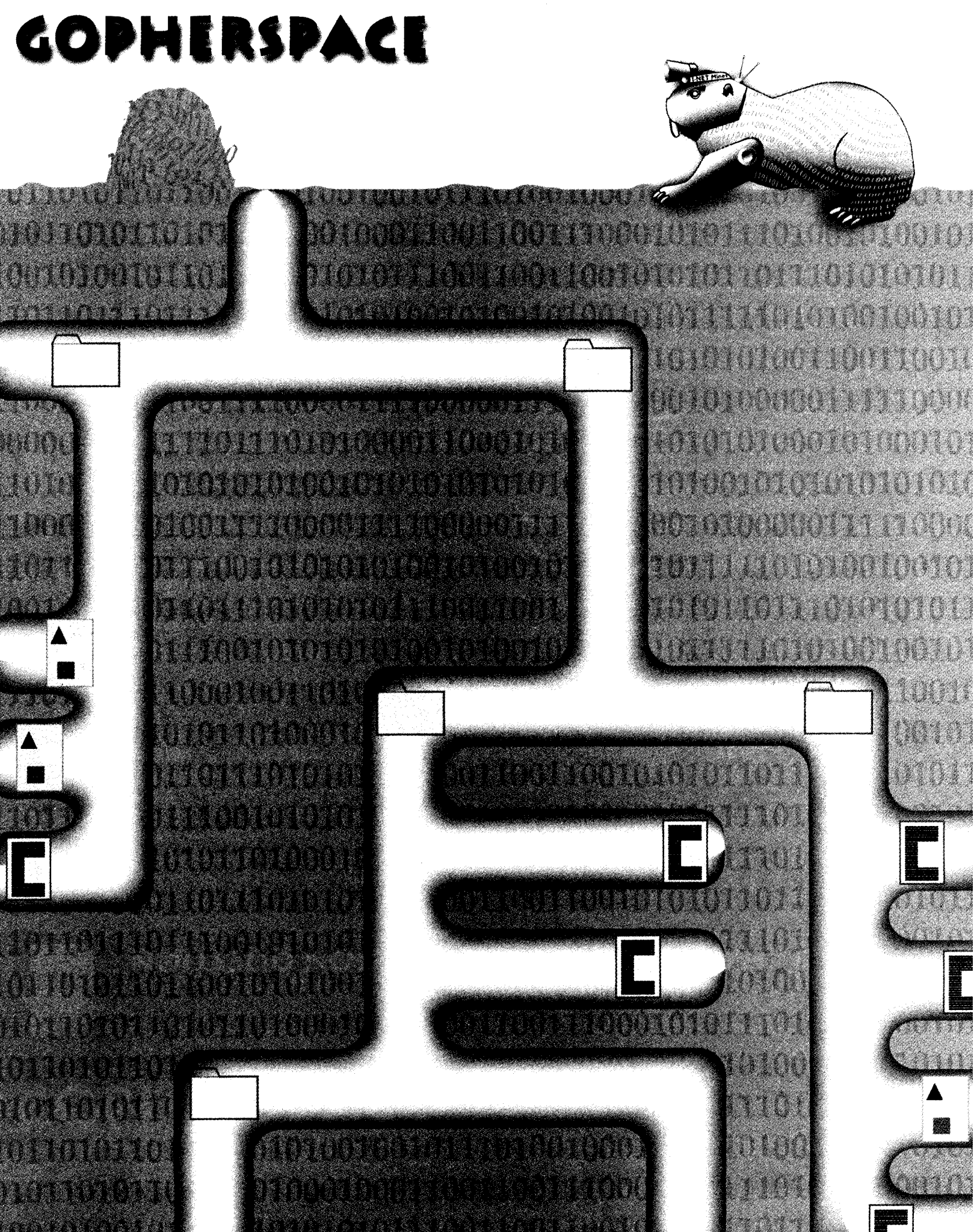
A variety of files can be retrieved and transferred including text files, software programs, graphic images, and sounds. FTP is especially useful when transferring large data files over the Internet. Unfortunately, with FTP, you are unable to look at the contents of a file while you are online. You will need to transfer a copy of the file you're interested in back to your own computer, and then open and view it. When FTP was initially created this process could be quite technical and cumbersome. Newer FTP software has increased its user friendliness and made it easier to transfer files across the Internet. With most FTP software, you can now quickly view the index of files at a particular site, compare it alongside your computer's directory, and transfer the files by simply pointing and clicking.

Since many of the files you might want to retrieve via FTP may be relatively large (otherwise you could just send the file as an email attachment), they will often require special handling before they can be transferred or opened. To facilitate transfer, large files are frequently "compressed" (reduced) so that they take up the least possible amount of space at the ftp site and can be transferred more quickly. You will need to "decompress" the retrieved files before you can open them. To compress or decompress a file you will need to use a special software program on the specific file. Several such programs are available. One of the most popular is "pkzip/pkunzip," and it is often available at ftp sites.

Many Internet sites have publicly accessible areas where files can be retrieved and transferred by any Internet user. These are known as "anonymous ftp sites." To access the site, you have to activate your ftp software program (some Web browsers can also access ftp sites if configured properly.) Then, of course, you'll need to know the ftp address of the site you wish to access. Once a connection is established, the site will request that you "login" (this may also be referred to as entering your userid). Use "anonymous" as your login or userid. The site will then prompt you for a password. Use the word "guest" or your email address as your password. If the site accepts you, you will then be presented with that site's ftp directory. The Bureau of Transportation Statistics' ftp site is illustrated on page 26.

While there are a large number of ftp sites available to you on the Internet, this tool is one of the least friendly of the Internet's tools. For instance, once you've anonymously logged onto a site, you are presented with a list of directories and subdirectories. Now what? It's difficult to know what you're really looking at or what type of files might be found there. The best approach is to look for that site's "readme" file, transfer it back to your computer, and review it to see what files are available at that site and where they are located. You might also review the site's "index" file, which should provide you with the listing of all files in each directory. And, if all else fails, each site typically has a directory called "pub" in which its more interesting files are stored.

Despite this, it may still be difficult to find particular files. Archie is a search tool designed to help users find specific ftp files; it now tracks the contents of over 800 anonymous ftp sites containing over 1 million files. Based on your specific query, Archie searches ftp sites on the Internet, and generally presents you with several location options. (Archie is discussed in more detail in chapter 4.)


GOPHERSPACE

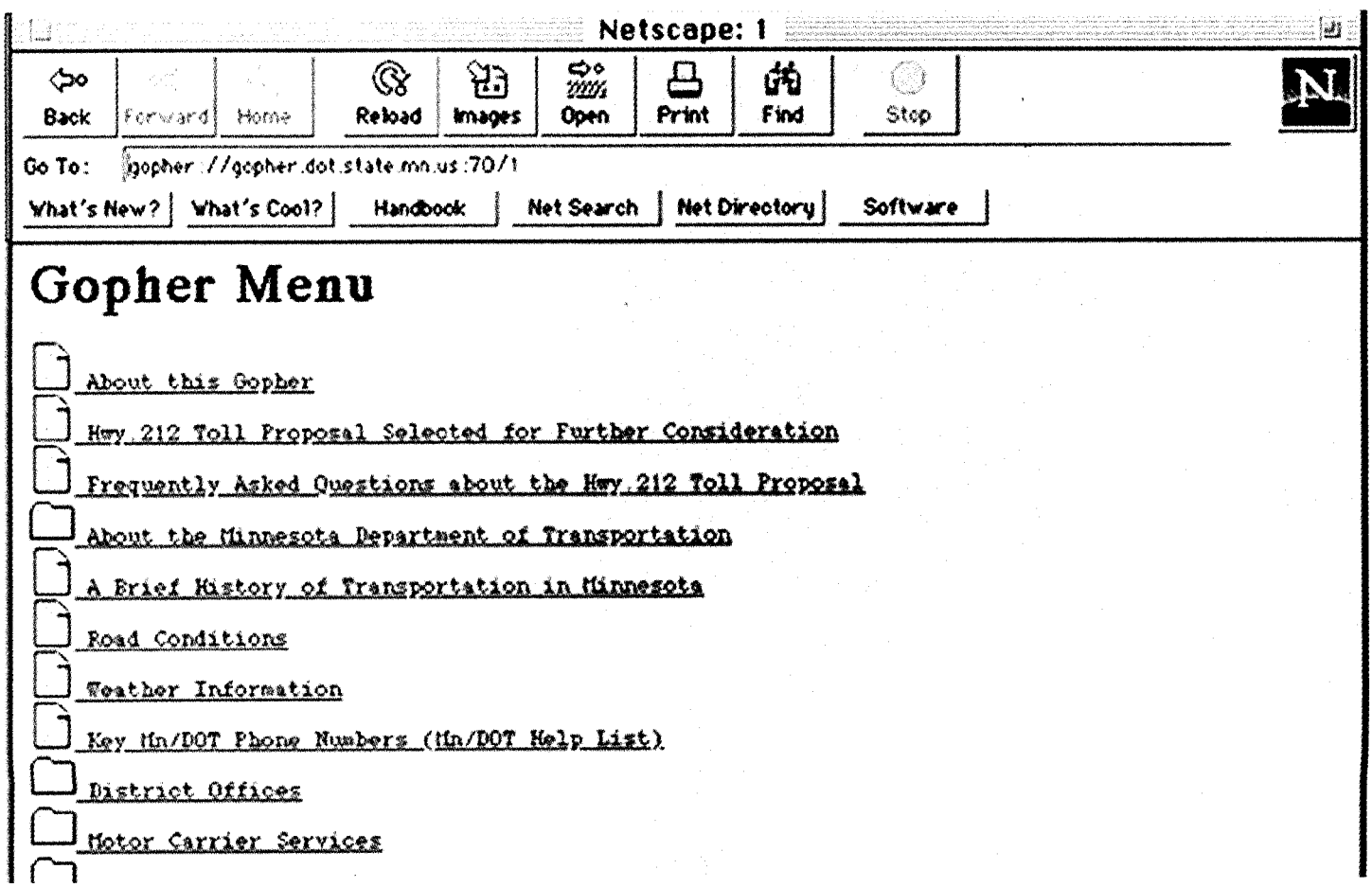
GOPHER

While File Transfer Protocol is an important tool that allows you to transfer files across the Internet, it doesn't let you easily browse a site to see what type of information and data is available. Gopher, another Internet tool, was designed to do just that. In "Gopherspace," as it has been called, data and information are organized in broad categories. With this tool, you literally "burrow" through hierarchies of menus with increasing specificity, until you reach your level of interest.

Developed at the University of Minnesota in 1991 (the University's mascot is a gopher), Gopher became the Internet's most user-friendly tool until the emergence of the World Wide Web, with information organized in an online menu system that is easy to use and to browse. In addition, the developers added a feature that allows users to select and view a file on demand. Thus, Gopher actually goes out, gets the information you want, and then immediately displays it for you; in a sense, it is "go for-ing" the information you want.

As with other Internet tools, to access a gopher site, you'll need to have some specific software. You may have a specific gopher software program, but virtually all Web browsers can be used to access gopher sites as well. Then, of course, you'll need to know the address of a particular gopher site. If you already know the gopher address for the site you are interested in, all you need to do is type in the address at your system prompt. If you're using a Web browser to access a gopher site, you should enter gopher:// followed by the address for the specific gopher site. For example, if you wanted to connect to the gopher site at the University of Minnesota via a Web browser, you would enter

gopher://gopher.micro.umn.edu.



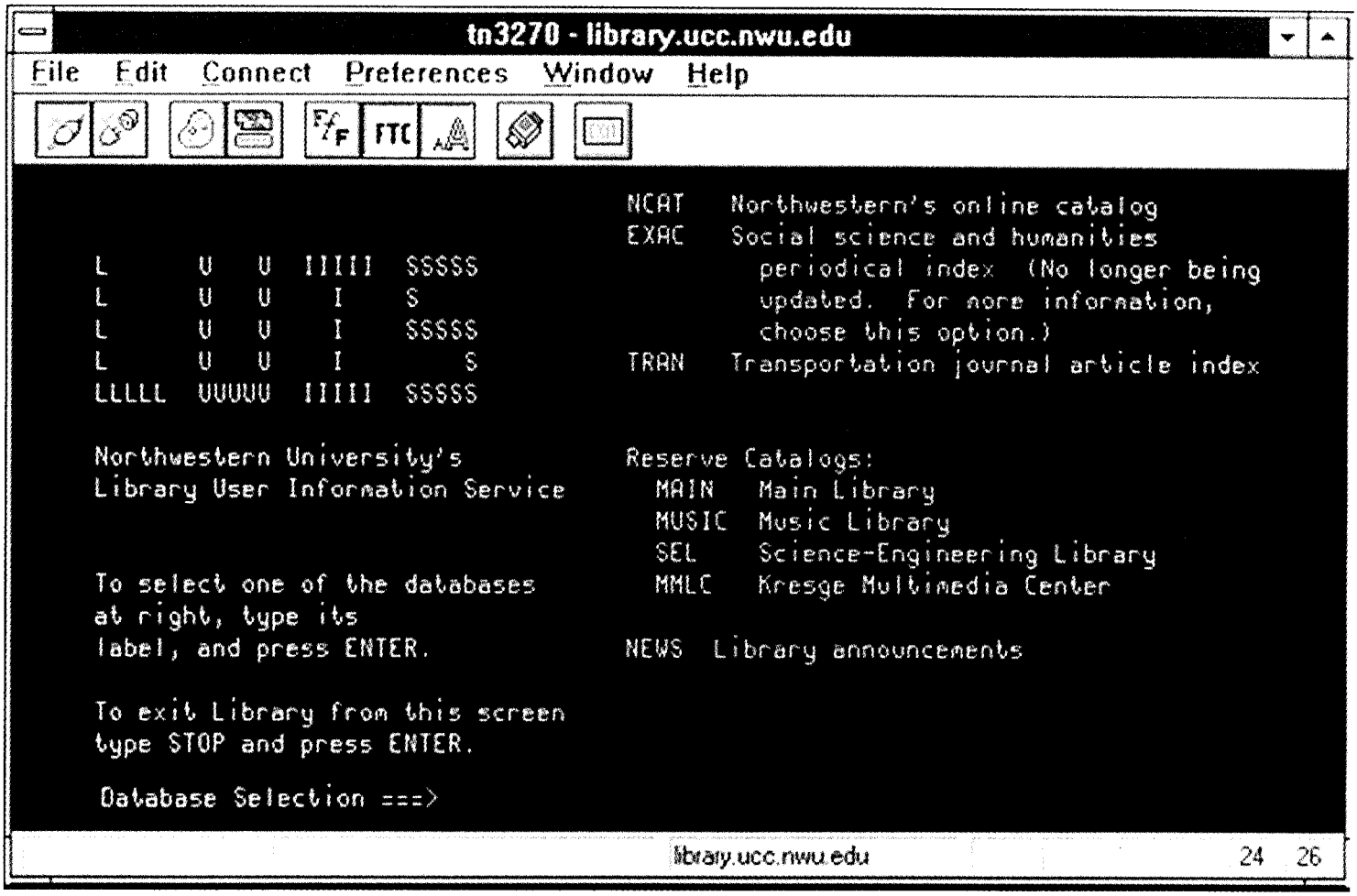
If you were not using a Web browser, you would use your gopher program and type in (also referred to as "pointing to") the site address. For instance, to access the University of Minnesota you would point to your gopher program to

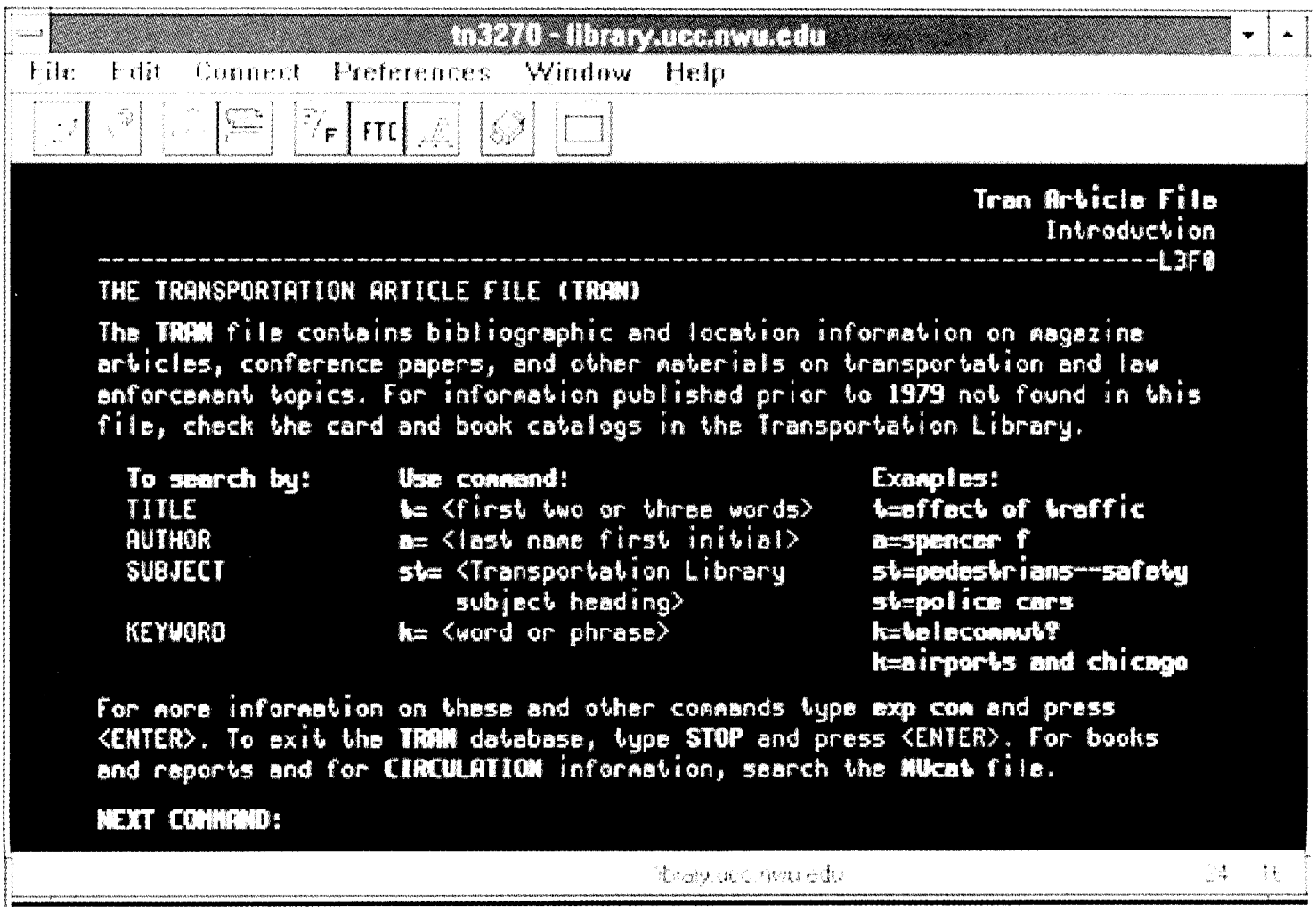
gopher.micro.umn.edu.

Once you're at a site, you'll be presented with a menu of choices. If you accessed the gopher site through a graphical gopher program or a Web browser, menu choices will also be accompanied by small folder icons. You can continue to select menu options and submenu options until you find a document in which you are interested. The State of Minnesota's Department of Transportation gopher site, accessed via a Web browser, is illustrated on page 29.

Thousands of gopher locations containing valuable information and data continue to exist, but the key question is finding those that best match your needs and interests. Of course, there's word of mouth and trial and error, but several "meta" sites, which comprehensively list available gopher resources, also offer good points to begin your exploration of Gopherspace. One of these is the University of Minnesota's site, discussed above. Because of the University of Minnesota's role in creating the gopher software, and the number of pointers to other gopher locations, this site has been called the "Mother Gopher" of the Internet. Another good "Meta Gopher" is Washington & Lee University's site. (If you are using a Web browser, access the site at gopher://liberty.uc.wlu.edu. Or you can point your gopher program to liberty.uc.wlu.edu). In addition, one excellent site at which to begin your search is at the University of Southern California (USC). (With a Web browser, access the site at gopher://cwis.usc.edu. Or point your gopher program to cwis.usc.edu). Once at the USC site, select "Other Gopher and Information Resources" from the menu. This will lead you to an additional menu with a variety of selection options, including "gophers by subject," "gophers by location," and "gopher jewels." The "gopher jewels" section features a kind of "best of Gopherspace;" information of these "best" gopher sites is contributed by Internet users.

At the University of Minnesota, Washington & Lee, USC, and the main menu of other gopher sites, you will also find access to a gopher search tool called Veronica (Very Easy Rodent-Oriented Netwide Index to Computerized Archives). Veronica helps you to find specific information and documents on gopher sites by searching a database of over 5,500 gopher servers worldwide and reviewing over 15 million gopher "items" to find the files and directories whose titles contain or match your query terms. (For more information on searching Gopherspace, see chapter 5.)


tn3270 - library.ucc.nwu.edu
File Edit Connect Preferences Window Help
L U U IIIII SSSSS
L U U I S
L U U I SSSSS
L U U I S
LLLLL UUUUU IIIII SSSSS
Northwestern University's
Library User Information Service
To select one of the databases
at right, type its
label, and press ENTER.
To exit Library from this screen
type STOP and press ENTER.
Database Selection ===>
NCAT Northwestern's online catalog
EXAC Social science and humanities
periodical index (No longer being
updated. For more information,
choose this option.)
TRAN Transportation journal article index
Reserve Catalogs:
MAIN Main Library
MUSIC Music Library
SEL Science-Engineering Library
MMLC Kresge Multimedia Center
NEWS Library announcements
library.ucc.nwu.edu
24 26


tn3270 - library.ucc.nwu.edu
File Edit Connect Preferences Window Help
Tran Article File
Introduction
L3F0
THE TRANSPORTATION ARTICLE FILE (TRAN)
The TRAN file contains bibliographic and location information on magazine
articles, conference papers, and other materials on transportation and law
enforcement topics. For information published prior to 1979 not found in this
file, check the card and book catalogs in the Transportation Library.
To search by: Use command: Examples:
TITLE t= <first two or three words> t=effect of traffic
AUTHOR a= <last name first initial> a=spencer f
SUBJECT st= <Transportation Library subject heading> st=pedestrians--safety
st=police cars
KEYWORD k= <word or phrase> k=telecommut?
k=airports and chicago
For more information on these and other commands type exp com and press
<ENTER>. To exit the TRAN database, type STOP and press <ENTER>. For books
and reports and for CIRCULATION information, search the NUcat file.
NEXT COMMAND:

Telnet

Telnet is one of the original Internet tools. It is now primarily used for very specific tasks. Telnet was originally developed to allow a computer user in one location to establish an online connection with another computer elsewhere. It didn't matter whether that other (remote) computer may be across town or around the world. Once a connection was established, resources of that remote computer system could be accessed by the user as if he or she were physically co-located with it. The remote host computer could transfer a screen display to a user's computer, and he or she would respond with keyboard or mouse commands.

Telnet's use declined as newer Internet tools (first Gopher, then the Web) facilitated better and faster access to the same information. Today, Telnet is primarily used to remotely access online library catalogs. Many universities will allow you to remotely login to their library catalogs and search their holdings. To use Telnet, you will first need a telnet software program. (Some Web browsers can also be configured to initiate Telnet.) Then, you'll need to initiate a telnet session by entering in the site's address (which is actually the host name of the computer you want to reach) and by entering an acceptable login and passwords. If the telnet site is public, as most university libraries are, you should be able to enter your name, the word "public" or the word "guest" as your login. If the site asks for a password, you might try pressing the enter key or using "anonymous" or "guest." Once you're at the site, you should see a menu of choices. Follow the directions provided at the site to access any resources. To end a telnet session, all you need to do is type "quit," "bye," "exit," or "logout."

Here are some example of a few telnet sites, their login procedures, and an overview of information resources you could find at each site.

Northwestern Transportation Library Files

Books, reports, and other materials held by the Transportation Library at Northwestern University (NWU) in Illinois are accessible through Nucat (NWU library's online catalog) and TRAN (the Transportation Library's database of magazine articles and conference papers, indexed since 1978 in the areas of transportation and law enforcement). Materials can be searched by author, title, subject, keyword, and call number. An overview of the Transportation Library is available at the NWU Web site, http://www.library.nwu.edu/transportation

Telnet to:	*library.ucc.nwu.edu*
Login:	*userid and passwords are not required, but you must use Telnet 3270 software packages.*

FedWorld

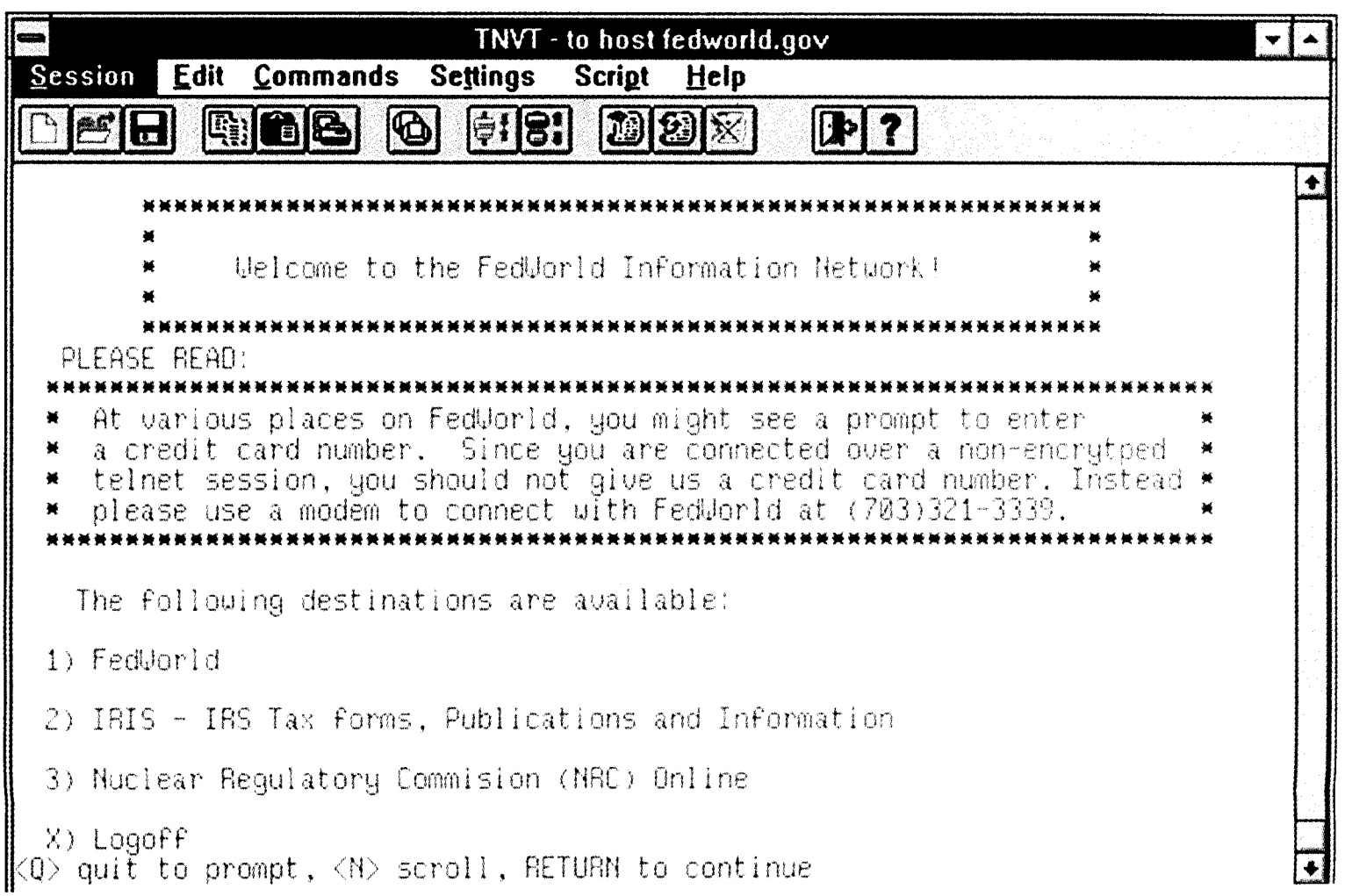
FedWorld is a clearinghouse for a variety of governmental electronic information. It provides gateway access to numerous government bulletin board systems, as well as detailed information from over 50 agencies, online ordering services, and federal job opportunities.

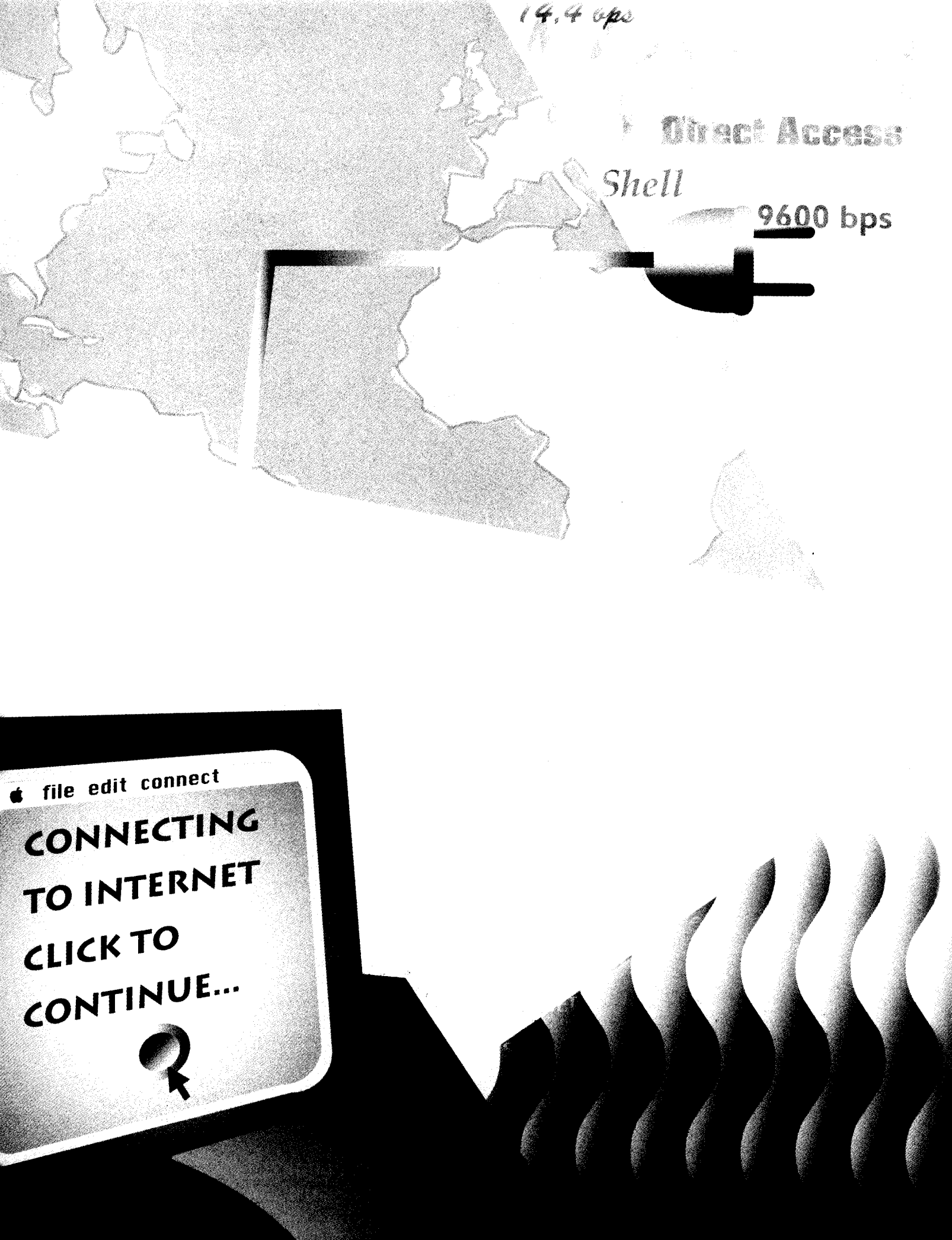
Telnet to: *fedworld.gov*
Login: *System will prompt you to complete an online registration the first time you access Fedworld. This will include selecting a userid and password that you will use on subsequent logins.*

Harvard OnLine Library Information System (HOLLIS)

Hollis provides you with, among other resources, online access to the union catalog of books and journals available at Harvard University. Once connected, you use the online catalog--just as if you were in Cambridge. You will not be able to physically "get" the reference material you're seeking, but you'll be able to determine if it is available and initiate an interlibrary loan.

Telnet to: *hollis.harvard.edu*
Login: *Hollis does not require a userid or password.*




14.4 bps
Direct Access
Shell
9600 bps
file edit connect
CONNECTING
TO INTERNET
CLICK TO
CONTINUE...

Overview

You're convinced. The Internet offers extensive information sources and communication tools you'd like to explore. Your next step is figuring out how exactly you should connect to the Internet.

To connect to the Internet, you'll need to purchase an account from an Internet service provider. But how do you get good information on what Internet service providers are out there and what they offer? You're going to have to do some research and analysis on both Internet connections and service providers. A good place to start is the reference section of your local bookstore or library. There, you should be able to find several overview books about the Internet, as well as many that deal specifically with Internet connection issues.

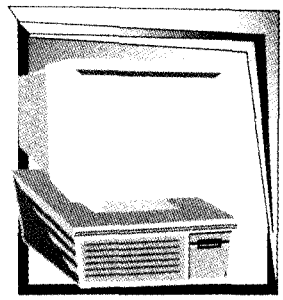
Once you've done some basic research, you'll need to assess which of the current Internet connection options and service providers (discussed later in this chapter) can best meet your Internet needs or those of your organization. This can be a daunting task, but it is absolutely essential if you are to use the Internet successfully. It's also important to remember that since the Internet is an extremely dynamic environment, connection options are always changing and, in most cases, improving. So, you can always try out a particular service provider or connection option, and then move to something new if your needs aren't being met.

A basic understanding of your connection requirements will be helpful as you begin to explore your options. In addition, it's a good idea to keep a checklist of key items to compare when evaluating different Internet service providers and connection options.

Connection Needs: The Basics

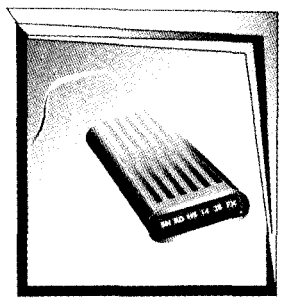
While your basic connection needs will be determined by the Internet connection option you choose as well as your individual service provider, the "starter list" below will give you an idea of what you'll need to get up and running.

Computer



Obviously, you'll need a computer! Macs, PCs, UNIX stations, and so forth all hook successfully into the Internet. Newer machines will likely increase performance, but having the latest model is not a prerequisite for effective Internet access.

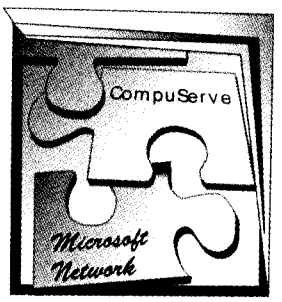
Modem



Unless you are planning to access the Internet through an organization's local area network (LAN), you will need a modem. Most computers now come with pre-installed modems. You can also readily purchase a stand-alone modem. In either case, it's important for you to know that with modem speed, measured in bits per second (bps), the higher the bps, the more quickly you can send and receive information. For quicker and more efficient Internet access, you'll want to get at least a 14.4 bps modem. If you want quicker access to the full multimedia capabilities of the Internet, a 28.8 bps modem is rec-

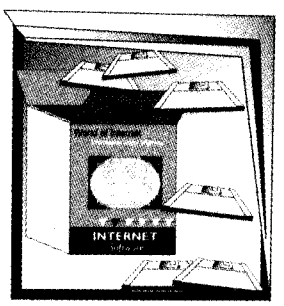
ommended. Modems below this rate will still transmit multimedia images, but will take much longer to do so.

Internet Service Provider



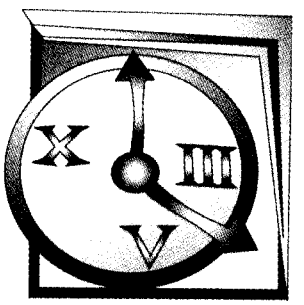
Your Internet service provider gives you the needed "link" or "connection" into the network. Service providers offer several different types of connections. Research them all and see which best suits your needs.

Internet Communications Software



You will need some type of specialized Internet software. Your service provider will generally provide you with the necessary installation software, but you may also want access to software for a specific web browser or email package. Again, your service provider is your first stop for these type of resources. Once you are connected, however, you can also access a variety of software directly from the Internet and then modify your computer's configuration to meet your needs.

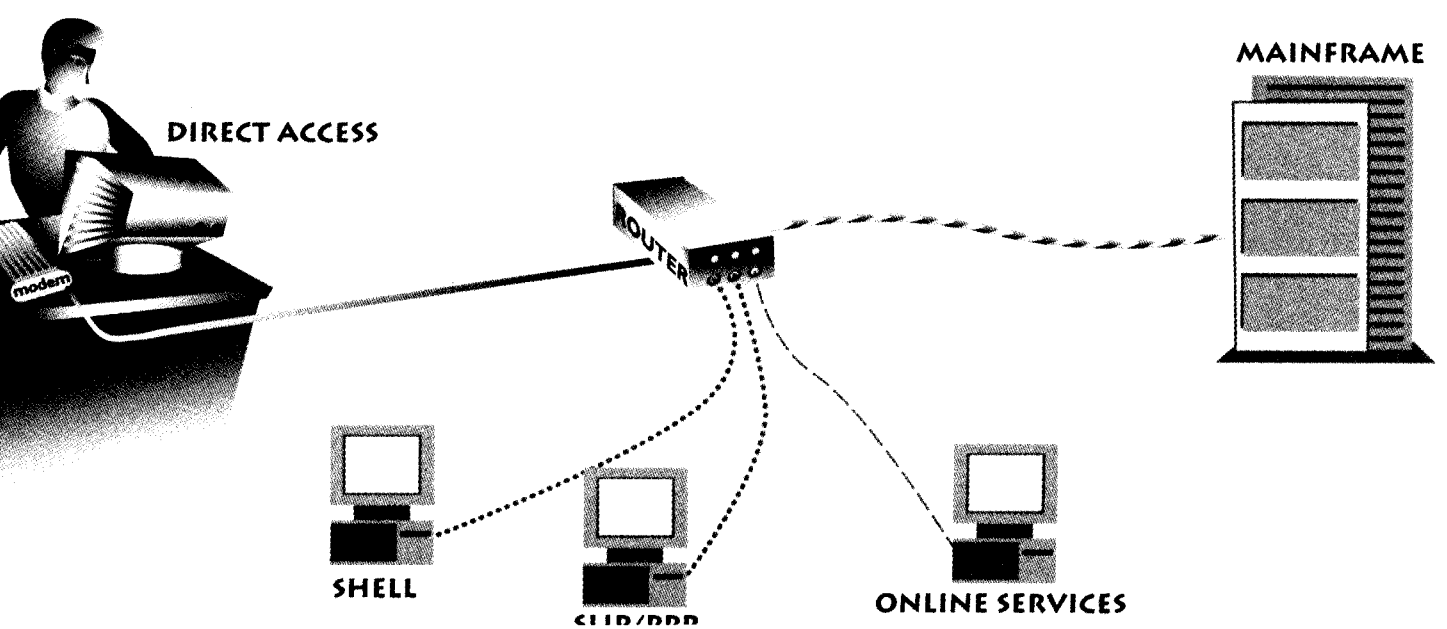
Patience and a Sense of Humor



Patience and a sense of humor will go a long way when you encounter your first of many glitches on the Internet. Remember, this technology is still evolving, but the vast array of data and information you'll find will make your effort worthwhile.

Connection Considerations

When you decide to purchase a new household product, whether it's a new television or a new automobile, you assess your needs, consider your income, and do some basic research. For instance, if you're consider ing buying a new car, you have several



decisions to make. What make of car should I buy? What features do I want on it--do I want the latest hi-tech equipment, or will the standard features do just fine? What kind of service and warranty accompany this car? What price range can I comfortably afford? In essence, you develop a checklist of factors and items that are important to you, and then compare each car that you look at against this checklist. Approaching service providers and connection options to the Internet should be no different. You'll want to start asking yourself or your organization the critical purchasing questions, and start to develop your own checklist to compare against any Internet service provider you are considering. Here's an initial set of checklist items to get you started.

Speed

Your connection speed (i.e., the connection speed between you and your provider) is one factor that will determine how quickly you get access to the Internet resources for which you're searching. You need to consider not only your own modem speed in connecting to the service provider, but also the speed at which your provider directly accesses the Internet. For instance, if your service provider can only support 14.4 bps modems, having a 28.8 bps modem will not increase your speed of transmission.

Technical Support

You should also assess what level of technical support a prospective Internet service provider offers. You need to determine if the provider will offer extensive user help, or whether once you're connected you're basically on your own. Also, you should consider what type of technical support is offered. Is it telephone contact, manuals, online assistance, or onsite assistance and training?

Price

Price can be an extremely important factor to consider when assessing Internet connection options. You need to compare the obvious costs between service providers as well as the hidden costs, which can add up quickly. For instance, when comparing a service provider that offers a flat rate of $19.95 a month with unlimited access to another provider that offers a rate of $8.95 a month with 10 free hours, and subsequent hours billed at $3.95 an hour, the second option might look more attractive. Once you've used up your 10 free hours, however, your costs could add up quickly if you become a frequent 'Net user.

Your connection speed can also influence your final billing price for Internet access. For instance, if you have a slow connection speed and are being charged by the hour, costs can add up fast when you're trying to download files.

User Friendliness

User friendliness, particularly for the installation process and any hardware or software changes you may need to make, is an equally important factor to consider when comparing Internet connection options. Is the installation process a simple point-and-click exercise, or does it require tinkering with computer code? How difficult is it to extend or change your software?

Internet Service Providers and Connection Options

Before exploring specific connection options, a better understanding of just who is providing Internet service is helpful. The good news is that a lot more companies--telecommunications, cable, and computer firms--now offer Internet connection services. These companies have joined the ranks of the original Internet service providers and are clamoring to set up competitive connection options. This increase in the number of service companies means that you now have more options than ever before. With these increased options, however, some careful research is necessary to make sure you get the service provider and connection options you want and need.

With the growth in the number and types of Internet service providers, it is difficult to clearly define categories of Internet service providers. Indeed, many companies bridge several categories and have established a market presence in more than one area. Despite this, it is still valuable to understand the distinctions between direct Internet service providers and online services. Direct Internet service providers hook your computer directly into the Internet via several connection options. Initially, these companies tended to be relatively small and were only in the business of providing Internet access in a particular local or regional area. More recently, larger companies, including some telecommunications firms, have begun to offer nationwide direct Internet access. In contrast to direct Internet service providers, online service companies, such as America Online (AOL), Prodigy, CompuServe, and more recently the Microsoft Network, offer a variety of information services to their customers, including intermediate access to the Internet through their networks.

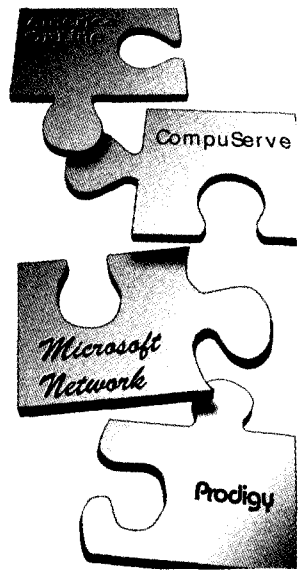
Online Service Companies

Online service companies started out by offering value-added information services to their customers. Most were established in the 1980s and built their offerings around well-organized, user-friendly information networks. In essence, they were information content providers. All information sources, of course, were proprietary. If you were not a CompuServe customer, for example, you couldn't access their business information database.

The growth of the Internet in the early 1990s and its extensive array of information resources challenged the business paradigm of many of the online service providers. Soon their own customers began to demand access to the Internet in addition to their proprietary information networks. Responding to this interest, the online services began offering access to Internet Email and, later, to the World Wide Web in the mid-1990s. More recently, some of the online services have taken steps toward becoming full-fledged Internet service providers. In this new paradigm, many online services will now be both information content and Internet network access providers. Prodigy, for example, now offers customers Prodigy Classic (the original proprietary service), Access Net Direct (an Internet access option), or both. In general, however, all the online service providers have begun to focus on the Internet and to make their Internet offerings more attractive to their customers. Partnerships between the online service companies and telecommunications, cable, and computer companies are one means of achieving this goal. AOL, for example, signed agreements with both Netscape Communications and Microsoft that allow AOL to offer both web browsers, Netscape, and Internet Explorer directly to their customers. In addition, in 1995, Microsoft

began to offer Internet service through its proprietary online service, the Microsoft Network.

Online Service Connections



To access Internet with an online service, you must first connect to their computer by modem. Once connected to the online service's computer, you can then choose from a variety of menu options, including Internet access. If you select Internet access, the online service's computer will act as an intermediary and establish an Internet connection between your computer and the Internet.

Advantages

The advantages of choosing an online service provider as your connection to the Internet are primarily convenience and technical support. Many computers now come pre-installed with access to one or more online service companies. You click on the appropriate icon and on-screen directions guide you through the installation process. Alternatively, many of the online companies mail floppy diskettes complete with the necessary software and installation directions. Generally, you are offered a free trial period ranging from 30 days to a specific number of usage hours. If you like the service, you can then establish an account. Most of the online service providers also have very large customer support and technical service centers that can be reached by Email and telephone. If you encounter problems, support personnel are generally available to help troubleshoot you through them.

Disadvantages

The main disadvantages of an online service providing your connection to the Internet are speed and cost. It's important to remember that with most of the online services, to access the Internet, you must first log on or establish a connection with them, and then subsequently access the Internet. Since this process is not direct, it has obvious implications for your connection speed. Recognizing this, many of the online service providers continue to upgrade their network capacities to facilitate faster access to the Internet. Because increasing customer demands may often outstrip capacity supplies, a slower connection speed may still be the result for you, the user. This holds true whether you have a 9600 bps modem or a 28.8. Faster modems will always be restricted by the network capacity of your service provider.

In addition to the concerns about speed, it is also important to carefully assess the different billing options offered by online service. Most offer a variety of service packages. For instance, some offer flat monthly fees while others charge a monthly rate, plus hourly rates. These costs can add up fast, especially for high-volume individual users who access lots of graphics-intense Web pages. Cost is also linked to your speed of access. For instance, during certain times of the day, lots of people are online at the same time. If the networks become too clogged, connection speed for everyone drops and it will take you more time to complete what you need to do

online. If you are being charged by the hour, a longer connection time means a higher bill in the end.

Direct Internet Service Providers

Thousands of companies offer direct Internet service to their customers in the United States. The majority of these focus on providing Internet access in a particular locality or regional area, although several direct Internet service providers, such as NetCom, UUNet, and AT&T WorldNet, concentrate on providing Internet access throughout the country. In most cases, customers of nationwide service providers can establish Internet connections via a local access number. With these local access numbers, telephone toll charges do not apply. In some regions, however, a nationwide service provider may not have a local access number available. In these cases, they generally offer a 1-800 number to dial into and establish a connection. These 1-800 numbers may be offered at no charge or may be billed by the minute to their customers.

Shell Account Connections

A shell account used to be one of the most common types of connection for individuals establishing personal Internet access. Some direct Internet service providers still offer shell accounts, but they are not widely available due to their less than friendly installation and technical requirements.

The "dumb terminal" concept is at the heart of shell access. With a shell account, your computer acts as a recipient or dumb terminal. The real work is being done on the Internet service provider's host or server. Once you have established a shell account you dial into your service provider's computer and log in. When you're connected, the service provider's computer becomes your conduit to the Internet. It runs all the Internet programs, and then transfers the screen images back to your computer terminal.

Except for transferring files and documents, a shell account provides you with seamless Internet access. To transfer files back to your individual computer, however, you have to take an intermediate step. Files will be transferred to and from your service provider's computer, not yours. This means you must then move the files from the service provider's computer to your own, which may add to your online time and overall cost.

A shell account generally provides you with a set number of online hours each month or you are charged a flat rate. Initial connection fees for shell accounts have fallen to as little as $35, and some monthly fees now average only $10.

Advantages

Relatively low cost is the main advantage to shell accounts. In fact, a shell account is probably the cheapest route to full Internet access for the individual user.

Disadvantages

A lack of user friendliness is probably the main disadvantage of shell accounts. Although some shell service providers offer user-friendly custom-designed software to access the Internet, many will present you with a blank screen or UNIX command lines with which to begin your Internet explorations. Another factor to consider is that the level of technical support from shell service providers also varies. A shell

account will often require a willingness on your part to learn a bit of UNIX and to tinker with some computer code.

SLIP/PPP Connections

With an online service or shell account connection, you access the Internet through your service provider and limitations may be placed on your Internet access. In contrast, a SLIP (Serial Line Internet Protocol) or PPP (Point to Point Protocol) connection hooks your computer directly to the Internet. This type of connection, allows you to use several Internet tools simultaneously and also generally improves the speed of your data transmission. This is helpful if, for instance, you are interested in exploring the full range of multimedia offerings on the 'Net. If you think that you or your organization will be a frequent Internet user, you may want to explore SLIP/PPP options.

To establish a SLIP/PPP connection, you need to have an account with a direct Internet service provider (generally the same companies that offer shell access). Once you have an account, you'll need to install the network protocol for the Internet, TCP/IP, on your system, as well as several search, retrieval, and communications utilities to help you interact with the Internet effectively. Your SLIP/PPP provider may recommend which software packages to buy and where to purchase them. The provider might also offer the software to you directly. A third alternative is to retrieve the TCP/IP software and various communication utilities directly from the Internet as freeware and/or shareware. This option generally requires a lot of patience and time since you will have to configure the freeware/shareware software to work with your SLIP/PPP account, and you will have access to minimal technical support when doing so.

Advantages

Although SLIP/PPP is generally more expensive than a shell account, it has several advantages that make it worthwhile to explore. SLIP/PPP affords you access to all Internet tools simultaneously. With a shell or online service, you may have to close out one utility before opening another. In addition, transmission rates for SLIP/PPP accounts are often much faster than shell or online access. Indeed, most SLIP/PPP connections run on a minimum of 14.4 bps. Most SLIP/PPP service providers also offer relatively user-friendly software interfaces to the Internet, complete with graphics and point-and-click options. Finally, the cost of SLIP/PPP connections continue to decline. Many flat-rate SLIP/PPP accounts can be established for between $20 to $30 a month.

Disadvantages

The main disadvantage to the SLIP/PPP connection option is your installation and setup time. Although some service providers will offer you good technical support, this varies. You will probably have to spend time reviewing manuals and getting some direct assistance before you're up and running smoothly.

ISDN Connections

Speed is the key distinction between SLIP/PPP and ISDN (Integrated Services Digital Network). The SLIP/PPP connection generally transmits by modem at 14.4 or 28.8 bps. In contrast, ISDN speed is

nearly five times faster than a 28.8 modem. "Baby Bells" such as US West and Bell Atlantic are the primary providers of ISDN Internet connections.

An ISDN phone line is required for this type of Internet access. In most U.S. households, these must be installed in your home. Installation charges vary, but generally are between $100 and $200. Customers must also purchase digitally compatible modems that are generally available for less than $500. In addition to these start-up costs, monthly ISDN charges apply and typically range from $30 to $80 based on hours of use. Unlimited use rates are also available.

In most cases, the telecommunications company provides both the ISDN installation and monthly connection as well as Internet service. In some areas, however, the telephone company installs ISDN and charges the monthly rates for ISDN access, but does not offer direct Internet access. In this case, you will have to find and establish an account with a direct Internet service provider that has the capacity to handle ISDN. You should note that if the service provider cannot support the ISDN level of connectivity, then your speed of transmission will not be optimized.

Advantages

Speed is obviously the main advantage of an ISDN Internet connection. If you're hoping to take advantage of the full-range of multimedia offerings on the Internet, ISDN may be worth considering. This type of connection could also significantly decrease your download time for video, graphics, and other media. In the near future, ISDN is also likely to become more affordable as increasing numbers of telecommunications companies begin to offer it as a service.

Disadvantages

The most apparent disadvantage is that ISDN Internet connections are not available everywhere in the United States. Many telecommunications companies are, however, currently upgrading their networks, and most analysts expect ISDN to become accessible throughout the United States by 1998. The other disadvantage of ISDN is the significant installation fee, although high-volume users of the Internet will likely see that initial investment repaid many times over with much faster Internet access.

Permanent Connections

A permanent connection offers the fastest, most comprehensive, and most flexible Internet access, but it is also the most expensive type of connection. A permanent access link to the Internet is usually made through an organization's main computer or workstation (server) via a leased phone line. These leased lines are expensive (approaching thousands of dollars each month). Consequently, a permanent access connection to the Internet is generally only a viable option for large organizations.

Once an organization has established a permanent access Internet connection, its local area network is then connected to the computer or workstation identified as the Internet node. Specialized Internet software (e.g., TCP/IP and Internet communication utilities) must be loaded onto each individual computer on the LAN for users wanting direct Internet access. Once a permanent connection is established,

transmission speeds are the fastest currently available for Internet access. Permanent connections are generally described as T1 connections.

Advantages

Permanent connections provide optimal access to the full range of Internet tools, including multimedia, at the fastest rates available. In addition, this option will enable you to connect as many users to the Internet as the leased line can support.

Disadvantages

The main disadvantage of a permanent access connection to the Internet is its cost.

Future Connections Possibilities

Internet connection options continue to evolve, and several technologies are in development or are being reassessed for their application to the Internet. Most of these new technologies are aimed at providing quicker and more robust (i.e., with greater use of multimedia) connections to Internet customers.

One of these new technologies which will likely become available in select areas in 1997 is ADSL (Asymmetric Digital Subscriber Line). ADSL is a technology of the telecommunications industry that combines the latest advances in data modulation, compression, and signaling. Although the technology is different, ADSL can be thought of as an extremely fast and efficient modem. ADSL transmission speeds will surpass those currently available from ISDN. Implementation and use of ADSL connections are likely to occur rather quickly in the near future, primarily because they don't require the upgrading of all telecommunications lines to digital fiber. Due to these decreased installation and deployment costs, ADSL is likely to be cheaper than current ISDN connections. Most analysts estimate ADSL rates at about $30 a month.

Cable connections are another major technology being developed for Internet access. Cable companies such as Time Warner, ComCast, Cablevision, and Viacom are in the process of planning and conducting trials in which cable modems will be used to provide Internet access directly into user's homes through the same connections that currently bring you cable TV. If cable modems are successfully developed and deployed, analysts anticipate that Internet download time could be reduced significantly while multimedia capacity is enhanced. Costs of Internet cable connections will largely depend on how much upgrading will need to be done to the U.S. cable network.

In addition to ADSL and cable connections, which offer new Internet connection options via wire-based networks, several initiatives are underway to more fully develop wireless and cellular Internet access. Wireless Internet connections provide increased flexibility, especially for people who desire Internet access while traveling. The drawback to this flexibility is the limited multimedia that wireless Internet connections can currently support.

Accessing the Internet via a television monitor is an additional connection option that is already available in some areas. By adding a set-top box that includes a modem and the necessary software, the capabilities of most television units can be extended to browsing the World Wide Web. Because of its relative simplicity and the fact that more people have access to

televisions than computers, developers are hoping this will extend Internet access to a larger segment of the population.

A company called WebTV Networks developed this connection technology, and has just begun to sell it as a subscription service for approximately $20 a month. The set-top boxes, which are similar to cable TV boxes, are currently manufactured by Sony and Phillips and will be available at television retail outlets for approximately $300. The set-top box has two wires: one will connect to a user's TV, the other to a phone line. With the addition of the set-top box and the WebTV service, users will then have the capability to browse web pages. However, to send and receive email, an additional keyboard device is necessary.

Now What?

After assessing your Internet needs and researching the various connection options, you should focus on the connection approach that most closely meets your requirements. All the options discussed have associated pros and cons. Only you know what will work best for you or your organization. Once you determine the most appropriate connection option, you need to research the relevant Internet service providers. You should research and compare the factors on your checklist, including, price, technical support, speed, user friendliness, and level of access. You may also find that the service provider geographically closest to you is not the cheapest. Service providers based in another city or region may have a local phone number in your city with lower rates.

There are several ways to begin the research process. You can check your local phone directories (some now include a section on the Internet; if not, look under Computers). Many providers also advertise in newspapers and magazines, and on radio and TV. Or if you have friends who already have Internet access, you can ask them to do a search at one of the following sites that provide databases of Internet service providers.

Internet Service Provider List
Address: **http://www.thelist.com**
Description: *A searchable list of over 2,000 (and growing) Internet service providers is available. Each listing contains the provider's name, phone number, email contacts, URLs, services provided, and fees.*

NetAccess Worldwide
Address: **http://best.be/iap/**
Description: *This site provides access to a growing list of Internet service providers, organized by world regions. Description detail varies by country.*

If, because of cost constraints, none of the connection options discussed here work for you, consider exploring some of the public access gateways to the Internet. These include local libraries, universities, and "freenets" that service particular geographic regions and cities. For instance, if you're a student or staff member at a university or college, you probably can get an account through that school's network. (Most universities have direct access connections to the Internet.) This could make your connection to the Internet even easier than you thought.

With all this in mind, assess your options, get connected, and explore the 'Net!

Overview

So, you're finally connected. You have a variety of Internet tools, most notably Email and the Web at your disposal. Now what? You're ready to cybersurf, right? Exploring the vast resources of the Internet can be exciting and illuminating. You now have the ability to rapidly access documents ranging from the federal budget to market assessments of the Baltics to software product descriptions. You can search online library catalogs across the globe. You have the ability to explore databases on transportation and urban planning. You can send electronic mail to colleagues dispersed throughout the country and around the world.

Your potential to access information and people via the Internet is enormous, but it can also result in information overload, or in time wasted searching for information and data relevant to your needs. Several search features and programs are available to help guide you through the vast resources of the Internet. Using one or many of these should make your exploration of the 'Net a little less overwhelming and a lot more fruitful.

Email

Email is still the most heavily utilized Internet tool. Understanding how to find and access resources via Email can make your use of it more productive. Some of the sites and services described below can help you locate email addresses for individuals and find subject-oriented mailing lists that you may be interested in receiving.

Finding People

The easiest way to find out someone's email address, of course, is to ask for it. You might get it over the phone or from a business card. But what if you're trying to get in touch with someone who you think has email, but you're not certain of the address? Although searching for an individual email address is easier than in the past, it is not yet foolproof and, as yet, no one-stop White Pages of the Internet exists. Some sites have built databases of individuals' email addresses and telephone numbers, but it's important to remember that since these sites are not comprehensive, failure to find someone does not necessarily mean that they do not have an email address.

Internet Address Finder
Address: **http://www.iaf.net/**
Description: This site provides a searchable index to more than 5 million email addresses. Search queries are name-based.

Lycos EmailFind
Address: **http://www.lycos.com/emailfind.html**
Description: This site is a growing database of Internet email addresses for individuals worldwide. Search queries are name and address (city and/or state) based

Lycos PeopleFind
Address: **http://www.lycos.com/pplfndr.html**
Description: This site allows you to search for addresses and telephone numbers for U.S. residents. Search queries are based on the person's name and U.S. city and state.

World Email Directory
Address: **http://www.worldemail.com/index.shtml**
Description: This site provides searchable access to more than 12 million email and 140 business and phone addresses worldwide. Search queries can be name-, address-, or business-based.

Yahoo People Search
Address: **http://www.yahoo.com/search/people**
Description: Yahoo offers a searchable index to individual email addresses and home pages. Searches can be based on last name or phone number.

Finding Mailing Lists

Thousands of subject-oriented mailing lists area available and easily accessible via Email. As the number of individual mailings lists has grown, several Web sites have been developed that organize mailing "meta-lists" with broad categories, and contact and subscription information. Some of these sites are listed below.

DartList
Address: **http://www.nova.edu/InterLinks/cgibin/lists**
Description: This site, maintained at Dartmouth College, provides searchable access to over 5,000 mailing lists (also referred to as discussion groups at this site).

Guide to Internet Mailing Lists
Address: **http://www.internetdatabase.com/maillist.htm**
Description: This site provides content and subscription information for over 7,000 mailing lists. Mailing lists are organized by subject and keyword.

List of Lists
Address: **http://catalog.com/vivian/interestgroupsearch.html**
Description: This site provides an extensive searchable directory of subject-oriented mailing lists.

Liszt
Address: **http://www.liszt.com/**
Description: The Lizst provides an index, or meta-list, to over 50,000 mailing lists. Individual mailing lists can be browsed by subject category or can be searched on keywords, names, or phrases.

Publicly Accessible Mailing Lists (PAML)
Address: http://www.neosoft.com:80/internet/paml/
Description: This site provides an index, or meta-list, to thousands of mailing lists. The list is updated monthly and provides a brief description of each list with contact and subscription information. Individual mailing lists can be browsed by name or by subject.

Tile.Net
Address: http://www.tile.net:2001/lists/
Description: This site provides a browsable and searchable index to thousands of mailing lists. Mailing lists are categorized into several main categories, including description, name, subject, host country, and sponsoring organization.

World Wide Web

In the past several years, many well-designed search engines and subject-oriented indices, directories, and catalogs have been developed to make "wandering the Web" a more successful venture. Most of these were initially designed to search only World Wide Web resources, but now offer the capability of searching a broader array of Internet resources, including archives of mailing lists and gopher sites. Web sites, however, will comprise most of the site results found when using either a search engine or subject-oriented index or catalog. This section provides additional information on these navigational aids to the Internet's growing wealth of information resources.

Subject-Oriented Indices, Lists, and Directories

Catalogs, directories, and lists are some of the means that have been developed to make your exploration of the Internet more successful. Most of these are organized by topical index similar to an index at the back of a book. Web resources tend to dominate most Internet indices, lists, and directories, although information on email, gopher, telnet and ftp resources may also be included.

A2Z
Address: http://a2z.lycos.com
Description: The A2Z site offers an extensive browsable and searchable directory of Internet resources. Concise descriptions are provided with each site link. Users also have the option of searching the Lycos Web index (see the Lycos description below) from the A2Z site.

Galaxy Einet Index
Address: http://www.einet.net
Description: The Galaxy Einet Index is a subject-oriented, browsable index of Internet resources. The Index provides a list of links to transportation-related Internet resources, which are available at:
http://galaxy.einet.net/galaxy/Engineering-and-Technology/Transportation.html

Internet Public Library (IPL)
Address: **http://www.ipl.org**
Description: The IPL, begun at the University of Michigan in 1995, is an attempt to build the first public online library of and for the Internet community. Its designers are trying to discover and to promote the most effective roles and contributions of librarians to the Internet and vice versa. The IPL offers several "reference rooms" that provide compiled lists of Internet resources, organized topically. (The Transportation Ready Reference Room is accessible at: http://www.ipl.org/ref/RR/SCI/transportation-rr.html).

WWW Virtual Library
Address: **http://www.w3.org/pub/DataSources/bySubject/Overview.html**
Description: This unusual site provides access to a subject catalog of Internet resources. Instead of just one organization maintaining a subject catalog, individual subject catalogs are maintained by a variety of organizations. For example, the WWW Virtual Transportation Library is maintained by the Bureau of Transportation Statistics and is available from the main WWW Virtual Library site or by directly linking to: http://www.bts.gov/smart/links/transportation.html. Subject catalogs or indices are available for topics ranging from "Aboriginal Studies" to "Zoos."

Yahoo
Address: **http://www.yahoo.com**
Description: Yahoo began as a service offering a hierarchical, subject-oriented index to Internet resources. It now offers this browsable index as well as a search engine to its database.

Search Engines

Internet search engines provide a user-driven means of locating data and information. You submit a search query and the "engine" searches for resources that meet the specifications of your query.

Understanding Search Engines

Because of the distributed nature of the Internet, there isn't one "ultimate" search engine. Instead, search engines use a variety of retrieval methods and techniques that have been developed to facilitate the process of finding information and resources on the Internet. These retrieval methods and techniques rely on sophisticated programming software and are often given descriptive names such as "crawlers," "robots," "wanderers," or "spiders." Each retrieval technique may work slightly differently, but they all have the same goal: to find as many Internet resources (usually measured in Web pages) as possible. Once the resources (again, generally Web pages) are found, they are indexed and then become the database of reference for a particular search engine. Therefore, when you use a search engine you aren't actually searching the entire Internet, but a subset of pages that have been found and indexed by a particular search engine service provider.

It is also important to keep in mind that since retrieval techniques of search engines are usually slightly different, your query will produce different responses depending on the search engine used. The best approach is to try a few different engines to see what type of responses and links you are getting, and then determine which search engines give you the best responses to your query.

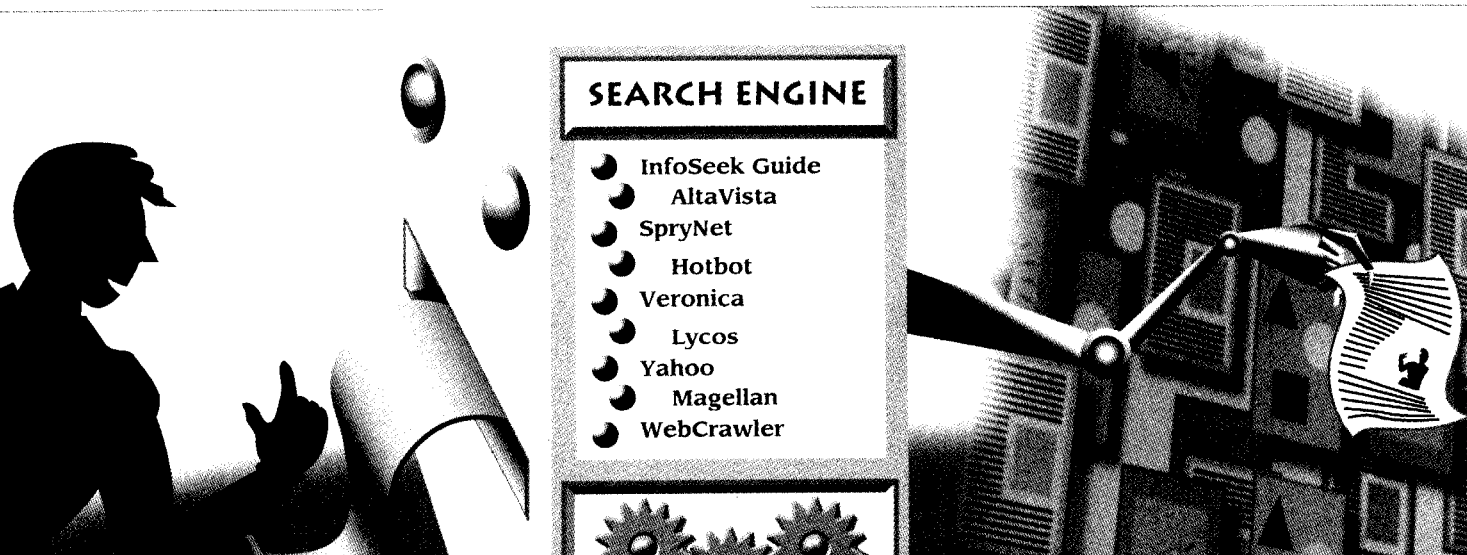
Understanding how each particular search engine works and what type of database it relies on is helpful in making these types of distinctions. Most search engines provide descriptions of their service under the "about" or "info" sections of their homepages. These descriptions also generally provide helpful information on query formulation (for instance, to indicate negation in a search you need to know whether to use a "not" or a "-").

Understanding query formulation will also help you to refine your searches so you get the results you want, rather than pages of nonspecific results. For example, submitting a search term with the keyword "transportation" will likely yield thousands of results from any search engine. For a more refined search, you might enter "transportation and planning." If that search still produced too many results, you might try ["transportation and planning" not California], which would restrict your search to Internet resources dealing with transportation planning issues outside of California.

Deciphering Search Results

When you've decided on your search engine and submitted your query, the results will hopefully direct you to the information resources you're looking for. But once you get the results, how do you interpret them? Understanding the search results is extremely important, especially if your search terms are rather general. With less specific terms, you may end up getting hundreds of results. Going through all of these is probably not worthwhile. Some of these results, however, might be helpful, and here are some clues that can help you make that determination.

Clue One: Almost all search engines have a feature called relevance ranking (or confidence sorting.) This means that when a search is performed, the search engine you are using goes out, checks its referenced database and finds Internet sites that "match"



the words you entered in your query. If you get many (hundreds) of matches, the question becomes, how does it feed this information back to you in an organized manner? A relevancy ranking or confidence sorting is one means of doing this.

Each search engine may use a different method to determine relevancy (for example, one method for determining highest relevance is locating the Web page where your search terms appear the most frequently), but the ultimate objective is to provide you with the sites that most "successfully" match the terms of your query. Many sites will assign a relevance ranking number or percentage. For example, a result with an 80 percent ranking means that the search engine is 80 percent confident that, based on your query, this resource will provide relevant information. When you receive a ranked listing of results, the result at the top should be the one that most accurately matches your initial query. Of course, this may not always be the case, and you may need to scan through several pages of results before you find the most appropriate Internet resources based on your query.

Clue Two: Another means of understanding search results is to carefully read the short description or abstract that is usually provided with each result. This will help you determine if it's worthwhile to click on the link to that site.

Clue Three: Check out the URL (uniform resource locator or site address). This will not only tell you what type of site it is (Web, Gopher, etc.), but what type of organization is providing this information ("org," association or nonprofit organization; "com," commercial organization; "gov," governmental organization; or "edu," educational institution).

Clue Four: Look for dates that will tell you how recent a particular site or resource is. These usually accompany results, and are particularly helpful if you're looking for time-sensitive materials.

Individual Search Engines

AltaVista
Address: **http://altavista.digital.com/**
Description: The Alta Vista search engine combines an extremely fast Web crawler with indexing software to build one of the largest Internet databases. The Alta Vista site provides access to over 30 million indexed Web pages. Results of search queries are ranked by relevance and shown 10 at a time.

Excite
Address: **http://www.excite.com**
Description: Excite offers both a search engine and a browsable index (for travel, news, and reference resources) to locate Internet sources. Searches can be limited to specific Excite databases (i.e., Web, reviews, groups, and so forth) or can encompass the entire extensive Excite database. Searches can be submitted for concepts or keywords. Results can be ranked by relevance or sorted by site, and are shown 10 at a time.

Hotbot
Address: **http://www.hotbot.com**
Description: Hotbot provides an extensive database of over 50 million indexed Web pages. It allows searches to be submitted for keywords, a phrase, a person, or a URL. Hotbot search results are ranked by relevance and displayed 10 at a time.

InfoSeek Guide
Address: **http://www2.infoseek.com/**
Description: The InfoSeek site offers both a search engine and a browsable index to locate Internet resources. Searches can be limited to specific Infoseek databases (i.e., Web only, email addresses only, ftp site only, and so forth). Results are ranked and displayed 10 at a time.

Lycos
Address: **http://www.lycos.com**
Description: The Lycos site offers both a search engine and a browsable index to locate Internet resources. The Lycos Web index is one of the most extensive, providing access to over 50 million indexed Web pages. Sites are ranked and displayed 10 at a time.

Magellan
Address: **http://magellan.mckinley.com**
Description: The Magellan site offers both a search engine and a browsable index to locate Internet resources. Sites are ranked and displayed 10 at a time. A list of related topics is also provided.

Open Text Index
Address: **http://index.opentext.net**
Description: The Open Text site offers both a search engine and a browsable index to locate Internet resources. Sites can be searched on key words or phrases. Results are ranked and displayed 10 at a time.

SpryNet
Address: **http://www.sprynet.com/search/index.html**
Description: The SpryNet site offers both a search engine and a browsable index to locate Internet resources. Search requests can be limited to specific SpryNet databases (e.g., Web only). Sites are ranked and displayed 10 at a time in short paragraph form.

W3 Catalog
Address: **http://cuiwww.unige.ch/cgibin/w3catalog**
Description: The Centre Universitaire d'Informatique at the University of Geneva provides this search engine and compiles a daily meta-database of Web pages by integrating a subset of other indices.

WebCrawler
Address: **http://webcrawler.com**
Description: The WebCrawler search engine uses a Web robot to build its content-based index. Users submit key words and WebCrawler responds with relevance-ranked search

results shown 25 at a time. Based on its own index, the WebCrawler site also offers a list of the top 25 Internet sites. WebCrawler also offers a browsable index of Internet resources.

Yahoo
Address: **http://www.yahoo.com**
Description: The Yahoo service first began as a browsable index to Internet resources. It now also has a search engine feature. Search results are displayed 25 at a time and are listed within the Yahoo categories that the service maintains for its browsable index.

Search Engine Directories

The sites below offer links to multiple search engines from one location. Some of these sites also offer their own capabilities to search multiple databases (such as Excite, Lycos, Altavista) simultaneously. Results are then integrated in a ranked listing.

All-in-One-Search
Address: **http://www.albany.net/allinone/**
Description: This site provides extensive links and describes the various search engines available on the Internet.

c | net Search.com
Address: **http://www.search.com**
Description: The c | net Search.com services offers a directory to over 250 Internet search engines and searchable resources. Reviewing the section "about search.com" is essential to fully utilize the offerings of this extensive site.

IBM Infomarket
Address: **http://www.infomarket.ibm.com/**
Description: The IBM Infomarket service allows multiple data sources (including Magellan and Open Text indices) to be searched at the same time. Results are relevance ranked and provided in a single list.

Internet Search Table
Address: **http://www.why.net/home/psturm/search/table.htm**
Description: This site provides an extensive alphabetical listing of and links to search engines and directories available on the Internet. Short descriptions of each search engine or directory are also provided.

Links to Search Engines
Address: **http://web.idirect.com/~klg/search.html**
Description: This site provides listings of and links to over 100 different search engines and directories.

SavvySearch
Address: **http://www.cs.colostate.edu/~dreiling/smartform.html**
Description: SavvySearch provides a "meta-search tool" that is designed to simultaneously send a query to multiple Internet search engines and then return a complete set of relevance-ranked results. Users can choose the number of results to retrieve from each individual search engine.

W3 Search Engines
Address: **http://cuiwww.unige.ch/meta-index.html**
Description: This site provides links to a variety of Internet search engines. Individual searches can be conducted directly at this site.

Other Internet Tools

File Transfer Protocol

File Transfer Protocol (FTP) is an Internet tool used for sending and receiving files, and is especially helpful when transferring large data sets electronically. Ftp sites provide access to a variety of information and data worldwide. One means of locating ftp sites and resources is through Archie. Archie is a database of anonymous ftp sites and their contents, and can be used to search for individual files on a ftp site by title or keyword. Archie can be accessed at some of the sites described below. (Also listed are sites that have developed "meta-lists" of ftp sites.)

ArchiePlex Form
Address: **http://cuiwww.unige.ch/archieplexform.html**
Description: This Web site provides a search form that allows Archie to query anonymous ftp sites worldwide. Note that Archie searches can be extremely time consuming. Also note that to be able to use this search service your browser must support forms.

Archie Request Form
Address: **http://hoohoo.ncsa.uiuc.edu/archie.html**
Description: This Web site provides a search form that allows Archie to query anonymous ftp sites worldwide. Note that Archie searches can be extremely time consuming. Also note that to be able to use this search service your browser must support forms.

Archie Services
Address: **http://pubweb.nexor.co.uk/public/archie/servers.html**
Description: This Web site provides a listing of sites offering Archie search functions, both form and nonform based. Archie can be used to query the contents of anonymous ftp sites. Sites are listed geographically.

Monster FTP Sites List
Address: **http://hoohoo.ncsa.uiuc.edu/ftp/**
Description: This Web site provides an extremely comprehensive alphabetic listing of and links to anonymous ftp sites. Ftp addresses and file descriptions are provided. This list can also be accessed by Email. (For directions, send an email message to mail-server@rtfm.mit.edu with no subject and in the body type "send/news.answers/ftp-list/faq.")

Pointers to FTP Sites
Address: **http:www.charm.net/ftp.sites.html**
Description: This site provides a listing of and links to a variety of sites with major ftp archives.

Tile.Net
Address: **http://tile.net/ftplist/**
Description: Tile.Net provides an extensive listing of and links to anonymous ftp sites. Tile.Net's browsable ftp site list is comprised of four main sections: contents, country, Internet domain name, and site name.

Gopher

Gopher, one of the original Internet tools, provides an easy, menu-driven means of presenting and organizing information on the Internet. There are far fewer gopher servers compared with what's available on the World Wide Web, but gopher sites number in the thousands. Many of these are not updated regularly, but may prove helpful as information resources.

Finding Gopher Servers

Gopher Servers Search
Gopher to: **mudhoney.micro.umn.edu:4325/7**
Description: This provides a searchable database of gopher servers around the world. Sites can be searched on keywords only. This site is maintained by the University of Minnesota, which orginally developed the gopher software. For this reason, the University of Minnesota site is often referred to as the "Mother Gopher." (To access the Mother Gopher, gopher to: micro.umn.edu. From here, you can also access the gopher site search feature by clicking on the folder, "search gopher titles at the University of Minnesota.")

Finding Information Using Gopher

Despite the continued growth and popularity of the Web and Web-oriented search engines, two historical gopher search tools may also prove helpful, if you're interesting in restricting your searches to gopher servers. Veronica is one of these tools; it searches all registered gopher servers (sometimes referred to as "gopherspace") based on a keyword query. Many gopher servers have a Veronica search capability embedded as a menu selection. (One Veronica site is listed below.)

Jughead is the second gopher search tool; it searches an individual gopher server, rather than all registered gopher sites. Jughead looks for matches to your query in the directories and documents present on a particular site. In general, the best way to find Jughead is to gopher to a specific gopher server and look for a menu option with Jughead or "searching gopherspace" or something similar. (An index listing gopher servers offering Jughead searches is described below.)

Veronica Gopherspace Search
Gopher to: **futique.scs.unr.edu:70/11/veronica**
Description: This site provides access to several Veronica search tools that search gopherspace (registered gopher servers) by keyword. It also provides a Veronica FAQ (frequently asked questions). Click on the folder "FAQ about Veronica."

Index to Gopher Servers Offering Jughead Searches
Gopher to: **gopher.utah.edu**
Description: This site provides a listing of gopher servers offering the Jughead search capability. Once at this site, click on the folder "search menu titles using Jughead." Then, select "search other institutions using Jughead."

TELNET

Although Telnet is an older Internet tool, it still is being used for remote access to a variety of sites. One of Telnet's primary uses is to access online library catalogs. Using Telnet, you can log in to remote library systems, and conduct searches of their holdings. You'll need to know the telnet address of these libraries as well as log in and password information. The site below has developed an extensive index to library telnet information.

Hytelnet
Address: **http://library.usask.ca/hytelnet/**
Description: The Hytelnet Web site provides an index of libraries throughout the world that are accessible via Telnet. Once at the site, click on the link to "Library catalogs, arranged geographically." Login directions and some catalog descriptions are provided.

Internet
Electronics

Overview

Transportation traditionally refers to the physical movement of goods and people by highway, air, rail, water, transit, and pipeline networks with interconnected linkages. In the future, transportation will continue to be a pervasive component of daily life and comprise a significant share of the national economy. Information technology, however, is dramatically affecting economic and societal structures, and perhaps more importantly, the daily lives of Americans.

Information technology in the form of the Internet is all about the movement of data and information. It is interesting to consider the similarities between the traditional concept of transportation and the Internet. The language is already out there--the Internet is typically referred to as the "information highway" and the "autobahn of data." People are encouraged to seek out certain "rest stops" or avoid various "pitfalls" on this virtual road of information.

Information technology's impact on the nation's transportation infrastructure and services is expected to be significant. One critical impact will be in the area of information and data exchange within the transportation community. Transportation professionals working for metropolitan planning organizations (MPOs), state Departments of Transportations (DOTs), associations, the private sector, and other organizations increasingly require access to timely and relevant data and information to help them achieve project and product goals more effectively and efficiently. The Internet, and its vast array of offerings, is one means of meeting this requirement.

Bureau of Transportation Statistics: Your Roadmap to the Internet

The mission of the Bureau of Transportation Statistics (BTS), as congressionally mandated through the 1991 Intermodal Surface Transportation Efficiency Act, is to compile and analyze transportation information, and make it accessible. In other words, the business of BTS is data and information. As such, BTS can play an important role on the emerging information highway and the Internet.

In January 1995, BTS established an Internet server, accessible through a variety of Internet tools, including FTP and World Wide Web. All of these sites are available at bts.gov. At these sites, you can access information about BTS products and services, download or query data sets for specific BTS products, participate in online discussions on transportation issues, find contact representatives in a variety of transportation fields, or complete an online order form to receive a print, diskette or CD-ROM version of any BTS product. Here's a list of some of the current and future BTS products you will find:

Current BTS Electronic Products

1990 Census Transportation Planning Package (CTPP) CD-ROM (Statewide) is a set of special tabulations of 1990 census data tailored to meet the data needs of transportation planners. The data include characteristics of persons, workers, and housing units by county and place of residence, characteristics of workers by county and place of work; and characteristics of

workers in journey-to-work flows between counties and places of residence and of work.

1990 Census Transportation Planning Package (CTPP) CD-ROM (Urban) contains characteristics of persons, workers, and housing units by traffic analysis zone or census tract (MPO option) of residence; characteristics of workers in journey-to-work flows from traffic analysis zone to traffic analysis zone or from census tract to census tract; detailed cross-tabulation of trip generation characteristics for urbanized areas, transportation study areas, and metropolitan areas; detailed cross-tabulations of workers in journey-to-work flows between "super districts" (aggregations of traffic analysis zones or census tracts) in CTPP regions of 1 million or more; and social and economic characteristics of workers by census tract of work.

National Transportation Atlas Databases 1996 CD-ROM contains compilations of geographic databases that provide the infrastructure for national planning and policy initiatives for the U.S. Department of Transportation. These databases include geospatial information for transportation modal networks and intermodal terminals, and related attribute information. Included are file format descriptions and database metadata as prescribed by the Federal Geographic Data Committee. The databases are most useful at the national level, but have major applications at the regional, state, and local scale throughout the transportation community.

Nationwide Personal Transportation Survey (NPTS) CD-ROM contains 1983 and 1990 data on personal travel by all modes of transportation in the United States, as related to the demographics of persons and households. The CD-ROM also contains specially developed software to tabulate, display, and export tables from the survey. Topics such as household vehicle availability and use, annual miles per licensed driver, household travel rates, vehicle occupancy, and home-to-work trips are included. The NPTS data are collected by the U.S. Department of Transportation's Federal Highway Administration.

Rail Waybill Data: 1988-1992 CD-ROM contains public-use aggregate nonconfidential rail shipment data such as origin and destination regions, type of commodity, number of cars and tons, revenue, length of haul, and interchange states.

Surface Transborder Commodity Data CD-ROM contains freight flow data by commodity type and mode of transportation (rail, truck, or pipeline) for U.S. exports to and imports from Canada and Mexico. The purpose of these data is to provide information needed to monitor increased traffic associated with the North American Free Trade Agreement and provide border communities better data to plan transportation movements. The data are available for April 1993 through March 1995 on CD-ROM. Thereafter, quarterly data is accessible through the BTS Internet site, www.bts.gov.

TIGER/Line Files, 1995 CD-ROM is a set of extracts of selected geographic and cartographic information from the Census Bureau's TIGER (Topologically Integrated Geographic Encoding and Referencing) System that were created under the sponsorship of BTS. The files define traffic analysis zones as recognized in the Census Transportation Planning Package. The files also reflect an increase in the editing of address ranges and new ZIP+4 Codes derived from the latest matching with the Address Control File and the United States Postal Service files, as well as an improvement in the consistency of highway names and feature identifiers throughout the United States. The TIGER/Line Files, 1995 are available for the entire United States on a set of six CD-ROMs. As these copies are limited, customers will receive only the CD-ROM containing data for

their area of interest. The data will be distributed until supplies have been exhausted.

Traffic Safety Data CD-ROM contains the Fatal Accident Reporting System (FARS) 1975-1994 and General Estimates System (GES) 1988-1994 in ASCII format. These data are collected by the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA). Also included on this CD-ROM are the FARS Analytic Reference Guide 1975-1995, a detailed reference source describing the comparability of data variables over the course of the survey's evolution. In addition, NHTSA's Traffic Safety Report 1994 and Traffic Safety Fact Sheets, which may be browsed using the on-disc Microsoft Multimedia Viewer software, are included.

Transportation Data Sampler-3 CD-ROM is a collection of information resources in the U.S. Department of Transportation, U.S. Department of Commerce, U.S. Department of Labor, Environmental Protection Agency, Oak Ridge National Laboratory, and the U.S. Army Corps of Engineers. The Sampler contains 1993-1994 databases and reports in a variety of spreadsheet, database, and word processing formats as well as search and retrieval software. This Sampler includes updates to the information detailed in the Transportation Data Sampler-2 released in January 1994. Additionally, newer data such as the Truck Inventory and Use Survey; Trucks Involved in Fatal Accidents; Worldwide Transportation Directory; Federal, State and Local Transportation Financial Statistics; Air Travel Consumer Report; and preliminary 1993 Commodity Flow Survey statistics have also been incorporated into this edition.

Transportation Safety CD-Rom is another product in the BTS State and Metropolitan Analysis for Regional Transportation (SMART) series. It offers access to over 200 safety-related reports, accident studies, award winning community programs, program planners, data sets and youth programs collected from metropolitan planning organizations, state departments of transportation, the federal government and professional associations. A sample of safety topics includes: rail, roadway, motor vehicles, transit, bicycle and pedestrian safety and occupant protection.

United States Waterway Data CD-ROM is a collection of data from several agencies and institutions, including the U.S. Army Corps of Engineers Navigation Data Center, the U.S. Bureau of Census, the U.S. Coast Guard, Oak Ridge National Laboratory and Vanderbilt University. The information includes data related to the navigable waters in the United States including inland waterways, offshore waters, the Great Lakes, and the Saint Lawrence Seaway. Data on commerce, facilities, locks, dredging, imports and exports, and accidents are included along with the geographic waterways network.

Current BTS Printed Products

The 1993 Commodity Flow Survey (CFS) is designed to provide data on the flow of goods and materials by mode of transport. The Bureau of the Census collected data using a sample of 200,000 domestic establishments randomly selected from a universe of about 900,000 warehouses of multi-establishment companies, and some selected activities in retail and service. Each selected establishment reported a sample of approximately 30 outboard shipments for a two-week period in each of the four calendar quarters of 1993. This produced a total sample of about 12 million shipments. For each sampled shipment, respondents reported origin and destination, Standard Transportation Commodity Classification code, weight, value, and

modes of transport. Respondents also provided information on whether the shipment was containerized, a hazardous material, or an export. Products currently available based on the CFS are the 1993 Commodity Flow Survey: Preliminary Observations; 1993 Commodity Flow Survey: U.S. Preliminary Report, 1993 Commodity Flow Survey: Area Reports for 50 States, 1993 Commodity Flow Survey: State Summaries, and 1993 Commodity Flow Survey: State Freight Transportation Profiles. Additional CFS products are anticipated to be released.

Directory of Transportation Data Sources 1996 provides users of transportation statistics with a comprehensive inventory of transportation data sources to effect easier accessibility to information. The Directory defines a data source as a computerized database or a regularly scheduled or specially printed statistical report published, but not included on a computerized system. The profiles in this edition of the Directory include information on sources from the U.S. federal and state governments, private organizations, Canada, and Mexico.

Federal, State and Local Transportation Financial Statistics, Fiscal Years 1982-1992 identifies and details transportation-related revenues and expenditures by mode and government jurisdiction. The report also examines intergovernmental transactions and their effects on final expenditure levels, and addresses which transportation expenditures are paid directly by users and the degree to which transportation expenditures are covered by user charges and transportation-related collections.

Implications of Continuous Measurement for the Uses of Census Data in Transportation Planning presents the results of a study conducted by BTS to assess the implications of the new census data system, called "Continuous Measurement," which the transportation community must adapt to after the 2000 census. Under Continuous Measurement, the detailed social, economic, and housing information, including journey-to-work data, traditionally collected decennially with the long-form questionnaire on a sample basis, would instead be obtained by an ongoing, "continuous" monthly survey. The census would obtain only population and housing unit counts and a few basic characteristics.

Map of the Major Transportation Facilities of the United States illustrates Interstate and other major highways, Amtrak and other rail lines, navigable waterways and major ports, major airports, urbanized areas and urban rail transit, border crossings, and selected national parks and monuments.

National Transportation Statistics 1993 (NTS) is a historical compendium of selected national transportation and transportation-related data from a wide variety of government and private sources. The data illustrate transportation activity for the major transportation modes for the years 1960-1992/1993. Transportation trends in performance, safety, and motor vehicles sales, production, and costs are also presented. Supplementary information includes data on transportation and the economy, energy consumption, energy intensiveness, energy transport, and energy supply and demand. Additionally, results from the U.S. Department of Transportation's Federal Highway Administration's Nationwide Personal Transportation Survey are illustrated. The NTS is a companion publication to the BTS Transportation Statistics Annual Report (TSAR) cited below. The TSAR evaluates, analyzes, and interprets the information contained in the NTS.

National Transportation Statistics 1996 (NTS) is an annual summary of selected national transportation and transportation-related data from a wide variety of government and private sources. The data illus-

trate transportation activity for the major transportation modes in five-year increments, 1960-1993/1994. Many of the data tables contained in the NTS 1993 are illustrated in this document. Statistics on the relationship between transportation and the environment have also been detailed. Additionally, preliminary statistics on the 1993 Commodity Flow Survey are provided in the section, Transportation--Special Focus. Metric conversion for applicable tables is also included in this edition. The NTS is a companion volume to the BTS Transportation Statistics Annual Report (TSAR) cited below.

North American Transportation: Statistics on Canadian, Mexican, and United States Transportation contains comparable statistics on size and scope, use, employment, fuel consumption, and the economic role of the transportation system of the three countries. It was published to stimulate further efforts to describe and understand the continental transportation system, especially as the use of that system is fundamentally altered by the North American Free Trade Agreement. Many of the data are for 1990, the most recent year for which information for all three countries was generally available. Time series data for 1987 to 1991 are included where possible.

Telephone Contacts for Users of Federal Transportation Statistics 1996 is a 26-page pamphlet that lists names, telephone and fax numbers, and email addresses of transportation specialists in the federal government, by mode, cross-referenced by their area of expertise. These individuals are points of contact for data users requiring detailed transportation information. The publication is also a key tool for individuals requiring specific transportation information, but lacking the proper connection.

Transportation Acronym Guide contains acronyms and their referents used throughout the federal government, private organizations, Canada and Mexico. The acronyms were identified from the sources cited in the 1995 edition of the above-referenced Directory of Transportation Data Sources. A related document is Transportation Expressions, which is described below.

Transportation Expressions is a publication containing transportation terms and definitions used throughout the federal government, private organizations, Canada and Mexico. The terms were identified from the sources cited in the 1995 edition of the above-referenced Directory of Transportation Data Sources. A related document to the Transportation Expressions is the Transportation Acronym Guide described above.

Transportation Statistics Annual Report (TSAR) is BTS's flagship document. As mandated by the Intermodal Surface Transportation Efficiency Act of 1991, each year the report provides a comprehensive assessment of the nation's transportation system and the state of transportation statistics. All four transportation modes--airways, highways, railways, and waterways --are examined through available data and statistical studies. TSAR provides analysis and interpretation of the information contained in its companion volume, National Transportation Statistics. TSAR 1995 and 1996 each include a theme section as Part II of the report.

TSAR 1995 provides an indepth look at transportation and economic performance, and includes: the trends and factors governing the productivity of transportation service providers; the contribution that public investments in transportation make to the overall economy; and the impact of economic growth and change on the use and costs of highways, aviation, water transportation, and public transit.

TSAR 1996 provides an indepth look at transportation and the environment, focusing on the environmental consequences of transportation and how public and private actions are mitigating the effects. National and metropolitan air pollution trends and impacts associated with transportation are discussed and compared with those in other industrialized nations and developing countries. TSAR 1996 also discusses current environmental data needs for understanding transportation's impacts.

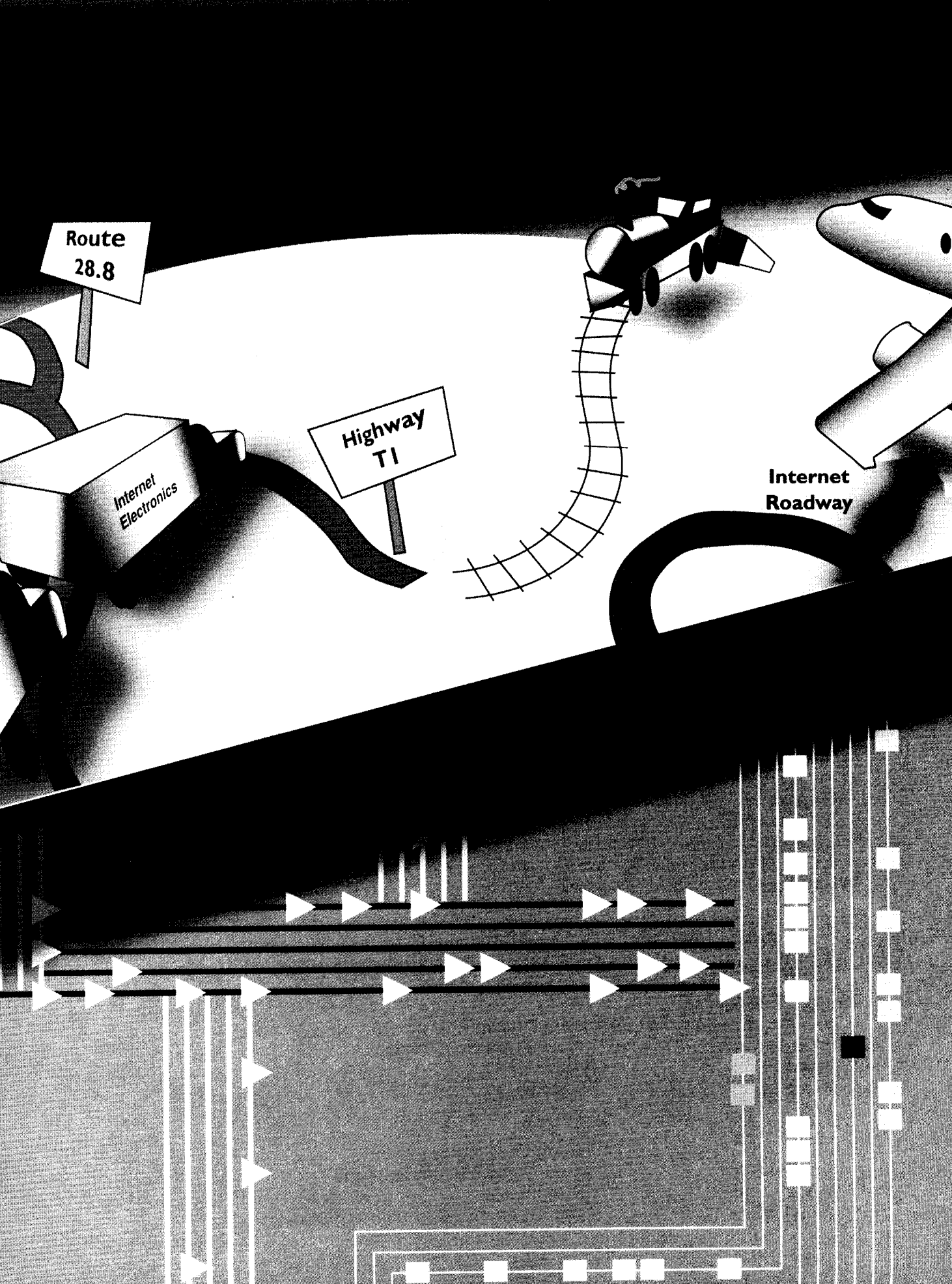
Transportation Statistics: In Brief is a pocket pamphlet designed to highlight two years of transportation data, 1980 and 1994. Comparable data are illustrated for each mode in addition to features on the economy, environment, energy, and safety.

Worldwide Transportation Directory lists, by continent, 1,751 contact points in 189 countries, plus 36 dependencies and areas of special sovereignties. Entries are restricted primarily to government and quasi-government agencies and organizations. In addition to these, there are 59 transnational organizations that span the interests and responsibilities of several countries, and, in some cases, continents. Principal elements include country, continent, government transportation agencies, and quasi-government agencies, as well as contact person, telephone numbers, and addresses. Embassy email addresses are also included where available.

Future BTS Products

American Travel Survey (ATS) was conducted from January 1995 through December 1995. The survey consists of quarterly interviews of approximately 80,000 households in the United States. Results of the survey will measure interstate and intermetropolitan passenger travel nationwide by trip and traveler characteristics for all modes and for intermodal combinations. The data will be released on CD-ROM, online via the Internet, and in printed format. Complete data sets covering the entire 1995 survey are anticipated to be available in fall 1997.

The Internet, with its lure of electronic communication and rapid access to people and vast amounts of data and information, is providing an essential gateway to the Information Age of the 21st century. The Bureau of Transportation Statistics challenges the transportation community to take advantage of the resources and tools this new form of communication affords. The Bureau is ready to provide assistance to those in their early steps of Internet exploration, and is providing this product, the Internet Starter Kit, as part of that effort.


Route
28.8
Internet
Electronics
Highway
T1
Internet
Roadway

TRANSPORTATION-RELATED INTERNET SITES

Disclaimer: Appearance on this list does not imply endorsement by the Bureau of Transportation Statistics, U.S. Department of Transportation.

The Internet is extremely dynamic and extensive. These are only a few of the resources that may be of interest. Additional sites are available and new ones are constantly being added. Resources on this list are organized into several sections. The first part of this section lists transportation-related mailing lists. Following this are World Wide Web resources by mode (aviation, highway, maritime, rail, and transit), by type of organization (associations and nonprofits, colleges and universities, commercial organizations, and governments), and by subject (energy and transportation, environment and transportation, intelligent transportation systems, international transportation, research and transportation, and safety and transportation). The final section lists other transportation-related Internet directories and indices. Some sites are listed in more than one section. Internet addresses are current as of September 1996.

Mailing Lists

Mailing Lists disseminate information on a given topic and provide a forum for discussion of that topic. In this section, we explain some generic steps to subscribe to mailing lists, and then present an annotated list with detailed instructions for subscribing. All you need to join is an Internet email address.

In most cases, the subscription process for mailing lists is quite similar. The generic steps are as follows:

Step 1. Enter the subscription address for the mailing list on the To line.
Step 2. Leave the subject line blank.
Step 3. Type the subscription command in the body of the message. (In most cases this will be "subscribe name-of-the-list [firstname lastname]" where "name-of-the-list" is the name of the specific list in which you're interested followed by your first and last name.

Do not type the quotations or brackets when actually subscribing to a list. These are shown here for illustrative purposes only. If you encounter problems while attempting to subscribe, send Email to the subscription address with the word "help" in the body of the message.

Listname: AIRLINE
This list discusses issues related to the airline industry.
1. Subscription address: listserv@cunyvm.cuny.edu
2. Subject line: (leave blank)
3. Body of message: subscribe airline

Listname: AIRCRAFT
This list discusses issues related to aircraft and helicopters.
1. Subscription address: listserv@iubvm.ucs.indiana.edu
2. Subject line: (leave blank)
3. Body of message: subscribe aircraft [first name last name]

Listname: ALL-ABOARD
This list discusses issues related to passenger rail transport in the United States.
1. Subscription address: majordomo@taex001.tamu.edu
2. Subject line: (leave blank)
3. Body of message: subscribe all-aboard

Listname: ALTTRANSP
List topics include issues and policies pertaining to alternative and nonmotorized transportation modes.
1. Subscription address: majordomo@flora.ottawa.on.ca
2. Subject line: (leave blank)
3. Body of message: subscribe alttransp

Listname: BICYCLE
This list discusses issues relating to cycling and nonmotorized transportation.
1. Subscription address: listproc@list.cren.net
2. Subject line: (leave blank)
3. Body of message: subscribe [first name last name]

Listname: CARGO-L
List topics focus on international shipping and cargo flows.
1. Subscription address: maiser@trasporti.cineca.it
2. Subject line: (leave blank)
3. Body of message: subscribe cargol [first name last name]

Listname: CON-PRIC
List topics focus on issues related to congestion pricing and transportation.
1. Subscription address: listserv@vm1.spcs.umn.edu
2. Subject line: (leave blank)
3. Body of message: subscribe con-pric [first name last name]

Listname: Department of Transportation (DOT) Discussion Group
This list is hosted by the Upper Great Plains Transportation Institute at North Dakota State University. List topics focus on current transportation issues in industry and government.
1. Subscription address: listserve@vm1.nodak.edu
2. Subject line: (leave blank)
3. Body of message: subscribe DOT [first name last name]

Listname: EV (Electric Vehicle)
This list discusses the current state of the art and future direction of electric vehicles.
1. Subscription address: listserv@sjsuvm1.sjsu.edu
2. Subject line: (leave blank)
3. Body of message: subscribe

Listname: GIS-L
This list discusses issues pertaining to geographic information systems.
1. Subscription address: listserv@ubvm.cc.buffalo.edu
2. Subject line: (leave blank)
3. Body of message: subscribe gis-l [first name last name]

Listname: GIS-T
This list, sponsored by Environmental Systems Research Institute, Inc. (ESRI), discusses issues pertaining to geographic information systems and transportation.
1. Subscription address: gis-t-request@esri.com
2. Subject line: ["subscribe to gis-t-request@esri.com"]
3. Body of message: (leave blank)

Listname: GIST-L
This list discusses issues pertaining to geographic information systems and transportation.
1. Subscription address: listserv@ukacrl.bitnet
2. Subject line: (leave blank)
3. Body of message: subscribe gist-l [first name last name]

Listname: ITS-L
List topics focus on intelligent transportation systems.
1. Subscription address: majordomo@mailhub.ornl.gov
2. Subject line: (leave blank)
3. Body of message: subscribe its-l [your email address]

Listname: PED-NET
List topics focus on pedestrian- and walking-related issues.
1. Subscription address: majordomo@flora.ottawa.on.ca
2. Subject line: (leave blank)
3. Body of message: subscribe pednet

Listname: RAILROAD
List topics focus on railroads and related issues.
1. Subscription address: listserv@cunyvm.cuny.edu
2. Subject line: (leave blank)
3. Body of message: subscribe railroad

Listname: TRANS-ENVIRO
List topics focus on transportation and the environment.
1. Subscription address: majordomo@itre.ncsu.edu
2. Subject line: (leave blank)
3. Body of message: subscribe transenviro [first name last name]

Listname: TRANS-AQ
List topics focus on transportation and air quality issues. Georgia Tech University sponsors this list.
1. Subscription address: majordomo@ce.gatech.edu
2. Subject line: (leave blank)
3. Body of message: subscribe trans-aq

Listname: TRANSIT
List topics focus on urban transit issues and transit systems.
1. Subscription address: listserv@gitvm1.gatech.edu
2. Subject line: (leave blank)
3. Body of message: subscribe transit

Listname: TRANSIT-ALTERNATIVES
List topics include a variety of issues relating to transit alternatives, including personal rapid transit, peoplemovers, and monorails.

1. Subscription address: majordomo@bga.com
2. Subject line: (leave blank)
3. Body of message: subscribe transit-alternatives

Listname: TRANSP-L
This list focuses on a variety of topics related to transportation, and is hosted by the Insitute of Public Policy at George Mason University.

1. Subscription address: listproc@gmu.edu
2. Subject line: (leave blank)
3. Body of message: subscribe transp-l

Listname: TRPLAN-L
List topics focus on transportation planning.

1. Subscription address: listserv@psuvm.psu.edu
2. Subject line: (leave blank)
3. Body of message: subscribe trplan-l

Listname: URBAN-REGIONAL PLANNING
This list focuses on recent issues related to urban and regional transportation planning and planning in general.

1. Subscription address: mailbase@mailbase.ac.uk
2. Subject line: (leave blank)
3. Body of message: join urban-regional-planning [first name last name]

Listname: USTG (Universities Transport Study Group)
This list serves as a discussion forum for researchers, academics, and practitioners working in the field of transportation and is hosted by the Universities Transport Study Group at the University of Leeds in the United Kingdom.

1. Subscription address: mailbase@mailbase.ac.uk
2. Subject line: (leave blank)
3. Body of message: join utsg [first name last name]

WORLD WIDE WEB SITES

This section lists transportation-related World Wide Web sites. These sites include resources by *mode* (aviation, highway, maritime, rail, and transit), by *type of organization* (associations and nonprofits, colleges and universities, commercial organizations, and governements), and by *subject* (energy and transportation, environment and transportation, intelligent transportation systems,

international transportation, research and transportation, and safety and transportation). The final section lists other transportation-related Internet *directories and indices*. Some sites are listed in more than one section. Addresses are current as of September 1996.

Modes

Aviation

Aeronet
Address: **http://www.aeronet.co.uk/**
Description: This site provides information on the commercial aviation industry. The site is divided into several sections including: aviation news, airline operators, airports, academic institutions, and conferences. Links to other aviation-related sites are provided.

Aircraft Owners and Pilots Association (AOPA)
Address: **http://www.aopa.org/**
Description: AOPA was founded in 1939. Its mission is to make flying safer, less expensive, and more useful. This site provides information on AOPA and its activities, conferences, and publications.

Air Transport Association (ATA)
Address: **http://www.airtransport.org/**
Description: ATA is a trade organization for the principal U.S. airlines. It supports and assists its member carriers by promoting the air transport industry and the safety, cost effectiveness, and technological advancement of its operations; advocating common industrypositions; conducting designated industry-wide programs and public information campaigns. The ATA site provides information on ATA memebers and its activites. It also provides access to ATA's *Airline Handbook*, industry statistics, an online publication catalog, an online aviation dictionary, and other materials.

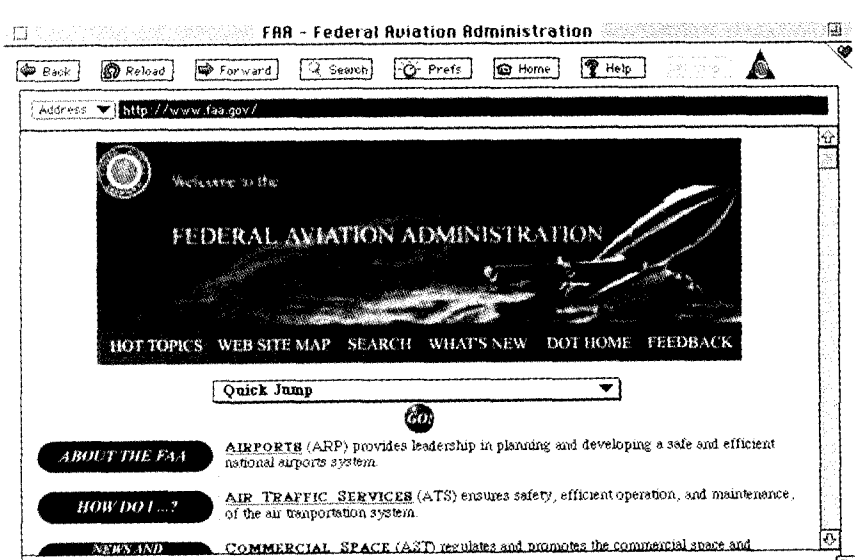
Airlines of the Web
Address: **http://www.itn.net/airlines/**
Description: This site provides a variety of information on and links to the airline industry. Site information and links are organized into these main categories: passenger carriers, cargo airlines, frequent flyer programs, manufacturers and suppliers, aviation organizations, airline 800 numbers, and others.

American Association of Airport Executives (AAAE)
Address: **http://www.airportnet.org/**
Description: AAAE is a professional organization for airport executives and represents thousands of airport management personnel at public use airports nationwide. The AAAE site provides information on AAEE as well as airport and aviation-related news and information. The site is organized into several sections, including news, government affairs, training/certification, resource center, and meetings and conferences. Some materials are only available to AAAE members. The site is searchable.

Aviation Safety Reporting System (ASRS)
Address: **http://wwwafo.arc.nasa.gov/ASRS/ASRS.html**
Description: The ASRS was established in 1975 under a Memorandum of Agreement between the Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA). FAA provides most of the program funding; NASA administers the program and sets its policies in consultation with FAA and the aviation community. The ASRS collects, analyzes, and responds to voluntarily submitted aviation safety incident reports in order to lessen the likelihood of aviation accidents. This site provides information on the ASRS, including a program overview, a program "briefing," ASRS reporting forms, and ASRS publications.

Center for Aviation Systems Reliability, Federal Aviation Administration (FAA-CASR), U.S. Department of Transportation
Address: **http://www.cnde.iastate.edu/faa.html**
Description: The FAA-CASR, established in 1990, provides quantitative techniques, procedures, and prototypes to assure the airworthiness and reliability of aviation systems. It also provides education and training tools for FAA, airlines, and manufacturers of aviation-specific technologies. This site provides information on CASR, its programs, research, and participants.

Center for Advanced Aviation System Development (CAASD)
Address: **http://www.caasd.org/**
Description: The CAASD is a Federally Funded Research and Development Center (FFRDC) sponsored by the Federal Aviation Administration to perform aviation research and



The Federal Aviation Administration Homepage

engineering functions. The site provides access to technical documents and information on the Center's laboratory capabilities and collaborative workshops. The site is searchable.

Federal Aviation Administration (FAA), U.S. Department of Transporation
Address: **http://www.faa.gov**
Description: FAA is responsible for air navigation, air traffic control, aviation certification and regulation, aviation security, environmental impact minimization, and aviation research and development in the United States. Site information is organized into several categories including FAA news and information, FAA Centers and Regions, FAA-supported sites, airports, air traffic services, commercial space, regulation and certification, research and acquistions, system safety, and headquarters offices. The site is searchable.

Global Positioning System (GPS) Overview
Address: **http://www.utexas.edu/depts/grg/gcraft/notes/gps/gps.html**
Description: This site, developed and maintained at the University of Texas, provides an overview of GPS and access to a variety of research and publications, including U.S. Department of Defense Satellite Navigation System, GPS positioning services specified in the federal radio navigation plan, GPS satellite signals, and GPS data. Links to other GPS-related Internet sites are also provided.

International Air Transport Association (IATA)
Address: **http://www.iata.org/**
Description: IATA, founded in 1945, is an international organization representing a variety of interests in the aviation industry. This site provides information about IATA and its activities, members, products, and services.

International Civil Aviation Organization (ICAO)
Address: **http://WWW.CAM.ORG/~icao/**
Description: ICAO is a specialized agency of the United Nations (UN) organizationally linked to the UN's Economic and Social Council. ICAO works with member countries in the areas of standardization, regional planning, facilitation, technical cooperation for development, and international aviation law. The ICAO site provides access to its publications, press releases, abstracts, an "aviation library," and other material.

Landings
Address: **http://www.landings.com/aviation.html**
Description: Landings is a general aviation directory and online information source. Its aviation-related Interent links are organized into over 30 different categories. Landings was formerly known as the "general aviation server" at Harvard University. The site is also searchable.

National Air Traffic Controllers Association (NATCA)
Address: **http://www.natca.org/**
Description: NATCA represents the interests of air traffic control personnel in the United States. This site provides information on aviation issues, particularly those related to air traffic control. The site has open (general public access) and restricted (restricted to current NATCA members) sections.

Office of Aeronautics, Human Factors
National Aeronautics and Space Administration (NASA)
Address: http://olias.arc.nasa.gov/
Description: The Office of Aeronautics, Human Factors at NASA conducts research and analysis in the area of aviation human factors and examines the relationships between the operational safety and efficiency of the aviation system and the characteristics of those people, tasks, environments, and technologies. This site provides information on the Office and its research programs, and offers access to its publications and links to other aviation-related Internet sites.

Office of Airline Information (OAI), Bureau of Transportation Statistics, U.S. Department of Transportation (DOT)
Address: http://www.bts.gov/oai
Description: OAI's mission is to provide comprehensive financial and market/traffic statistical economic data on individual air carrier (airline) operations and the air transportation industry to a variety of users, including the U.S. government, state and local governments, other DOT administrations, and private sector interests. OAI is responsible for several data programs, including the On-Time Statistics database (which tracks the on-time performance for the top 10 largest U.S. carriers) and the T-100 program (which provides market and traffic information). This site provides access to data sets from the T-100 and On-Time Statistics programs, the FAA Statistical Handbook of Aviation, a listing and description of sources of air carrier aviation data, and other material.

Office of System Safety, Federal Aviation Administration, U.S. Department of Transportation
Address: http://nasdac.faa.gov/
Description: The Office of System Safety was created in 1995 to monitor safety trends, identify emerging aviation safety issues and concerns, foster aviation safety research, and serve as a focal point for aviation safety data and information. The site provides a variety of safety publications and data (including aircraft accident data from more than 35,000 National Transportation Safety Board (NTSB) reports since 1983).

Regional Airline Association (RAA)
Address: http://www.raa.org
Description: RAA represents U.S. regional airlines and the suppliers of products and services that support the industry. This site provides information on RAA and its activities, members, conferences, and publications.

Transport News: Air
Address: http://www.transportnews.com/air/
Description: The Transport News site provides a compilation of daily news and features on transportation topics from a variety of sources. This is the air section of the Transport News site. Information is organized by date.

William J. Hughes Technical Center, Federal Aviation Administration (FAA), U.S. Department of Transportation
Address: http://www.tc.faa.gov/general/history.html
Description: The William J. Hughes Technical Center, formerly the FAA Technical Center and the National Aviation Facilities Experimental Center, is the national scientific test base for FAA research, development, and acquisition programs. Center activities

involve test and evaluation in air traffic control, communications, navigation, air ports, and aircraft safety and security. Activities include long-range development of innovative systems and concepts, development of new equipment and software, and in-service modifications of existing systems. The site provides general information on the Center and access to files and publications on the Center's aviation research and development. (This section is divided into the following categories: aviation simulation and human factors, airport and aircraft safety, air traffic control, and aviation security R&D).

Highway and Surface Transportation

American Association of State Highway and Transportation Officials (AASHTO)
Address: **http://www.aashto.org/main/**
Description: This site provides information about AASHTO and its publications; programs and services; meetings and events; and members, committees, and staff. An online version of the AASHTO Journal is available. The site is searchable.

American Public Works Association (APWA)
Address: **http://www.pubworks.org/apwa/main.html**
Description: APWA is a not-for-profit organization dedicated to education in the area of public works. This site provides information on PWA and its activities, members, and research.

American Society of Civil Engineers (ASCE)
Address: **http://www.asce.org/**
Description: ASCE, founded in 1852, is the oldest national professional engineering society in the United States. This site provides information about ASCE and its activities, members, and research.

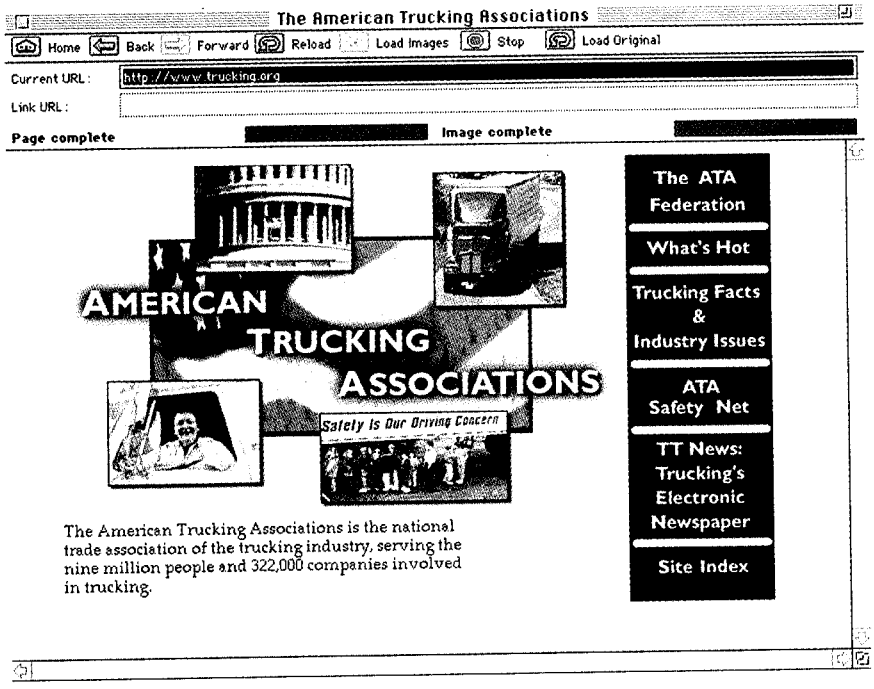
American Trucking Associations (ATA)
Address: **http://www.trucking.org/**
Description: ATA, founded in 1933, is the national trade association of the trucking industry. This site provides information on ATA and its activities. Site information is organized into the following main categories: about the ATA Federation, what's hot, trucking facts and industry issues, ATA safety net, TTNews-trucking's electronic newspaper, and a site map. The site also provides a link to the ATA "information center," which can be accessed at the following address: http://www.cais.com/ata/atawww/atapage.html.

Advocates for Highway and Auto Safety (AHAS)
Address: **http://www.saferoads.org/**
Description: AHAS is an alliance of consumer, health, and safety groups and insurance companies and agents that focuses on motor vehicle saftey issues. This site provides information on AHAS and its activities, and general information on motor vehicle safety issues.

Automated Highway System (AHS), Federal Highway Administration (FHWA)
Address: http://www.volpe.dot.gov/ahs/
Description: The AHS program is a broad national effort that will provide the basis for and transition to the next major performance upgrade of the U.S. vehicle/highway system through the use of automated vehicle control technology. This site provides information about the AHS program and its consortia members, activities, research, and publications.

Congestion Pricing Internet Resources
Address: http://www.hhh.umn.edu/Centers/SLP/Conpric/conpric.html
Description: This site provides information on congestion pricing and its theory and practice through regular updates of actual congestion pricing projects, studies, and media eports. The site is sponsored by the State and Local Policy Program, a research center at the Hubert H. Humphrey Institute of Public Affairs at the University of Minnesota, the Minnesota Department of Transportation, and the U.S. Federal Highway Administration.

Federal Highway Administration (FHWA), U.S. Department of Transportation
Address: http://cti1.volpe.dot.gov/ohim/
Description: This site provides information about FHWA, which was established in 1967 and is responsible for a variety of highway and surface transportation programs. This site also provides information on FHWA reports and publications (including Federal

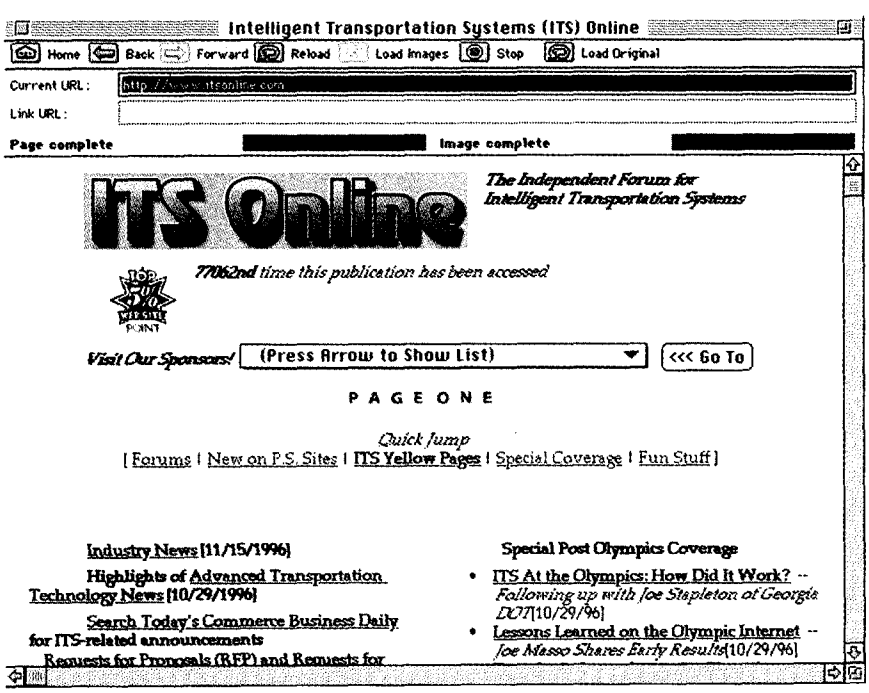


The American Trucking Associations Homepage

Register notices), and links to major program areas (such as federal aid, federal lands, and motor carriers) and to other highway and transportation-oriented Internet sites.

Intelligent Transportation Society of America (ITS America)
Address: **http://www.itsa.org/**
Description: ITS America is an organization focused on developing and applying advanced transportation technologies in North America. The site provides news and information on ITS America and its activities, and on recent developments in intelligent transportation systems. Some materials are only available to ITS America members. The site is searchable.

Intelligent Transportation Systems (ITS) Joint Program, U.S. Department of Transportation
Address: **http://www.its.dot.gov/**
Description: The Department of Transportation's (DOT's) formal ITS program began with the Intelligent Vehicle Highway Systems Act, which is contained in the Intermodal Surface Transportation Efficiency Act of 1991. In 1994, DOT established a Joint Program Office for ITS, which provides strategic leadership for individual programs carried out by offices within different DOT administrations. This site provides general information on ITS and DOT activities in this area.

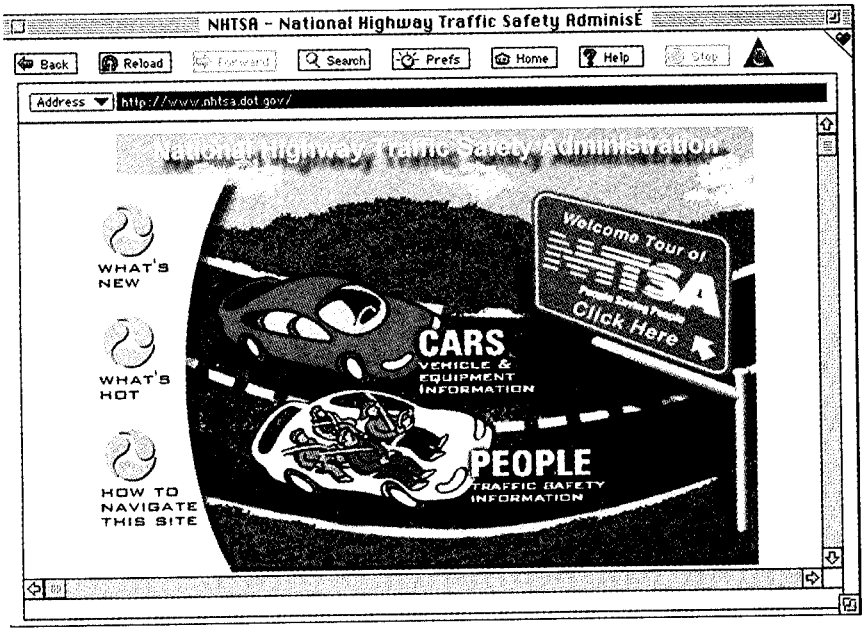


The Intelligent Transportation Systems Online Homepage

Intelligent Transportation Systems (ITS) Online
Address: **http://www.itsonline.com/**
Description: This site provides information and news on federal, state, and local government and private sector initiatives, research, and development in the area of ITS. The site also sponsors several ITS-related forums and discussion groups. The site is searchable.

International Road Federation
Address: **http://noi.noli.com/irfnet/**
Description: The International Road Federation is a not-for-profit, nonpolitical service organization. Its original purpose and continuing objective is to encourage better road and transportation systems worldwide and to assist in the application of technology and management practices that will produce maximum economic information on IRF and its most recent activities, information on IRF programs and publications, member lists and contact information, as well as other materials.

National Automated Highway System Consortium (NAHSC)
Address: **http://www.volpe.dot.gov/nahsc/**
Description: NAHSC is a public/private partnership established to facilitate development of vehicle and highway automation technologies. This site provides information on NAHSC's background and mission, consortium participation, program activities, and new initiatives.



The National Highway Traffic Safety Administration Homepage

National Crash Analysis Center
Federal Highway Administration (FHWA), National Highway Traffic Safety Administration (NHTSA), and George Washington University
Address: **http://gwuva.gwu.edu/ncac/**
Description: The Center concentrates its research on vehicle crashworthiness. This site provides information about the Center and its activities, research, and publications. The site also offers an online video library of actual vehicle crashes.

National Highway Traffic Safety Administration (NHTSA), U.S. Department of Transportation
Address: **http://www.nhtsa.dot.gov/**
Description: NHTSA was established by the Highway Safety Act of 1970. NHTSA is responsible for reducing deaths, injuries, and economic losses resulting from motor vehicle crashes. This is accomplished by setting and enforcing safety performance standards for motor vehicle equipment, and through grants to state and local governments to enable them to conduct effective local highway safety programs. NHTSA also investigates safety defects in motor vehicles, sets and enforces fuel economy standards, helps states and local communities reduce the threat of drunk drivers, promotes the use of safety belts, child safety seats, and air bags, investigates odometer fraud, establishes and enforces vehicle anti-theft regulations, and provides consumer information on motor vehicle safety topics. NHTSA also conducts research on driver behavior and traffic safety in order to develop the most efficient and effective means of bringing about safety improvements. This site provides information about NHTSA and its programs and activities. Site information is organized into the following main categories: NHTSA general information, cars-vehicle and equipment identification, people-traffic safety/occupant issues, what's hot, and what's new.

Office of Technology Applications, Federal Highway Administration
Address: **http://www.avalonais.com/OTA/OTA.html**
Description: The Office of Technology Applications (OTA) is responsible for identifying and assessing innovative research results, technology, applications, and products relevant to highway transportation. The technology applications program involves all areas of highway technology, including asphalt and concrete pavements, environment, structures, geotechnology, hydraulics, safety, motor carriers, and traffic operations and management. This site provides information about OTA and its activities, research, and publications.

Transport News: Truck
Address: **http://www.transportnews.com/common-carrier/**
Description: The Transport News site provides a compilation of daily news and features on transportation topics from a variety of sources. This is the truck/common-carrier section of the Transport News site. Information is organized by date.

Truck Net
Address: **http://www.truck.net/**
Description: This site provides a variety of information on road transportation and the trucking industry, including links to other web resources, directories, and mailing lists. Site information is organized into a variety of categories including what's new, databases, truck law, truck magazines, and a motor carrier's guide.

Trucking Resources
Address: **http://www.sendit.com/cdesign/page2.html**
Description: This site provides a listing of and links to a variety of Internet resources on commercial trucking and the trucking industry. It also provides listings of books, manuals, and manuscripts; trucking-related journals, bulletins, and directories; catalogs; associations; and consultants and services.

Truck World
Address: **http://www.hke.com/**
Description: This site provides a variety of information on the trucking industry and road transportation. Site information is organized into the following categories: features, driver stories, fleet stories, industry news, supplier news, and links.

Turner-Fairbanks Highway Research Center, Federal Highway Administration (FHWA), U.S. Department of Transportation
Address: **http://www.avalonais.com/TFHRC/home.html**
Description: The Turner-Fairbanks Highway Research Center conducts research and development for FHWA. Its primary research includes: intelligent transportation systems, safety and traffic operations, infrastructure, training, and advanced research (artificial intelligence, robotics, self-monitoring systems, and advanced materials). This site provides information on the Center and its activities, research, and publications. The journals, Public Roads and Research and Technology Transporter, are available online at this site.

Nonmotorized Transport

Bicycle Community Page
Address: **http://danenet.wicip.org/bcp/**
Description: This site primarily serves the areas of Madison and Dane County, Wisconsin. It also has more than 200 links to other bicycle Internet resources organized by region, state, and country.

Bicycle Helmet Safety Institute
Address: **http://www.bhsi.org/**
Description: This site provides information on bicycle helmets and safety initiatives. The includes information on and links to a consumer's guide to bicycle helmets, news about helmets and the helmet industry, studies on helmet effectiveness, helmets and standards (including mandatory helmet laws), and other material.

CyberRider Cycling
Address: **http://blueridge.infomkt.ibm.com/bikes/**
Description: The CyberRider Cycling site provides a variety of information (advocacy, routing, equipment, news, events, etc.) on and links to bicycling sites on the Internet.

Hiking and Walking Homepage
Address: **http://www.teleport.com/~walking/hiking.html**
Description: This site offers an index to a variety of hiking and walking Internet resources.

VeloNet: Global Cycling Network
Address: **http://cycling.org/**
Description: The VeloNet site is intended to be an electronic information desk for cyclists. The site provides information on directories and web sites of interest to the cycling community. It also offers links to over 200 cycling-oriented mailing lists.

Walking Resources on the Web
Address: **http://www.teleport.com/~walking/walking.html**
Description: This site provides a variety of information on and links to walking-related Internet sources. Site information categories include: mailing lists; events, publications, and organizations; and gear and tours.

WWW Bicycle Lane
Address: **http://www.cs.purdue.edu/homes/dole/bikelane.html**
Description: This site provides information on and links to cycling-related Internet sources. Categories include bicycle commuting, magazines, companies, organizations, clubs, touring, and bicycle safety.

Maritime

Electronic Shipping Guide
Address: **http://www.shipguide.com/**
Description: This site provides an online database of container shipping schedules of over 60 car-export, connecting, and feeder service. The schedules are obtained directly from carriers and routinely verified for accuracy. The site advises users to confirm specific dates with carriers prior to booking. Links to other maritime web sites, carrier and port news, and carrier contact information is also provided.

Gens: The Professional Maritime Server
Address: **http://www.gens.no/**
Description: This site provides a variety of maritime industry-related information, news, and links to other Internet sites.

Maritime Administration (MARAD), U.S. Department of Transportation (DOT)
Address: **http://marad.dot.gov/**
Description: MARAD is the successor of several government agencies dating back to the establishment of the independent U.S. Shipping Board in 1916. The mission of MARAD, which became a part of DOT in 1981, is to promote the development and maintenance of an adequate, well-balanced U.S. merchant marine sufficient to carry the nation's domestic waterborne commerce and a substantial portion of its waterborne foreign commerce, and capable of serving as a naval and military auxiliary in time of war or national emergency. This site provides information about MARAD and its activities and programs. Main site information categories include

various MARAD offices, customer service standards, publications, business opportunities, the U.S. Merchant Marine Academy, and the National Maritime Resource and Education Center.

Maritime Global Net
Address: **http://www.mglobal.com/**
Description: This site provides information on and links to other maritime industry sites. Information is organized by several categories including: associations, institutions, and societies; government resources; intermodal transportation; marine transportation; news; and world ports.

Maritime HomePage
Address: **http://www.webcom.com/~maritime/**
Description: This site provides a variety of links to and information on the maritime industry and maritime-related issues.

National Maritime Resource and Education Center, Maritime Administration, U.S. Department of Transportation
Address: **http://marad.dot.gov/AA1NMR.HTM#K**
Description: The Maritime Administration established the National Maritime Resource and Education Center to assist the U.S. shipbuilding and allied industries in improving their competitiveness in the international commercial market. The Center serves as an information source and facilitator within the government for the maritime industry by providing expertise, information, and reference material on commercial shipbuilding. This site provides a variety of information from the Center and includes: shipbuilding, ship repair, and marine supplier announcements; marine industry standards library; metrication information; research and development; and standards organization and information.

Nsnet: Global Maritime Network
Address: **http://www.nsnet.com/**
Description: NSnet is a site that promotes electronic commerce and communications for the maritime industry. The site provides news and information on the maritime industry, including shipyards, professional organizations, design agencies, standards and classification societies, education, research and legal resources, and government and regulatory bodies. The site is searchable and also offers several thematically organized discussion groups for users to join.

Saint Lawrence Seaway Development Corporation (SLSDC), U.S. Department of Transportation
Address: **http://www.dot.gov/dotinfo/slsdc/index.htm**
Description: SLSDC is a wholly owned government corporation created in 1954 to construct, operate, and maintain that part of the St. Lawrence Seaway, between the Port of Montreal and Lake Erie, within the territorial limits of the United States. The Seaway is a binational waterway and SLSDC coordinates its activities with its Canadian counterpart, the St. Lawrence Seaway Authority of Canada, particularly with regard to rules and regulations, tolls, traffic control, navigation aids, safety,

channel maintenance, operating dates, and related programs designed to fully develop the "fourth seacoast." This site provides SLSDC contact information, reports and publications, toll schedules, and an online briefing room.

SeaPorts of the Americas
Address: **http://www.seaportsinfo.com/**
Description: This is the official web site of the American Association of Port Authorities. Information is organized in categories including: ports; ports and maritime services; shipping lines of the Americas; expositions, seminars, and trade shows; industry information; what's new; and announcements.

Shipping Times of Singapore
Address: **http://www.asia1.com.sg/shippingtimes/**
Description: This site provides electronic access to the Shipping Times of Singapore, a newspaper that focuses on international shipping issues. Excerpts and some full-text articles and columns on shipping and air and land transport news and issues are available. A listing of ships arriving in and departing from Singapore is also available.

Transport News: Ocean
Address: **http://www.transportnews.com/ocean/**
Description: This Transport News site provides a compilation of daily news and features on transportation topics from a variety of sources. This is the ocean/maritime section of the Transport News site. Information is organized by date.

United States Coast Guard, U.S. Department of Transportation
Address: **http://www.dot.gov/dotinfo/uscg/welcome.html**
Description: The U.S. Coast Guard is the primary federal agency with maritime authority for the United States in the areas of maritime law enforcement, maritime safety, marine environmental protection, and national security. This site provides information on Coast Guard recruiting; news and current events; programs and services; areas, districts and units; customer service standards; facts, images, history; and more.

Waterborne Commerce Statistics Center, Navigation Data Center, U.S. Army Corps of Engineers
Address: **http://www.wrcndc.usace.army.mil/ndc/wcsc.htm**
Description: The primary function of the Waterborne Commerce Statistics Center, under the authority of the Rivers and Harbors Act of 1922, is to collect, process, distribute, and archive vessel trip and cargo data. These statistics are used to analyze the feasibility of new projects and to set priorities for new investment, and for the operation, rehabilitation, and maintenance of existing projects. This site provides access to national summaries of domestic and foreign waterborne commerce, comparison of U.S. waterways tonnage, U.S. waterway monthly tonnage indicators, trends in commodity tonnage flows, waterborne commerce standard reports, U.S. principal ports reports, state tonnage reports, and other materials.

Rail and Surface Transportation

Association of American Railroads (AAR)
Address: **http://www.aar.org**
Description: This site provides information about AAR and its members, activities, research, publications, and conferences and meetings.

Association of American Railroads, Transportation Technology Center (TTC)
Address: **http://www.aar.com/**
Description: TTC maintains several laboratory test facilities used for evaluating vehicle dynamics, structural characteristics, and advanced braking systems. This site provides information on the TTC and its test tracks, test laboratories, current research, and other activities.

Cyberspace World Railroad
Address: **http://www.mcs.net/~dsdawdy/cyberoad.html**
Description: This site provides a variety of rail-related information including the General Code of Operating Rules (used by the majority of railroads in the United States), links to other rail-related Internet information, Amtrak schedules, rail-related news, and reference information.

Federal Railroad Administration (FRA), U.S. Department of Transportation
Address: **http://www.dot.gov/dotinfo/fra/welcome.html**
Description: FRA was created in 1966 to promote and enforce safety throughout the U.S. railroad system, rehabilitate Northeast Corridor rail passenger services, consolidate federal support for rail transportation, and support research and development for rail transportation. This site provides an overview of FRA and its programs.

Gauge Restraint Measurement System (GRMS), Federal Railroad Administration and Volpe National Transportation Systems Center
Address: **http://www.dot.gov/dotinfo/fra/grms/index.htm**
Description: The GRMS is a performance-based track strength evaluation program that improves railroad safety and maintenance efficiency. The GRMS measures how well ties and fasteners maintain gauge under load, at speeds up to 30 mph. This site provides background information on the GRMS.

Institute of Railway Studies, University of York, United Kingdom
Address: **http://www.york.ac.uk/inst/irs/welcome.htm**
Description: The Institute of Railway Studies is a partnership between the National Railway Museum and the University of York. The Institute's purpose is to pursue excellence in teaching, research, and scholarship in order to advance learning and knowledge of railways at all levels. This site provides information about the Institute, its courses and research facilities, and links to other rail-related Internet sites.

Intelligent Transportation Society of America (ITS America)
Address: **http://www.itsa.org/**
Description: ITS America is an organization focused on developing and applying advanced transportation technologies in North America. The site provides news and infor-

mation on ITS America and its activities, and on recent developments in intelligent transportation systems. Some materials are only available to ITS America members. The site is searchable.

Intelligent Transportation Systems (ITS) Joint Program, U.S. Department of Transportation
Address: **http://www.its.dot.gov/**
Description: The Department of Transportation's (DOT's) formal ITS program began with the Intelligent Vehicle Highway Systems Act, which is contained in the Intermodal Surface Transportation Efficiency Act of 1991. In 1994, DOT established a Joint Program Office for ITS, which provides strategic leadership for individual programs carried out by offices within different DOT administrations. This site provides general information on ITS and DOT activities in this area.

Intelligent Transportation Systems (ITS) Online
Address: **http://www.itsonline.com/**
Description: This site provides information and news on federal, state, and local government and private sector initiatives, and research and development in the area of ITS. The site also sponsors several ITS-related forums and discussion groups. The site is searchable.

Interchange Yard
Address: **http://www.he.tdl.com/~colemanc/interchg.html**
Description: This site provides an extensive listing of and links to railroad-oriented resources available on the Internet.

Mercurio--European Railway Server
Address: **http://mercurio.iet.unipi.it/home.html**
Description: This site provides general information and news on European railways, primarily from a passenger perspective. It also provides online access to the journal, European Railway News.

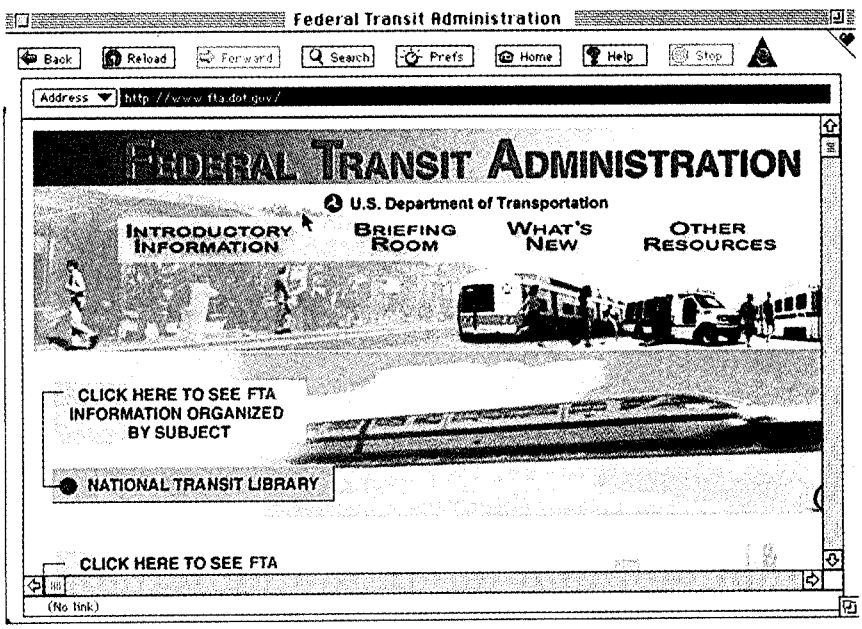
Railway Exchange
Address: **http://www.railwayex.com/**
Description: This site provides a variety of information and news on the railway industry. Also available is information about railway companies and their products and services, railway museums and attractions, railway industry terminology, railway equipment, and other items.

RailNEWS
Address: **http://www.calweb.com/~scotti/railnews.htm**
Description: This site provides links to a variety of information and news sources on the railway industry and links to Internet sites for individual rail companies.

Railroad Related Internet Resources
Address: **http://www.cse.ucsd.edu/users/bowdidge/railroad/railhome.html**
Description: This site provides a catalog of links to railroad-related information sources on the Internet. Most links refer to North American railroads, with a particular emphasis on Western U.S. and California railroads.

Railway Technical Research Institute (RTRI), Japan
Address: **http://www.rtri.or.jp/index.html**
Description: RTRI was formed in 1987 as a result of the privatization of Japanese railways. The mission of RTRI is to develop basic technology and research applications, promote technology transfer, promote the Maglev (magnetic levitation) system, and study safety measures. This site provides general information on RTRI and its research activities, and on Japanese railways.

Transport News: Rail
Address: **http://www.transportnews.com/rail/**
Description: The Transport News site provides a compilation of daily news and features on transportation topics from a variety of sources. This is the rail section of the Transport News site. Information is organized by date.



The Federal Transit Administration Homepage

Transit

Advanced Transit Association (ATRA)
Address: **http://weber.u.washington.edu/~jbs/itrans/atra.htm**
Description: ATRA focuses on urban transportation needs and the utilization of advanced transit technologies to meet them. This site provides information on ATRA and its activities, publications, and conferences and meetings.

American Public Transit Association (APTA)
Address: **http://www.apta.com/**
Description: APTA is an international association of mass transit interests with over 1,100 members including operating transit authorities, their suppliers, and other advocates of improved public transportation. The APTA site provides information on meetings and conferences, current projects, latest transit news and APTA publications, and transit-related statistics. The site is searchable.

Community Transportation Association of America (CTAA)
Address: **http://www.ctaa.org/**
Description: CTAA is a nonprofit membership association that focuses on issues of mobility and accessibility. The CTAA site provides information on the association and its activities.

Federal Transit Administration (FTA), U.S. Department of Transportation
Address: **http://www.fta.dot.gov/**
Description: The mission of FTA is to ensure personal mobility and economic and community vitality by supporting high-quality public transportation through leadership, technical assistance, and financial resources. This site provides information about FTA and public transit, including the "National Transit Library" (which is a repository of transit-related reports, documents, and data generated by professionals and laypersons from around the country). Information on this site can be accessed by subject or FTA office. The site is searchable.

Intelligent Transportation Society of America (ITS America)
Address: **http://www.itsa.org/**
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Intelligent Transportation Systems (ITS) Online
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International Union of Public Transport (UITP)
Address: **http://www.uitp.com/uitp/Default.nclk**
Description: UITP, founded in 1885, is an international scientific association that studies urban and regional public transport and general mobility questions. This site provides information on UITP and its activities, members, research, and publications.

Local and Regional Transit Sites
Address: **http://www.fta.dot.gov/other/**
Description: An organized listing of and links to local and regional transit sites in the United tates is provided at the Federal Transit Administration's web site. Sites range from "Appleton, Wisconsin-Valley Transit" to "Woodbridge, VA-Virginia Railway Express."

National Transit Institute (NTI)
Address: **http://policy.rutgers.edu/nti/**
Description: NTI was established under the Intermodal Surface Transportation Efficiency Act of 1991 at Rutgers, the State University of New Jersey. It is funded by a grant from the Federal Transit Administration. NTI develops and delivers training and education programs for the public transit industry. This site provides information about NTI and its programs, courses, publications, and staff.

Partners for Advanced Transit and Highways (PATH)
Address: **http://wwwpath.eecs.berkeley.edu/**
Description: PATH is a collaboration of numerous transportation organizations (including the California Department of Transportation and the U.S. Department of Transportation), universities, and U.S. businesses. Initiated in 1986, PATH's objective is to develop the foundations for the widespread adoption of advanced technologies that will help improve the operation of California's surface transportation. PATH's web site is maintainted by the University of California-Berkeley. The site provides general information on PATH and its publications and current research. The site is searchable.

School Transportation News
Address: **http://www.stnonline.com/**
Description: This site provides online access to this monthly magazine. School Transportation News reports on school bus safety and related topics; transportation developments related to school districts and private school bus contractors throughout North America and Europe; news from state, local, and federal governments affecting the industry; school bus manufacturing; state and federal regulatory developments; school bus specifications; safety and accident news; transporting students with dis-

abilities; and other related issues. The site also provides information on the annual School Bus Manufacturing Survey, links to other contacts and information, and school bus facts.

Subway Navigator
Address: **http://metro.jussieu.fr:10001/bin/cities/english**
Description: This site provides a searchable database to subway systems in various cities around the world. A variety of information is included about each subway system, including clickable maps of the individual systems.

The Subway Page
Address: **http://www.reed.edu/~reyn/transport.html**
Description: This site provides access to subway maps for a variety of cities worldwide. Metro area bus, light rail, and rail system maps are also available for numerous urban areas worldwide. Subway route navigation aids and city and area transit guides are provided as are numerous links to other transit-related Internet resources.

The Transit-Center
Address: **http://www.TransitCenter.com/**
Description: The Transit-Center site provides a variety of information on the transit industry. Site information is organized into the following main categories: business center, calendar, the library, infonet, directory and help, and transit-center classifieds.

Transit Services by City
Address: **http://www.fta.dot.gov/other/**
Description: The Federal Transit Administration provides an alphabetical listing of and links to transit services for U.S. cities.

United Motorcoach Association (UMA)
Address: **http://www.uma.org**
Description: UMA is North America's largest association of professional bus and motorcoach companies. This site provides information on UMA, profiles of member operators, contact information, and links to other member sites.

World Rail and Transit
Address: **http://home.cc.umanitoba.ca/~wyatt/railtransitlist.html**
Description: This site offers a listing by country and city of different rail transit types in use worldwide. Definition and source material are also provided.

Type Of Organization

Associations and Nonprofit Organizations

Advanced Transit Association (ATRA)
Address: **http://weber.u.washington.edu/~jbs/itrans/atra.htm**
Description: ATRA focuses on urban transportation needs and the utilization of advanced transit technologies to meet them. This site provides information on ATRA and its activities, publications, and conferences and meetings.

Advocates for Highway and Auto Safety (AHAS)
Address: **http://www.saferoads.org/**
Description: AHAS is an alliance of consumer, health, and safety groups and insurance companies and agents that focuses on motor vehicle saftey issues. This site provides information on AHAS and its activities, and general information on motor vehicle safety issues.

Aircraft Owners and Pilots Association (AOPA)
Address: **http://www.aopa.org/**
Description: AOPA was founded in 1939. Its mission is to make flying safer, less expensive, and more useful. This site provides information on AOPA and its activities, conferences, and publications.

American Association of Airport Executives (AAAE)
Address: **http://www.airportnet.org/**
Description: AAAE is a professional organization for airport executives and represents thousands of airport management personnel at public use airports nationwide. The AAAE site provides information on AAEE as well as airport and aviation-related news and information. The site is organized into several sections, including news, government affairs, training/certification, resource center, and meetings and conferences. Some materials are only available to AAAE members. The site is searchable.

American Association of State Highway and Transportation Officials (AASHTO)
Address: **http://www.asshto.org/main/**
Description: This site provides information about AASHTO and its publications; programs and services; meetings and events; and members, committee and staff. An online version of the AASHTO Journal is available. The site is searchable.

American Public Transit Association (APTA)
Address: **http://www.apta.com/**
Description: APTA is an international association of mass transit interests with over 1,100 members including operating transit authorities, their suppliers, and other advocates of improved public transportation. The APTA site provides information on meetings and conferences, current projects, latest transit news and APTA publications, and transit-related statistics. The site is searchable.

American Public Works Association (APWA)
Address: **http://www.pubworks.org/apwa/main.html**
Description: APWA is a not-for-profit organization dedicated to education in the area of public works. This site provides information on APWA and its activities, members, and research.

American Society of Civil Engineers (ASCE)
Address: **http://www.asce.org/**
Description: ASCE, founded in 1852, is the oldest national professional engineering society in the United States. This site provides information about ASCE and its activities, members, and research.

American Trucking Associations (ATA)
Address: **http://www.trucking.org/**
Description: ATA, founded in 1933, is the national trade association of the trucking industry. This site provides information on ATA and its activities. Site information is organized into the following main categories: about the ATA Federation, what's hot, trucking facts and industry issues, ATA safety net, TTNews-trucking's electronic newspaper, and a site map. The site also provides a link to the ATA "information center," which can be accessed at the following address: http://www.cais.com/ata/atawww/atapage.html.

Air Transport Association (ATA)
Address: **http://www.air-transport.org/**
Description: ATA, founded in 1936, is a trade organization for the principal U.S. airlines. It supports and assists its member carriers by promoting the air transport industry and the safety, cost-effectiveness, and technological advancement of its operations; advocating common industry positions; and conducting designated industry-wide programs and public information campaigns. The ATA site provides information on ATA members and its activities. It also provides access to ATA's Airline Handbook, industry statistics, an online publication catalog, an online aviation dictionary, and other materials.

Community Transportation Association of America (CTAA)
Address: **http://www.ctaa.org/**
Description: CTAA is a nonprofit membership association that focuses on issues of mobility and accessibility. The CTAA site provides information on the association and its activities.

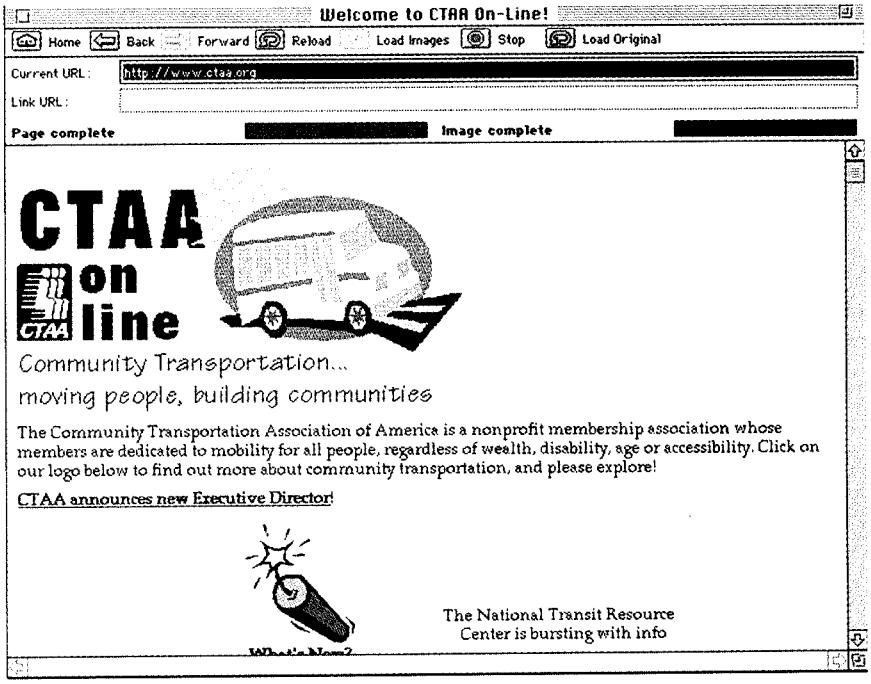
Highway Loss Data Institute (HLDI)
Address: **http://www.carsafety.org/**
Description: HLDI is a nonprofit, public service organization that gathers, processes, and publishes data on the ways in which insurance losses vary among different kinds of vehicles. The HLDI site is organized into sections on injury, collision, and theft.

Institute of Transportation Engineers (ITE)
Address: **http://www.ite.org**
Description: ITE, founded in 1930, is an international educational and scientific association of transportation and traffic engineers, transportation planners, and other profession-

als. This site provides information on ITE and its activites. The site is divided into five main sections: the institute, job market, new on the ITE web, transportation news, and resources and references.

Insurance Institute for Highway Safety (IIHS)
Address: **http://www.hwysafety.org/**
Description: IIHS is an independent, nonprofit, scientific and educational organization. It is focused on reducing the losses-deaths, injuries, and property damage-resulting from crashes on the nation's highways. The site provides information and statistics that are organized into categories including: roads and highways, passenger vehicles, pedestrians, alcohol and other drugs, traffic laws and regulations, large trucks, beginning drivers, motorcycles, and bicycles and fatality facts. The site is searchable.

Intelligent Transportation Society of America (ITS America)
Address: **http://www.itsa.org/**
Description: ITS America is an organization focused on developing and applying advanced transportation technologies in North America. The site provides news and information on ITS America and its activities, and on recent developments in intelligent transportation systems. Some materials are only available to ITS America members. The site is searchable.



The Community Transportation Association of America Homepage

Intermodal Association of North America (IANA)
Address: **http://emporium.turnpike.net/~IANA/**
Description: IANA is the leading industry trade association representing the combined interests of intermodal freight transportation companies. This site contains information about IANA, its activities, members, and publications.

International Air Transport Association (IATA)
Address: **http://www.iata.org/**
Description: IATA, founded in 1945, is an international organization representing a variety of interests in the aviation industry. This site provides information about IATA and its activities, members, products, and services.

International City/County Management Association (ICMA)
Address: **http://www.icma.org/**
Description: ICMA, founded in 1914, is an international professional and educational association for city, county, and regional administratiors. This site provides information about ICMA and its programs, conferences, and meetings.

International Road Federation
Address: **http://noi.noli.com/irfnet/**
Description: The International Road Federation is a not-for-profit, nonpolitical service organization. Its original purpose and continuing objective is to encourage better road and transportation systems worldwide and to assist in the application of technology and management practices that will produce maximum economic and social return from national road investments. This site provides background information on IRF and its most recent activities, information on IRF programs and publications, member lists and contact information, as well as other materials.

International Union of Public Transport (UITP)
Address: **http://www.uitp.com/uitp/Default.nclk**
Description: UITP, founded in 1885, is an international scientific association, located in Brussels, Belgium, that studies urban and regional public transport and general mobility questions. This site provides information on UITP and its activities, members, research, and publications.

National Association of Counties (NACo)
Address: **http://www.naco.org/**
Description: NACo, founded in 1935, represents the interests of county governments in the United States. This site provides information about NACo and its affiliated organizations, members, services, news, and public policy. The site is searchable.

National League of Cities (NLC)
Address: **http://www.cais.com/nlc/nlcloc.html**
Description: NLC, founded in 1924 as the American Municipal Association, is the largest organization serving municipal governments in the United States. This site provides information about NLC, its programs, members, policies, and activities. It also provides a variety of Internet links related to local government.

National Association of Regional Councils (NARC)
Address: **http://narc.org/narc/index.html**
Description: NARC is a membership organization of regional councils (councils of government, regional planning and development agencies, etc.) across the country and provides opportunities for private- and public-sector organizations interested in issues of egional planning, development, and governance to participate. This site provides information about NARC, its activities, and reports.

National Safety Council
Address: **http://www.nsc.org/nsc/informa.html**
Description: The National Safety Council's mission is to educate and influence society to adopt safety, health, and environmental policies, practices, and procedures to prevent and mitigate human suffering and economic losses arising from preventable causes. This site provides information on the Council and its activities. Information on traffic safety is available at the following address: http://www.nsc.org/nsc/sbc/traf_saf.html.

Partners for Advanced Transit and Highways (PATH)
Address: **http://wwwpath.eecs.berkeley.edu/**
Description: PATH is a collaboration of numerous transportation organizations (including the California Department of Transportation and the U.S. Department of Transportation), universities, and U.S. businesses. Initiated in 1986, PATH's objective is to develop the foundations for the widespread adoption of advanced technologies that will help improve the operation of California's surface transportation. PATH's web site is maintained by the University of California-Berkeley. The site provides general information on PATH and its publications and current research. The site is searchable.

United Motorcoach Association (UMA)
Address: **http://www.uma.org**
Description: UMA is North America's largest association of professional bus and motorcoach companies. This site provides information on UMA, profiles of member operators, contact information, and links to other member sites.

Urban Regional Information Systems Association (URISA)
Address: **http://www.urisa.org/**
Description: URISA is a leading association in the areas of understanding and applying information systems technology. This site provides information about URISA and its activities, members, and publications.

Colleges and Universities

Center for Transportation Research, University of Texas at Austin
Address: **http://www.utexas.edu/depts/ctr/index1.html**
Description: This site provides information about the Center for Transportation Research and its programs, current research (with particular focus on alternative transportation fuels, aviation, and intermodal issues), technology transfer and outreach activities, and available publications.

Center for Transportation Research, Virginia Tech University
Address: **http://www.ctr.vt.edu/**
Description: This site provides information about the Center for Transportation Research and its programs, current research and projects (with particular focus on advanced vehicle and safety systems, transportation and emergency management, commercial vehicle operations, and public transportation operations), and available publications.

Center for Transportation Studies (CTS), Massachusetts Institute of Technology (MIT)
Address: **http://web.mit.edu/afs/athena.mit.edu/org/c/cts/www/**
Description: This site provides information about the Center for Transportation Studies and its research (with particular focus on transportation logistics) and outreach programs. The Center's newsletter is also provided as are links to other transportation Internet resources. MIT is also the lead institution for the Region One center in the University Transportation Center (UTC) Program. (See description of the *UTC below.)

Center for Urban Transportation Research, University of South Florida
Address: **http://www.cutr.eng.usf.edu/CUTR/**
Description: This site provides information about the Center for Urban Transportation Research and its programs, current research (with particular focus on public transit and intermodal issues), and its available newsletters and publications (including the new *Journal of Public Transportation*).

Center for Urban Transportation Studies, University of Wisconsin at Milwaukee
Address: **http://www.uwm.edu:80/Dept/CUTS/**
Description: This site provides information about the Center for Urban Transportation Studies and its programs, current research (with particular focus on transit and intermodal issues), and available publications.

Great Lakes Center for Truck and Transit Research (GLCTTR), University of Michigan
Address: **http://www.umich.edu/~glcttr/HomePage.html**
Description: This site provides information on the Great Lakes Center for Truck and Transit Research and its programs, current research, and available publications. Typical projects at the Center address loading and geometric compatibility of large vehicles on roads and bridges; development of smart cruise controls, navigation systems, and communications; and the societal impacts of changing transportation technologies. The GLCTTR also is the Region Five center in the University Transportation Center (UTC) Program. (See description of the *UTC below.)

Infrastructure Technology Institute, Northwestern University
Address: **http://iti.acns.nwu.edu/**
Description: This site provides information on the Infrastructurre Technology Institute and its research projects (with particular focus on new technologies, tools and ideas for infrastructure problem solving and decisionmaking), publications, outreach, and library services. The site is searchable.

Institute for Transportation Research (ITRE), University of North Carolina
Address: **http://itre.uncecs.edu/**
Description: This site provides information on the Institute for Transportation Research and its research centers (Center for Transportation and the Environment and North

Carolina's Technology Transfer Center), program areas (highways, local governments, pupil transportation, geographic information systems, and public transportation), and available publications. The site also provides information on the Region Four Center (Southeastern Transportation Center) of the University Transportation Center (UTC) program. (See description of the *UTC below.)

Institute of Transportation Studies, University of California at Berkeley
Address: **http://www.its.berkeley.edu/**
Description: This site provides information about the Institute of Transportation Studies at UC-Berkeley and its programs, current research (with particular focus on transportation systems and policy, traffic management, air transportation, infrastructure, and intelligent transportation), and available publications. The University of California system is also the lead institution for Region Nine of the University Transportation Center (UTC) Program. (See description of the *UTC below.)

Institute of Transportation Studies, University of California at Davis
Address: **http://www.engr.ucdavis.edu/~its/**
Description: This site provides infromation about the Institute of Transportation Studies at UC-Davis and its programs, current research (with particular focus on congestion, and environmental and energy issues), and available publications.

Intelligent Transportation Systems (ITS) Program, Princeton University
Address: **http://dragon.princeton.edu/~dhb/its.html**
Description: This site provides information on the Intelligent Transportation Systems Program and overviews of several of its research efforts including: Stability and Control of Intelligent Vehicle/Highway Systems (IVHS), Communications for IVHS Airborne Hazard Alerts and Advanced Air Traffic Management and Control, Congestion Pricing, Dynamic Driver Scheduling, Decision Support for Intermodal Transportation, and Vision Systems in ITS. A link to the comprehensive Transportation WWW Library, which the ITS program maintains, is also available.

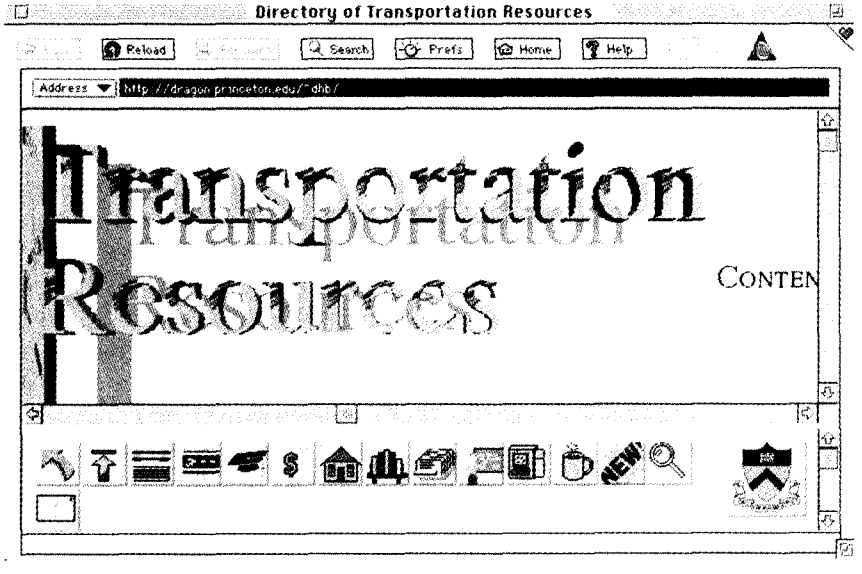
International Institute for Surface Transportation Policy Studies (IISTPS), San Jose State University
Address: **http://transweb.sjsu.edu**
Description: IISTPS was established by Congress at San Jose State University as part of the Intermodal Surface Transportation Efficiency Act of 1991. The program focuses on international surface transportation policy issues in three primary areas: research, education, and technology transfer. This site provides information about IISTPS, its current research, and available publications. It also provides links to and general information on national and international surface transportation issues.

International Motor Vehicle Program (IMVP), Massachusetts Institute of Technology
Address: **http://web.mit.edu/ctpid/www/imvp/info.html**
Description: IMVP is a multidisciplinary research enterprise that performs comprehensive studies of the automobile industry worldwide, as well as its effect on society. This site provides information about IMVP, its activities, research, and publications.

Mack-Blackwell National Rural Transportation Center, University of Arkansas
Address: **http://www.uark.edu/depts/intagpro/ru_trans.html**
Description: The Mack-Blackwell National Rural Transportation Center was established at the University of Arkansas under the Intermodal Surface Transportation Efficiency Act of 1991. The Center focuses on multimodal rural transportation. Its mission is to provide transportation education, research, and technology transfer on a national basis as it pertains to rural areas. This site provides information on the Center and its research.

Mid-America Transportation Center, University of Nebraska at Lincoln
Address: **http://www.unl.edu:80/matc/**
Description: This site provides information about the Mid-America Transportation Center and its programs, ongoing research, and member universities (University of Nebraska at Lincoln, Kansas State University, University of Kansas, University of Missouri at Columbia, and University of Missouri at Rolla). The University of Nebraska is also the lead institution for the Region Seven Center in the University Transportation Center (UTC) Program. (See description of the *UTC below.)

National Center for Transportation and Industrial Productivity (NCTIP), New Jersey Institute of Technology (NJIT)
Address: **http://kimon.njit.edu/NCTIP/**
Description: NCTIP was established by the Intermodal Surface Transportation Efficiency Act of 1991. The Center focuses on increasing productivity through transportation improvements, ranging from improving private and public carrier fleet productivity through better scheduling of activities and equipment management to improving



The Transportation Resources, Princeton University Homepage

personal productivity by reducing congestion to improving safety on our nation's highway and transit systems. The Center undertakes educational, research, and technology transfer activities to study the relationship between transportation, industrial productivity, and economic development. This site provides information about NCTIP and its activities, and a link to the Institute for Transportation at NJIT.

National Center for Vehicle Emissions Control and Safety (NCVECS), Colorado State University
Address: **http://www.colostate.edu/Depts/NCVECS/ncvecs.html**
Description: The National Center for Vehicle Emissions Control and Safety (NCVECS) was established in 1976 by the U.S. Environmental Protection Agency (EPA). NCVECS was originally established to assist states in developing their vehicle emissions control programs. The Center's research and training efforts have grown beyond the original EPA mandate. This site provides information about the Center as well as topics and issues related to mobile sources emissions, including but not limited to light-duty vehicle emissions research, automotive emissions repair tips, automotive technician training issues, both Basic and Enhanced Inspection/Maintenance program issues, and federal and state legislative activities related to this area.

National Crash Analysis Center, George Washington University, Federal Highway Administration, and National Highway Traffic Safety Administration
Address: **http://gwuva.gwu.edu/ncac/**
Description: The Center concentrates its research on vehicle crashworthiness. This site provides information about the Center and its activities, research, and publications. The site also offers an online video library of actual vehicle crashes.

Pennsylvania Transportation Institute (PTI), Pennsylvania State University
Address: **http://www.pti.psu.edu/**
Description: PTI is an interdisciplinary research unit within Penn State's Intercollege Research Programs. This site provides information about PTI and its programs, current research (with particular focus on construction engineering and management, pavements and materials, transportation operations, transportation structures, and vehicle systems and safety), and available publications. Penn State is also the lead institution for the Region Three Center in the University Transportation Center (UTC) Program. (See description of the *UTC below.)

Texas Transportation Institute (TTI), Texas A&M University
Address: **http://tti.tamu.edu/**
Description: TTI is a state agency and a component of the Texas A&M University System's Engineering Program. TTI conducts interdisciplinary transportation research and technology transfer in more than 34 program areas under seven separate research divisions. The site provides information on TTI and its research centers, access to publications and catalogs online (including publications of the AASHTO Metrication Clearinghouse, the Travel Model Improvement Program, and the FHWA Intelligent Transportation System Research Centers of Excellence (ITS/RCE) Program). TTI conducts interdisciplinary transportation research and technology transfer in more than 34 program areas under several separate research

divisions. Texas A&M is also the lead institution for the Region Six Center in the University Transportation Center (UTC) Program. (See description of the *UTC below.)

TransNow (Transportation Northwest Regional Center), University of Washington
Address: **http://weber.u.washington.edu/~transnow/**
Description: TransNow is the research center for Region Ten of the national University Transportation Center (UTC) Program. (See description of the *UTC below). The University of Washington is the lead institution for Region Ten. This site contains information about TransNow, its research (with particular focus on operations management and planning), and its newsletter and publications.

Transportation Research Board (TRB): List of Non-U.S. Academic Institutions
Address: **http://www.nas.edu/trb/link/academic.html**
Description: TRB provides an extensive listing of and links to non-U.S. academic institutions in the areas of transportation, logistics, and engineering. The listing is organized by world region.

Transportation Research Board (TRB): List of U.S. Academic Institutions
Address: **http://www.nas.edu/trb/link/academic.html#USA**
Description: TRB provides an extensive listing of and links to U.S. academic institutions in the areas of transportation, logistics, and engineering. The listing is organized by state.

Transportation Research Center (TRC), University of Florida
Address: **http://wwwmctrans.ce.ufl.edu/**
Description: TRC was founded in 1972 and has since sponsored over 500 transportation-related research projects. The site provides information on TRC's current research activities and ongoing programs.

Transportation Research and Education Center (TREC), Georgia Tech University
Address: **http://www.ce.gatech.edu/Centers/TREC/trec.html**
Description: TREC is part of the Georgia Tech Research Institute and serves as a focal point for transportation-related research and education activities. The site provides information on TREC's Advanced Transportation Technologies and Research Programs.

Transportation Research Institute, University of Michigan (UMTRI)
Address: **http://www.umtri.umich.edu/**
Description: This site provides information about UMTRI and its programs, current research (with particular focus on motor vehicles and the worldwide automotive and shipbuilding industries), and available publications.

***University Transportation Centers (UTC) Program**
Address: **http://dur.volpe.dot.gov/dur/utc_list.html**
Description: The UTC Program was authorized in 1987 by the Surface Transportation and Uniform Relocation Assistance Act with the purpose of establishing and operating transportation centers in each of the 10 federal regions to conduct multimodal research and training on the transportation of people and goods. In each region, a university has been designated as the lead institution and center coordinator. The

lead institution works in conjunction with consortium schools and government and private sector interests. This site provides general background on the UTC Program and links to the 10 centers.

Upper Great Plains Transportation Institute, North Dakota State University (NDSU)
Address: **http://calvin.cc.ndsu.nodak.edu/ugpti/ugpti.htm**
Description: The site provides information about the Upper Great Plains Transportation Institute and its programs, current research (with a particular focus on rural and nonmetropolitan transportation), and available publications. NDSU is also the lead institution for the Region Eight Center in the University Transportation Center (UTC) Program. (See description of the *UTC above.)

Urban Transportation Center, University of Illinois at Chicago
Address: **http://www.uic.edu/depts/cuppa/utc/**
Description: This site provides information about this Urban Transportation Center and its programs, current research (with particular focus on urban transportation and transportation technologies), and available publications.

Commercial Organizations

Directory of Transportation-Related Private Companies
Address: **http://dragon.princeton.edu/~dhb/companies.html**
Description: Princeton University's Transportation Resources Directory provides an extensive index to transportation-related private companies on the Internet. Listings and links are organized into one the following categories: consulting, engineering, and logistics; freight transportation (all modes); passenger transportation (all modes) and supporting services.

Government Organizations

Local and Regional

Cities/Counties on the Web
Address: **http://pti.nw.dc.us/AllAboard.htm**
Description: This site provides a listing of and links to cities and counties with Internet servers. Cities are categorized alphabetically by state. Some international cities are also included. This list is compiled by Public Technology, Inc., which is a nonprofit technology organization of the National League of Cities, the National Association of Counties, and the International City/County Management Association.

City.Net
Address: **http://www.city.net**
Description: City.Net started in 1994 and originally collected community-oriented information nline. It now offers a variety of information (e.g., government, business, and travel and tourism) for over 3,000 destinations in a searchable database.

International City/County Management Association (ICMA)
Address: **http://www.icma.org/**
Description: ICMA, founded in 1914, is an international professional and educational association for city, county, and regional administratiors. This site provides information about ICMA and its programs, conferences, and meetings.

National Association of Counties (NACo)
Address: **http://www.naco.org/**
Description: NACo, founded in 1935, represents the interests of county governments in the United States. This site provides information about NACo and its affiliated organizations, members, services, news, and public policy. The site is searchable.

National Association of Regional Councils (NARC)
Address: **http://narc.org/narc/index.html**
Description: NARC is a membership organization of regional councils (councils of government, regional planning and development agencies, etc.) across the country and provides opportunities for private- and public-sector organizations interested in issues of regional planning, development, and governance to participate. This site provides information about NARC, its activities, and reports.

National Council for Urban Economic Development (CUED)
Address: **http://www.cued.org/cued/index.html**
Description: CUED, founded in 1967, focuses on the development and revitalizaiton of local, urban economies. This site provides information about CUED, its activities, programs, members, and resources.

National League of Cities (NLC)
Address: **http://www.cais.com/nlc/nlcloc.html**
Description: NLC, founded in 1924 as the American Municipal Association, is the largest organization serving municipal governments in the United States. This site provides information about NLC, its programs, members, policies, and activities. It also provides a variety of Internet links related to local government.

Regional Economic Information System (REIS), University of Virginia
Address: **http://www.lib.virginia.edu/socsci/reis/reis1.html**
Description: The REIS database provides local area economic data for states, counties, and metropolitan areas for 1969 to 1994. Statistics in the database include: personal income by source, per-capita personal income, earnings by two-digit Standard Industrial Classification (SIC), full- and part-time employment by industry, and regional economic profiles.

State and Local Governments, U.S. Library of Congress
Address: http://lcweb.loc.gov/global/state/stategov.html
Description: This index provides links to state and local governments and community resources available on the Internet.

United States Community Page Index
Address: http://www.nsbol.com/nsbol/comindex/us_index.htm#main
Description: This site provides an index to individual communities (United States and international) and community-oriented resources available on the Internet.

USA CityLink
Address: http://banzai.neosoft.com/citylink/
Description: This site provides an extensive listing of and links to U.S. cities and states with Internet servers.

State

State Departments of Transportation

Alaska Department of Transportation and Public Facilities
Address: http://www.dot.state.ak.us/
Description: This site is organized into the following categories: Alaska Airport System, Alaska Marine Highway System, design and construction, engineering and operations, transportation planning and public involvement, and highway travel construction advisories.

Arizona Department of Transportation (ADOT)
Address: http://www.dot.state.az.us/
Description: This site is organized into the following categories: roads and freeways, motor vehicles, ADOT news, public podium, traffic watch, and more about ADOT.

California Department of Transportation (Caltrans)
Address: http://www.dot.ca.gov/
Description: This site is organized into the following categories: What's New, On the Road, In the News, About Caltrans, In Motion, In the Works, Taking Shape, and the Local Angle.

Connecticut Department of Transportation
Address: http://www.state.ct.us/dot/
Description: This site is organized into the following categories: general information, publications, department bureaus, roadway and traffic update, Bradley International Airport, and news releases/notices.

Florida Department of Transportation (FDOT)
Address: http://www.dot.state.fl.us/
Description: This site is organized into the following categories: highway construction, turnpike and tolls, trucking information, safety programs, maps and publications, and more about FDOT.

Georgia Department of Transportation (GDOT)
Address: **http://www.dot.state.ga.us/**
Description: This site is organized into the following categories: public information requests, transportation and related links, other state of Georgia offices, GDOT office pages, and the statewide transportation improvement plan.

Hawaii Department of Transportation
Address: **http://www.hawaii.gov/transportation/index.html**
Description: This site is organized into two categories: transportation program activities and transportation program objectives.

Idaho Department of Transportation (ITD)
Address: **http://www.state.id.us/itd/itdhmpg.htm**
Description: This site is organized into the following categories: overview, executive management, phone listing, road reports, press releases, central materials switchboard, Idaho bicycle transportation homepage, and Idaho weight/excess length permit.

Illinois Department of Transportation (IDOT)
Address: **http://www.dot.state.il.us/**
Description: This site is organized into the following categories: IDOT news, getting around Illinois, doing business with IDOT, and links to other resources.

Indiana Department of Transportation (INDOT)
Address: **http://source.isd.state.in.us/acin/dot/**
Description: This site is organized into the following categories: detours and construction locations, special projects, what's new, and INDOT divisions.

Iowa Department of Transportation
Address: **http://www.sos.state.ia.us/register/r4/r4trans.htm**
Description: This site provides information about the Iowa Department of Transportation and its different divisions and contact persons.

Kansas Department of Transportation (KDOT)
Address: **http://proto1.dot.state.ks.us/**
Description: This site is organized into the following categories: KDOT regional map of Kansas, other DOT sites, information network of Kansas, road conditions information, driver's license and vehicle registration information, and state bridge office.

Louisiana Department of Transportation and Development (DOTD)
Address: **http://www.dotd.state.la.us/**
Description: This site is organized into the following categories: about the department, public meetings, Louisiana highway information, doing business with the DOTD, TIMED (Transportation Infrastructure Model for Economic Development), aviation information, water resources, Louisiana Transportation Research Center, link to Info Louisiana, links to other transportation WWW sites, what's new, and press releases.

Maryland Department of Transportation
Address: **http://www.inform.umd.edu:8080/UMS+State/MD_Resources/MDOT/**
Description: This site is organized into the following categories: Transportation Secretary's office, Maryland aviation administration, motor vehicle administration, Maryland port administration, mass transit administration, state highway administration, and Maryland transportation authority.

Michigan Department of Transportation (M-DOT)
Address: **http://www.mdot.state.mi.us/**
Description: This site is organized into the following categories: motorist information, construction news, M-DOT directory, M-DOT facts and figures, M-DOT's bulletin board system, M-DOT aeronautics, Detroit real-time traffic conditions, and links to other sites.

Minnesota Department of Transportation (MNDOT)
Address: **http://www.dot.state.mn.us/**
Description: This site is organized into the following categories: news and events, road and traveler information, inside MNDOT, about transportation, publications, links and "talk to us." This site is searchable.

Missouri Highway and Transportation Department (MHTD)
Address: **http://www.modot.state.mo.us/**
Description: This site is organized into the following categories: about MHTD, news and notes, in motion, local scene, total transportation, job opportunities, transportation links, and Missouri links.

Montana Department of Transportation (MDT)
Address: **http://www.mdt.mt.gov/**
Description: This site is organized into the following categories: current bid invitations, road and weather reports, speed limit table, Montana metrics page, Montana state map, Montana rail system map, MDT's global positioning system files, MDT's guide to public transportation in Montana, MDT's research project table, and MDT employee information.

New Jersey Department of Transportation
Address: **http://www.state.nj.us/transportation/**
Description: This site is currently in development. News releases from the New Jersey Department of Transportation are currently provided. Additional material is scheduled to be added to this site at a later date.

New York Department of Transportation
Address: **gopher://unix2.nysed.gov:71/11/agencies/executive/dot**
Description: This gopher site is organized into the following categories: description, programs and services, and publications.

North Carolina Department of Transportation
Address: **http://www.dot.state.nc.us/DOT/**
Description: This site is organized into the following categories: adopt-a-highway, bicycling in NC, ferry schedules, highway beautification program, NC Governor's highway safety initiative, division of aviation, division of highways, division of motor vehicles, public transportation, and rail division.

Ohio Department of Transportation
Address: **http://www.dot.state.oh.us/**
Description: This site is organized into the following categories: construction info, districts, contracts and services, newswire and weather, policy inititives, and translinks.

Oklahoma Department of Transportation
Address: **http://www.okladot.state.ok.us/indxodott.htm**
Description: This site is organized into the following categories: organization and funding, statutory references, transportation commission, aeronautics commission, director and staff, central office divisions (aeronautics, highways, public transportation, rail, and waterways), and construction contracts and proposals.

Oregon Department of Transportation
Address: **http://www.odot.state.or.us/**
Description: This site is organized into the following categories: Oregon Transportation Commission, Governor's transportation initiative, land-use modeling, news releases, road conditions, access management, Oregon transportation plan annual report, weather report, route and distance calculator, Email, and telephone directories. This site is searchable.

Pennsylvania Department of Transportation
Address: **http://www.state.pa.us/PA_Exec/Transportation/overview.html**
Description: This site provides information on the Pennsylvania Department of Transportation's mission statement and organizational descriptions.

Rhode Island Department of Transportation
Address: **www.dot.state.ri.us/**
Description: This site is organized into the following categories: department descriptions, Rhode Island Transportation 2000, and current transportation projects.

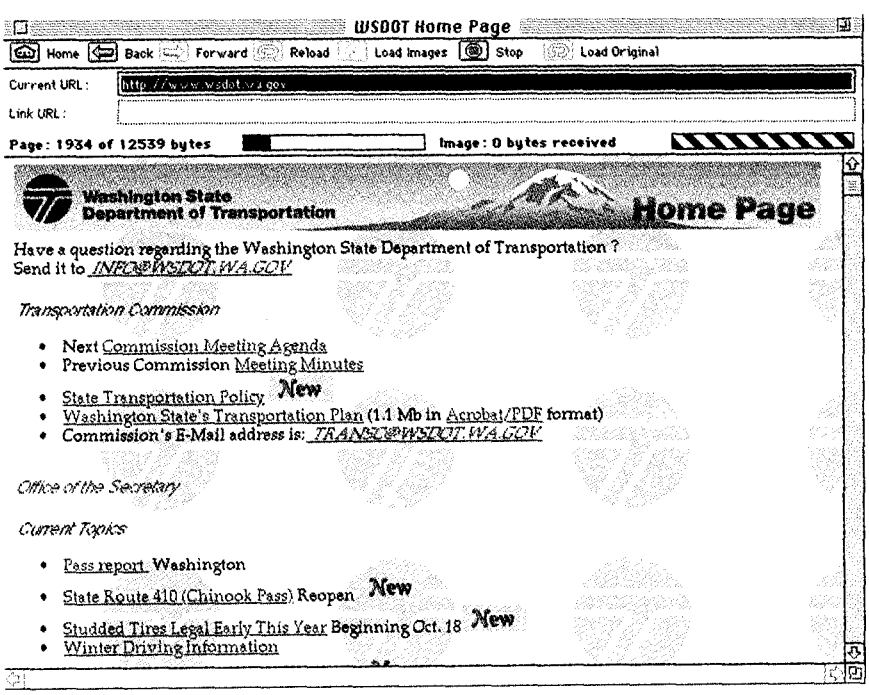
South Dakota Department of Transportation
Address: **http://www.state.sd.us/state/executive/dot/dot.html**
Description: This site is organized into the following categories: descriptions of mission, objectives and division responsibilities, and contact phone numbers.

Tennessee Department of Transportation
Address: **http://www.inaugural.state.tn.us/hp/sundquist/trans.html**
Description: This site provides a mission statement and objectives for the Tennessee Department of Transportation.

Texas Department of Transportation (TXDOT)
Address: http://www.dot.state.tx.us/
Description: This site is organized into the following categories: what's new; feedback; employment opportunities; TXDOT districts; divisions and offices; revenues and expenditures; roads and transportation modes; public transportation; doing business with TXDOT; inside TXDOT; TXDOT news; vehicle, registration, and title information; legislative information; travel, tourism and sightseeing; and other transportation related sites.

Utah Department of Transportation
Address: http://www.dot.state.ut.us/
Description: This site is organized into the following categories: popular documents and features (current road conditions and construction, news/press releases, public hearings, statewide transportation improvement plan, major investment studies, and minutes from Commissioner's meetings), divisions and departments (planning, engineering services, research and development, right of way, training, ports of entry, traffic and safety), feedback, and other links.

Vermont Agency of Transportation (VAOT)
Address: http://www.aot.state.vt.us/
Description: This site is organized into the following categories: general information, VAOT organization, districts, agency phone listing, construction map and information,



The Washington State Department of Transportation Homepage

planning division, Department of Motor Vehicles, computer-aided design information, other state transportation agencies, other transportation-related Internet services, and state of Vermont home page.

Virginia Department of Transportation
Address: **http://pratt.vtrc.virginia.edu/vdot.html**
Description: This site is organized into the following categories: what's new, general information, traffic, maps, planning and projects, doing business, and links.

Washington State Department of Transportation
Address: **http://www.wsdot.wa.gov/**
Description: This site is organized into the following categories: Transportation Commission, Office of the Secretary, current topics, Washington State Ferries, Northwest region, Olympic region, Eastern region, Central Puget Sound Regional Transit Authority, Southwest region, Transportation Economic Partnerships Division, Public Transportation and Rail Division, Planning and Programming Service Center, TransAid Service Center, Quality Council, Environmental and Engineering Service Center, Field Operations Support Service Center, Washington Coastal Corridor Project, Transportation Demand Management, WDOT Library, and others.

West Virginia Department of Transportation
Address: **http://www.state.wv.us/wvdot/wvtrans.htm**
Description: This site is organized into the following categories: roads and bridges, division of motor vehicles, ports, buses, railroads, airports, WV turnpike, and miscellaneous information.

Wisconsin Department of Transportation (WisDOT)
Address: **http://www.dot.state.wi.us/**
Description: This site is organized into the following categories: glance at transportation in Wisconsin, getting around Wisconsin, inside WisDOT, doing business with WisDOT, WisDOT programs and services, what's new, Wisconsin travel and tourism, and other transportation-related Internet resources.

Wyoming Department of Transportation
Address: **http://www.state.wy.us:80/state/government/state_agencies/dot.html**
Description: This site provides information on contact points and a listing of major divisions.

Other State Resources

Council of State Governments (CSG)
Address: **http://www.csg.org/**
Description: CSG is a multibranch organization of the states and U.S. territories. It works with state leaders across the nation and throughout its regions on a variety of issues. This site provides information about CSG and its information resources, members, and activities.

National Conference of State Legislators (NCSL)
Address: **http://www.ncsl.org/**
Description: NCSL, founded in 1975, is a conference of state lawmakers and legislative staffers. The site provides information on NCSL activities and resources. It also provides a variety of news and features on public policy issues, state legislatures, and the federal government.

State and Local Governments, U.S. Library of Congress
Address: **http://lcweb.loc.gov/global/state/stategov.html**
Description: This index provides links to state and local governments and community resources available on the Internet.

StateSearch
Address: **http://www.state.ky.us/nasire/NASIREhome.html**
Description: StateSearch is a service of the National Association of State Information Resource Executives and is designed to serve as a topical clearinghouse for state government information on the Internet. Information is organized into over 20 areas.

Federal

Department of Commerce

Bureau of Economic Analysis (BEA)
Address: **http://www.bea.doc.gov/**
Description: BEA is responsible for integrating and interpreting a tremendous volume of data to draw a complete and consistent picture of the U.S. economy. BEA's economic accounts--national, regional, and international--provide information on such key issues as economic growth, regional development, and the United States' position in the world economy. Information on and sample data sets from a variety of BEA programs are available at this site, including national economic accounts, regional economic accounts, international economic accounts, and the Survey of Current Business.

Bureau of the Census, Transportation Activities
Address: **http://www.census.gov/ftp/pub/econ/www/servmenu.html**
Description: This site provides information on the Census Bureau and the transportation-related surveys it conducts and data services it provides. The site offers information on the Census of Transportation, Communication, and Utilities; the Truck Inventory and Use Survey; the Commodity Flow Survey; and the Motor Freight Transportation and Warehousing Survey.

International Trade Administration (ITA), Office of Automotive Affairs
Address: **http://www.ita.doc.gov/auto/**
Description: ITA's mission is to encourage, assist, and advocate U.S. exports, to ensure that U.S. business has equal access to foreign markets, and to enable U.S. businesses to compete against unfairly traded imports and to safeguard jobs. ITA is organized into several units, including the Office of Automotive Affairs. This site provides information on world motor vehicle import requirements, auto industry data (motor vehicle

trade data, parts trade data, and industry economic data), trade promotion opportunities, country marketing reports, and the U.S.-Japan Trade Agreement. (Note: The main homepage for the International Trade Administration can be accessed at: http://www.ita.doc.gov).

Department of Defense

U.S. Army Corps of Engineers
Address: **http://www.usace.army.mil/**
Description: The U.S. Army Corps of Engineers has several civilian and military missions including: the management and execution of engineering, construction, and real estate programs for the U.S. Army and Air Force, and for other federal agencies and foreign governments as assigned; the supervision of research and development in support of these programs; the management and execution of Army installation support programs; the development and maintainance of capability to mobilize in response to national security emergencies, domestic emergencies, and emergency water planning programs; and the support of Army space initiatives. This site provides information about the Corps and its related organizations. Site information is organized into three broad categories: information, news, and organization. The site is searchable.

Department of Energy

Alternative Fuels Data Center (AFDC)
Address: **http://afdc2.nrel.gov:70/**
Description: AFDC is operated by the National Renewable Energy Laboratory (NREL) with funding and direction from the Office of Alternative Fuels within the Office of Transportation Technologies at the U.S.Department of Energy. AFDC collects operating information from vehicles (in programs sponsored by the Alternative Motor Fuels Act) running on alternative fuels, analyzes those data, and makes them available to the public. This site provides information on AFCD and its activities and research.

Advanced Driver and Vehicle Advisory Navigation Concept (ADVANCE), Argonne National Laboratory
Address: **http://beijing.dis.anl.gov/greg/ADVANCE/HTML/**
Description: The ADVANCE Project was launched in 1991 as a major test of a dynamic--in-vehicle--route guidance system in the United States. The objective was to determine if motorists supplied with real-time guidance would be given information that would help them avoid congestion and improve the quality of their trip. The project is a joint effort of the Illinois Department of Transportation, Motorola, the Federal Highway Administration, the American Automobile Association, and the Illinois Universities Transportation Research Consortium (Northwestern University

and the University of Illinois at Chicago) in cooperation with Argonne National Laboratory. The ADVANCE site contains numerous documents and abstracts related to the project.

Energy Efficiency and Renewable Energy Network (EREN)
Address: **http://www.eren.doe.gov/EE/transportation.html**
Description: EREN is a collection of Internet sites that provide access to information about renewable energy and energy-efficient technologies, particularly the sites that focus on transportation and energy efficiency issues. The main EREN site can be accessed at: http://www.eren.doe.gov.

Energy Information Agency (EIA)
Address: **http://www.eia.doe.gov/**
Description: EIA conducts research, analysis, and data programs in the areas of petroleum, natural gas, nuclear, coal, electric, and renewable energy. This site provides information on EIA activities, research, and publications.

Idaho National Engineering Laboratory (INEL), Transportation R&D
Address: **http://www.inel.gov/capabilities/transportation/index.html**
Description: INEL conducts transportation research in three major areas: developing electric or alternately fueled vehicles, engineering for the New Generation Vehicle Program, and implementing technologies for the proposed Intelligent Vehicle Highway System. This site provides information about INEL's research and activities.

National Renewable Energy Laboratory (NREL), Center for Transportation Technologies and Systems
Address: **http://afdc3.nrel.gov/CTT/ctt.html**
Description: The Center conducts research primarily in the areas of alternative fuels and advanced vehicle systems. This site provides information about the Center's programs, research, and activities.

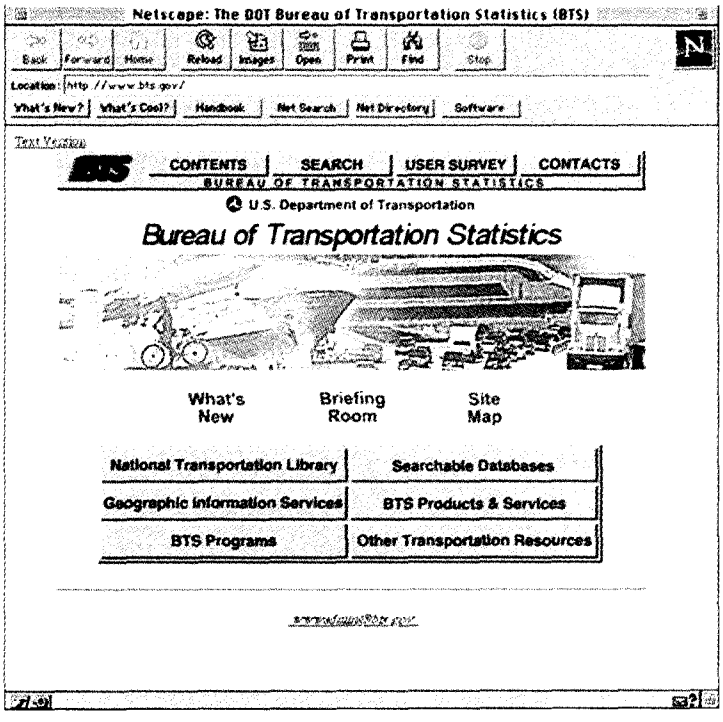
Oak Ridge National Laboratory (ORNL), Center for Transportation Analysis (CTA)
Address: **http://cta.ed.ornl.gov/**
Description: CTA conducts research and development on transportation energy and environmental issues, national transportation planning and policy, military transportation and logistics, and transportation systems engineering. The Center focuses on multimodal national and international transportation systems. The CTA site provides information on the Center's organization, programs, publications, and research areas. Transportation data and links to other similar sites are also made available.

Oak Ridge National Laboratory, Energy Efficiency and Renewable Energy Program: Transportation Technologies
Address: **http://www.ornl.gov/ORNL/Energy_Eff/transp.html**
Description: ORNL's work in transportation technologies encompasses materials development, biofuels feedstock development, alternative fuels utilization, automotive propulsion technologies, and transportation data and policy analysis. The research and development is conducted in support of the Office of Transportation Technologies, part of the Department of Energy's Office of Energy Efficiency and Renewable Energy. This site provides information about current research and activities.

Sandia National Laboratory, Transportation Technology Programs (TTP)
Address: **http://www.sandia.gov/ttp/ttp.html**
Description: Sandia's Transportation Technology programs develop innovative technology to solve transportation and packaging problems and needs for the Department of Energy and other federal agencies. These programs are also responsible for technical support in packaging certification and regulatory issues. This site provides information about the TTP and ongoing research.

Department of the Interior

Bureau of Reclamation, Materials Engineering and Research Laboratory (MERL)
Address: **http://donews.do.usbr.gov/merl/mainhome.html**
Description: MERL is part of the Technical Service Center at the Denver Office of the U.S. Bureau of Reclamation. It specializes in the technology of engineering materials, and is divided into six disciplines: Coatings, Concrete Maintenance and Repair, Concrete Technology, Corrosion, Historical/Archeological Site Preservation, and Plastics (geosynthetics/polymeric materials). This site provides information on MERL and its programs, activities, research, and publications.



The Bureau of Transportation Statistics Homepage

U.S. Fish and Wildlife Service (USFS), National Wetlands Inventory (NWI)
Address: **http://www.nwi.fws.gov/**
Description: NWI plans, directs, coordinates, and monitors the gathering, analysis, dissemination, and evaluation of information relating to the location, quantity, and ecological importance of the nation's wetlands. This site provides information on NWI and its activities.

U.S. Geological Survey (USGS), National Mapping Information
Address: **http://www-nmd.usgs.gov/**
Description: USGS, through its National Mapping Program, provides accurate and up-to-date cartographic data and information for the United States. These data products and information provide a framework of spatial information for federal, state, and local government agencies, as well as the private sector, to deal with such problems as conserving our natural resources, identifying and mitigating hazards, defining and studying ecosystems, and supporting economic development. This site provides information about the National Mapping Program and its activities and data.

Department of Transportation (DOT)

Bureau of Transportation Statistics (BTS)
Address: **http://www.bts.gov**
Description: BTS was established in December 1992 to improve the knowledge base for public decisionmaking, and to improve public awareness of the nation's transportation system and its consequences. BTS compiles, analyzes, and makes accessible information on the nation's transportation systems, collects information on intermodal transportation and other areas as needed, and works to enhance the quality and effectiveness of government statistics.

BTS is a statistical agency, a mapping agency, and an organization for transportation analysis. As a statistical agency, BTS is involved in data collection, quality assurance, and dissemination of statistical products. The Bureau's largest data collection programs are the *Commodity Flow Survey* and the *American Travel Survey*, conducted jointly with the Bureau of the Census to identify where freight and people go by all modes of transportation. The Bureau's Office of Airline Information also collects data on the timeliness, traffic, and market aspects of the air carrier industry through its *On-Time Statistics* and *T-100* programs. As a mapping agency, BTS is involved in geographic data and geographic information systems (GIS) technology. BTS does not centralize DOT's many statistical and mapping programs, but rather develops bridges for those programs to provide a complete, accurate picture of transportation. As an analytical organization, BTS assembles and interprets information on the extent, use, condition, performance, and consequences of the transportation system. The Bureau's analyses are summarized in its *Transportation Statistics Annual Report*.

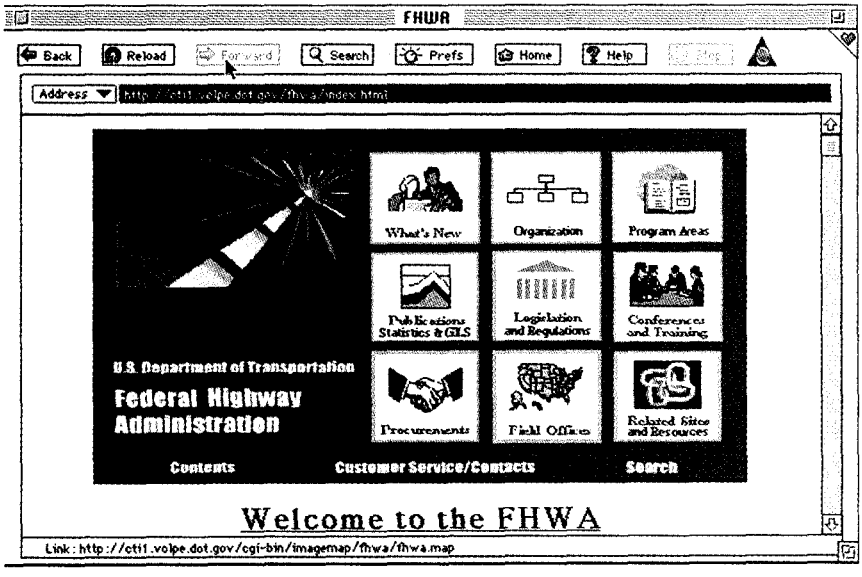
The BTS web site is organized into the following six main categories: BTS Programs, BTS Products and Services, Geographic Information Services, National Transportation Library, Searchable Databases, and Other Transportation Resources.

In addition to these six main sections, links are also provided to the BTS Briefing Room, a site map, and a what's new page. Descriptions of the six main organizational categories are provided below.

BTS Programs: This section of the BTS web site provides detailed information about the major program areas of the Bureau. Major program areas include the following: Commodity Flow Survey, American Travel Survey, National Transportation Library, Motor Carrier Statistics, Geographic Information, Airline Information, Information Technology, and International Travel and Transportation.

BTS Products and Services: This section of the BTS web site provides detailed information about the Bureau's products and services. Current and future printed and electronic products are described and ordering instructions are included. (An online ordering form is available.) BTS services, including its Statistical Information Line (1-800-853-1351), its Fax-On-Demand System (1-800-671-8012), and its Technical Assistance Desk (202-366-6664) are also described.

Geographic Information Services: The Office of Geographic Information Services is responsible for the development, enhancement, and dissemination of geospatial data depicting transportation, facilities, and flows; the application of GIS technology to analyze strategic and operational issues in transportation; and the preparation of thematic transportation maps for DOT policymakers and the general public. This portion of the BTS web site provides access to the Bureau's GIS products and services, including the National Transportation Atlas.



The Federal Highway Administration Homepage

National Transportation Library (NTL): The NTL is an attempt to facilitate information transfer between different organizations and groups within the nation's transportation research and planning communities. The NTL is a growing collection of materials from state DOTs, metropolitan planning organizations, and other organzations around the country. NTL documents are organized topically into 26 different categories ranging from "access" to "travel demand forecasting." The NTL is searchable by keyword or concept.

Searchable Databases: This portion of the BTS web site provides access to national transportation data and to a communications center of online discussions. National transportation data includes the Commodity Flow Survey data, American Travel Survey data, on-time airline statistics, transborder surface commodity data, Federal Accident Reporting System data, and highway statistics.

Other Transportation Resources: This portion of the BTS web site provides links to other transportation resources available on the Internet.

Federal Aviation Administration (FAA)
Address: **http://www.faa.gov**
Description: FAA is responsible for air navigation, air traffic control, aviation certification and regulation, aviation security, environmental impact minimization, and aviation research and development in the United States. Site information is organized into several categories including: FAA news and information, FAA Centers and Regions, FAA-supported sites, airports, air traffic services, commercial space, regulation and certification, research and acquistions, system safety, and headquarters offices. The site is searchable.

Federal Highway Administration (FHWA)
Address: **http://cti1.volpe.dot.gov/ohim/**
Description: FHWA, established in 1967, is responsible for a variety of highway and surface transportation programs. This site provides background information on FHWA, FHWA reports and publications (including Federal Register notices), and links to major program areas (such as federal aid, federal lands, and motor carriers) and to other highway and transportation-oriented Internet sites.

Federal Railroad Administration (FRA)
Address: **http://www.dot.gov/dotinfo/fra/welcome.html**
Description: FRA was created in 1966 to promote and enforce safety throughout the U.S. railroad system, rehabilitate Northeast Corridor rail passenger services, consolidate federal support for rail transportation, and support research and development for rail transportation. This site provides an overview of FRA and its programs.

Maritime Administration (MARAD)
Address: **http://marad.dot.gov/**
Description: The Maritime Administration is the successor of several government agencies dating back to the establishment of the independent U.S. Shipping Board in 1916. MARAD became a part of DOT in 1981. MARAD's mission is to promote the development and maintenance of an adequate, well-balanced United States merchant marine sufficient to carry the nation's domestic waterborne commerce and a

substantial portion of its waterborne foreign commerce, and capable of serving as a naval and military auxiliary in time of war or national emergency. This site provides information about MARAD and its activities and programs. Main site information categories include: MARAD offices, customer service standards, publications, business opportunities, U.S. Merchant Marine Academy, and National Maritime Resource and Education Center.

National Highway Traffic Safety Administration (NHTSA)
Address: **http://nhtsa.dot.gov**
Description: NHTSA, established by the Highway Safety Act of 1970, is responsible for reducing deaths, injuries, and economic losses resulting from motor vehicle crashes. This is accomplished by setting and enforcing safety performance standards for motor vehicle equipment, and through grants to state and local governments to enable them to conduct effective local highway safety programs. NHTSA also investigates safety defects in motor vehicles, sets and enforces fuel economy standards, helps states and local communities reduce the threat of drunk drivers, promotes the use of safety belts, child safety seats, and air bags, investigates odometer fraud, establishes and enforces vehicle anti-theft regulations, and provides consumer information on motor vehicle safety topics. NHTSA also conducts research on driver behavior and traffic safety, to develop the most efficient and effective means of bringing about safety improvements. This site provides information about NHTSA and its programs and activities. Site information is organized into the following main categories: NHTSA general information, cars--vehicle and equipment identification, people--traffic safety/occupant issues, what's hot, and what's new.

Research and Special Projects Administration (RSPA)
Address: **http://cti1.volpe.dot.gov/rspa/rspa.html**
Description: RSPA focuses on multimodal research, safety, and transportation systems activities. It is responsible for addressing transmodal issues relative to the safe, effective, and efficient transportation of people and goods throughout the United States. This site provides information about RSPA's mission and program responsibilities.

Saint Lawrence Seaway Development Corporation (SLSDC)
Address: **http://www.dot.gov/dotinfo/slsdc/index.htm**
Description: SLSDC is a wholly owned government corporation created in 1954 to construct, operate, and maintain that part of the St. Lawrence Seaway, between the Port of Montreal and Lake Erie, within the territorial limits of the United States. The Seaway is a binational waterway and the Corporation coordinates its activities with its Canadian counterpart, the St. Lawrence Seaway Authority of Canada, particularly with regard to rules and regulations, tolls, traffic control, navigation aids, safety, channel maintenance, operating dates, and related programs designed to fully develop the "fourth seacoast." This site provides SLSDC contact information, eports and publications, toll schedules, and an online briefing room.

United States Coast Guard
Address: **http://www.dot.gov/dotinfo/uscg/welcome.html**
Description: The U.S. Coast Guard is the primary federal agency with maritime authority for the United States in the areas of maritime law enforcement, maritime safety, marine

environmental protection, and national security. This site provides information on Coast Guard recruiting; news and current events; programs and services; areas, districts and units; customer service standards; facts, images, history, and more.

U.S. Department of Transportation
Address: **http://www.dot.gov**
Description: The DOT web site provides general information about the Department and the Modal Administrations, including an online phone directory. It offers listings and links to the Modal Administrations and other transportation-oriented Internet sites. It also provides a searchable index to DOT statements, speeches, and press releases.

Environmental Protection Agency (EPA)

Environmental Protection Agency
Address: **http://www.epa.gov**
Description: This is the main homepage for EPA and includes information about the agency mission; research, programs, and publications; and links to other EPA and environmental Internet sites.

Office of Air and Radiation (OAR)
Address: **http://www.epa.gov/oar/oarhome.html**
Description: OAR is responsible for air-related activities within EPA. This includes the development of national programs, technical policies, and regulation for air pollution control; the development of national standards for air quality, emission standards for new stationary sources, and emission standards for hazardous pollutants; the technical direction, support, and evaluation of regional air activities; the enforcement of standards; and other activities. This site provides information about OAR and its organization, programs, publications, resources, and other materials. The site is searchable.

Office of Mobile Sources (OMS)
Address: **http://www.epa.gov/omswww/**
Description: OMS is the national center for research and policy on air pollution from highway and off-highway motor vehicles and equipment. The site provides information on OMS policies, programs, research, and publications.

Government Printing Office (GPO)

Federal Register Online via GPO Access
Address: **http://www.access.gpo.gov/su_docs/aces/aces140.html**
Description: The Federal Register is the official publication for Presidential Documents and Executive Orders as well as Notices, Rules and Proposed Rules from federal agencies and organizations. The Federal Register is available online via GPO's Access

service. GPO Access provides full-text access to the Federal Register for the most recent two calendar years. The site is searchable. (GPO can be accessed directly at the following address: http://www.access.gpo.gov).

Interagency

Partnership for a New Generation of Vehicles (PNGV)
Address: **http://picard.aero.hq.nasa.gov:8000/**
Description: PNGV is a partnership between 11 government agencies and the United States Council for Automotive Research, a cooperative research effort between Chrysler Corp., Ford Motor Co. and General Motors Corp., to develop commercially viable vehicle technology that, over the long term, can preserve personal mobility, reduce the impact of cars and light trucks on the environment, and reduce U.S. dependency on foreign oil. This site provides information about PNGV and its current activities and research.

Legislative Branch

Committee on Commerce, Science and Transportation, U.S. Senate
Address: **http://www.senate.gov/committee/commerce.html**
Description: This site provides information on the jurisdiction of the U.S. Senate's Committee on Commerce, Science and Transportation. It provides a listing of committee members and links to those members' individual Internet sites.

Committee on Transportation and Infrastructure, U.S. House of Representatives
Address: **http://www.house.gov/transportation/**
Description: This site provides information on the U.S. House of Representatives' Committee on Transportation and Infrastructure. Information on committee membership, committee schedule, committee history and jurisdiction, "hot" issues, legislative accomplishments, and press releases is provided. Links to Subcommittees are provided.

Thomas: Legislative Information on the Internet
Address: **http://thomas.loc.gov/**
Description: Thomas is web-based database of legislative information compiled and organized by the Library of Congress. The Thomas site provides access to congressional schedules and floor activities, congressional bills (text, summary, and status), the ongressional Record (text and index), committee reports, historical documents such as the U.S. Constitution, and a variety of other material.

Office of the President

Economic Statistics Briefing Room
Address: **http://www.whitehouse.gov/fsbr/esbr.html**
Description: This site provides easy access to current federal economic indicators and links to information produced by a number of federal agencies. Indicators are available for the following categories: output; income; employment, unemployment, and earnings; production and business activity; prices; money, credit, and securities markets; and transportation and international statistics. The direct address for the transportation indicators is: http://www.whitehouse.gov/fsbr/transportation.html.

The White House
Address: **http:www.whitehouse.gov**
Desciption: The White House web site provides information about the first family, White House history, and online tours. It also provides a searchable virtual library of White House documents, including executive orders. The "Interactive Citizens' Handbook" provides an index to additional federal government information and services. The "Briefing Room" provides the latest federal statistics and press releases.

Subjects

Energy and Transportation

Alternative Fuels Data Center (AFDC), U.S. Department of Energy (DOE)
Address: **http://afdc2.nrel.gov:70/**
Description: AFDC is operated by the National Renewable Energy Laboratory (NREL) with funding and direction from the Office of Alternative Fuels within the Office of Transportation Technologies at DOE. AFDC collects operating information from vehicles (in programs sponsored by the Alternative Motor Fuels Act) running on alternative fuels, analyzes those data, and makes them available to the public. This site provides information on AFCD and its activities and research.

Energy Efficiency and Renewable Energy Network (EREN), U.S. Department of Energy
Address: **http://www.eren.doe.gov/EE/transportation.html**
Description: EREN is a collection of Internet sites that provide access to information about renewable energy and energy-efficient technologies, particularly the sites that focus on transportation and energy efficiency issues. The main EREN site can be accessed at: http://www.eren.doe.gov.

Energy Information Agency (EIA), U.S. Department of Energy
Address: **http://www.eia.doe.gov/**
Description: EIA conducts research, analysis, and data programs in the areas of petroleum, natural gas, nuclear, coal, electric, and renewable energy. This site provides information on EIA activities, research, and publications.

International Energy Agency (IEA)
Address: **http://www.iea.org**
Description: IEA is the energy forum for 23 industrialized countries. IEA member governments are committed to taking joint measures to meet oil supply emergencies. They also have agreed to share energy information, to coordinate their energy policies and to cooperate in the development of rational energy programs. IEA, founded in 1974, is based in Paris and is affiliated with the Organization for Economic Cooperation and Development (OECD). This site provides information about IEA and its activities and research. Site information is organized into the following main categories: what's new, guided tour, publications, technology, and statistics.

National Renewable Energy Laboratory (NREL), U.S. Department of Energy (DOE) Center for Transportation Technologies and Systems
Address: **http://afdc3.nrel.gov/CTT/ctt.html**
Description: The Center for Transportation Technologies and Systems conducts research primarily in the areas of alternative fuels and advanced vehicle systems. This site provides information about the Center's programs, research, and activities.

Oak Ridge National Laboratory (ORNL), Center for Transportation Analysis (CTA), U.S. Department of Energy (DOE)
Address: **http://cta.ed.ornl.gov/**
Description: CTA at ORNL conducts research and development on transportation energy and environmental issues, national transportation planning and policy, military transportation and logistics, and transportation systems engineering. The Center focuses on multimodal national and international transportation systems. The CTA site provides information on the Center's organization, programs, publications, and research areas. Transportation data and links to other similar sites are also made available.

Oak Ridge National Laboratory (ORNL), U.S. Department of Energy (DOE) Energy Efficiency and Renewable Energy Program: Transportation Technologies
Address: **http://www.ornl.gov/ORNL/Energy_Eff/transp.html**
Description: ORNL's work in transportation technologies encompasses materials development, biofuels feedstock development, alternative fuels utilization, automotive propulsion technologies, and transportation data and policy analysis. The research and development is conducted in support of the Office of Transportation Technologies, DOE Office of Energy Efficiency and Renewable Energy. This site provides information about current research and activities.

Environment and Transportation

EnviroBiz: International Environmental Information Network
Address: **http://www.envirobiz.com/**
Description: This site provides a variety of environmental information and Internet links. Information categories include: what's new, directories, research, databases, and press releases. Some services are fee-based.

EnviroLink Library: Transportation
Address: **http://www.envirolink.org/EnviroLink_Library/Air/Transportation/**
Description: EnviroLink is a nonprofit organization that provides extensive online environmental information resources. Information is organized into broad categories or libraries. Categories within the transportation "library" include: education, events, resources, general information, government, and organizations. Subcategories include: mass transit and alternative forms of transportation, nonrenewable energy sources, renewable energy sources, and transportation pollution.

Office of Air and Radiation (OAR), U.S. Environmental Protection Agency (EPA)
Address: **http://www.epa.gov/oar/oarhome.html**
Description: OAR is responsible for air-related activities within EPA. This includes the development of national programs, technical policies, and regulation for air pollution control; the development of national standards for air quality, emission standards for new stationary sources, and emission standards for hazardous pollutants; the technical direction, support, and evaluation of regional air activities; the enforcement of standards; and other activities. This site provides information about OAR and its organization, programs, publications, resources, and other materials. The site is searchable.

Office of Mobile Sources, Environmental Protection Agency
Address: **http://www.epa.gov/omswww/**
Description: OMS is the national center for research and policy on air pollution from highway and off-highway motor vehicles and equipment. This site provides information on OMS policies, programs, research, and publications.

U.S. Environmental Protection Agency (EPA)
Address: **http://www.epa.gov**
Description: This is the main homepage for EPA. Information about the agency mission, research, programs, and publications is available, as are links to other EPA and environmental Internet sites.

Geographic Information Systems (GIS), Geography, and Transportation

Environmental Protection Agency's (EPA) National GIS Program
Address: **http://www.epa.gov/ngispr/**
Description: The GIS Program is responsible for developing and maintaining an EPAwide support network; participating in the review and evaluation of new GIS-related technologies; promoting the sharing of GIS data, applications, and expertise; coordinating with external organizations concerning GIS and related geographic data activi-

ties; and serving as a focal point for GIS issues within EPA. The site provides information on and access to the EPA's Spatial Data Library System and the Metadata Clearinghouse for EPA's Spatial Data.

Federal Geographic Data Committee (FCDC)
Address: **http://fgdc.er.usgs.gov/fgdc.html**
Description: FGDC has assumed leadership in the evolution of the National Spatial Data Infrastructure (NSDI) in cooperation with state and local governments, academia, and the private sector. NSDI encompasses policies, standards, and procedures for organizations to cooperatively produce and share geospatial data. The site provides information on and links to FCDC organization, FCDC development areas (clearinghouse, standards, metadata, framework, cooperative agreeements, and partnerships), FCDC support activities, and other geospatial data sources. The site is searchable.

GIS WWW Resource List
Address: **http://www.geo.ed.ac.uk/home/giswww.html**
Description: This site, maintained at the University of Edinburgh in Scotland, provides a list of GIS and geography-related servers on the Internet.

Global Positioning System (GPS) Overview
Address: **http://www.utexas.edu/depts/grg/gcraft/notes/gps/gps.html**
Description: This site, developed and maintained at the University of Texas, provides an overview of GPS and access to a variety of research and publications including: U.S. Department of Defense Satellite Navigation System, GPS positioning services specified in the federal radionavigation plan, GPS satellite signals, and GPS data. Links to other GPS-related Internet sites are also provided.

List of Geography and GIS Servers, Utrecht University
Address: **http://www.frw.ruu.nl/nicegeo.html**
Description: This site provides a large collection and listing of geography-related and GIS servers around the world.

Resources for Cartography, GIS and Remote Sensing
Address: **http://www.uwsp.edu/acaddept/geog/cart.htm**
Description: This site provides an index and links to Internet resources in the areas of cartography, GIS, and remote sensing.

Starting Points for GIS/Cartography
Address: **http://www.iko.unit.no/gis/gisen.html**
Description: This site, hosted by the Department of Surveying and Mapping at the Norwegian University of Science and Technology, provides an index of GIS and cartography-related Internet sites.

Water Resources of the United States, U.S. Geological Survey (USGS)
Address: **http://waisqvarsa.er.usgs.gov/**
Description: This USGS site provides information on and links to U.S. water resources. The site is divided into several sections, including: USGS water resources sites of regional

and state offices, USGS water resources applications software, publications, and data (real-time hydrologic data, surface water data retrieval, spatial data, and water-use data).

Xerox PARC Map Viewer
Address: **http://pubweb.parc.xerox.com/map**
Description: This site allows you to request a world or U.S. map from a server located at Xerox PARC (Palo Alto Research Center). Upon receipt of a request, the server creates and returns an HTML document including an image of the requested map. Each map image is created on demand from a geographic database.

Intelligent Transportation Systems (ITS)

Center for Intelligent Transportation Systems, University of Technology, Australia
Address: **http://www.ee.uts.edu.au/eeo/its/its.html**
Description: This site provides information about the Center for Intelligent Transportation Systems and its programs, current research (with particular focus on transport technologies), and available publications.

Integrated Transportation Management Center (ITMC), Texas Transportation Institute
Address: **http://herman.tamu.edu/**
Description: ITMC focuses on designing and implementing advanced concepts in integrated traffic control systems. The Center also showcases research results from the Texas A&M ITS Research Center of Excellence. This site provides information on ITMC and its activities, research, and publications.

Intelligent Transportation Society of America (ITS America)
Address: **http://www.itsa.org/**
Description: ITS America is an organization focused on developing and applying advanced transportation technologies in North America. The site provides news and information on ITS America and its activities, and on recent developments in intelligent transportation systems. Some materials are only available to ITS America members. The site is searchable.

Intelligent Transportation Systems (ITS) Joint Program, U.S. Department of Transportation (DOT)
Address: **http://www.its.dot.gov/**
Description: DOT's formal ITS program began with the Intelligent Vehicle Highway Systems Act, which is contained in the Intermodal Surface Transportation Efficiency Act of 1991. In 1994, DOT established a Joint Program Office for ITS, which provides strategic leadership for individual programs carried out by offices within different DOT administrations. This site provides general information on ITS and DOT activities in this area.

Intelligent Transportation Systems (ITS) Online
Address: http://www.itsonline.com/
Description: This site provides information and news on federal, state, and local government and private sector initiatives, research, and developments in the area of ITS. The site also sponsors several ITS-related forums and discussion groups. The site is searchable.

Intelligent Transportation Systems Program, Princeton University
Address: http://dragon.princeton.edu/~dhb/its.html
Description: This site provides information on the Intelligent Transportation Systems (ITS) Program and overviews of several of its research efforts including: Stability and Control of Intelligent Vehicle/Highway Systems (IVHS), Communications for IVHS Airborne Hazard Alerts and Advanced Air Traffic Management and Control, Congestion Pricing, Dynamic Driver Scheduling, Decision Support for Intermodal Transportation, and Vision Systems in ITS. A link to the comprehensive Transportation WWW Library, which the ITS program maintains, is also available.

National Transportation Communications for ITS Protocol (NTCIP)
Address: http://fhwatml.com/ntcip/
Description: The primary objective of the NTCIP is to provide a communications standard that ensures the interoperability and interchangeability of traffic control and intelligent transportation systems devices. This site provides information about the NTCIP joint public and private partnership efforts and offers access to NTCIP research, publications, and other materials.

International Transportation

Americas Net
Address: http://americas.fiu.edu/
Description: This site is a cooperative venture between the Latin American and Caribbean Center of Florida International University, the University of Florida, and the University of Miami. The site was created to help monitor, research, analyze, and disseminate the process of western hemispheric integration. It provides a variety of reports, analyses, and links to other sites related to trade liberalization and integration in the Western hemisphere.

Border Trade Institute (BTI)
Address: http://www.tamiu.edu/coba/bti/
Description: BTI is part of the College of Business Administration and the Graduate School of International Trade and Business Administration at Texas A&M International University. The site provides import and export data across the Texas/Mexican border for all ports at the five-digit Standard Industrial Trade Classification (SITC) level.

Electronic Shipping Guide
Address: http://www.shipguide.com/
Description: This site provides an online database of container shipping schedules of over 60 carriers for voyages in and out of the United States and Canada including import,

export, connecting, and feeder service. The schedules are obtained directly from carriers and routinely verified for accuracy. The site advises users to confirm specific dates with carriers prior to booking. Links to other maritime web sites, carrier and port news, and carrier contact information is also provided.

European Council of Ministers of Transport (ECMT)
Address: **http://web.mrash.fr/labo/let/cemt/cemtenglish.html**
Description: ECMT, an intergovernmental organization established in 1953, is comprised of the Ministers of Transport of 31 European countries. This site provides information about ECMT, its activities, publications, and research.

European Economic Data
Address: **http://www.europages.com/g/data.html**
Description: European economic data is available via Europages, an international business project. Acrobat Reader software (available free) is required to access this site's information. One document provides an overview of the main European market trends: analysis, tables, and graphs, with a subject index and a series of hypertext links. Documents are available in five languages.

European Union
Address: **http://www.cec.lu/en/info.html**
Description: This site provides links and descriptions to various European Union information resources and Internet sites. These include: ISPO--the Information Society Project Office; I'M EUROPE--an initiative of Directorate-General XIII of the European Commission (EC) to provide information about Europe and the European electronic information market; ECHO--an EC host offering free access to more than 20 online databases; CORDIS--the Community R&D Information Service that provides information on all EU-supported R&D activities (past and present); EUROBASES--European Union public databases on a large range of subjects: law, energy, environment, and documentation; EUROSTAT--the Statistical Office of the European Union; and EUR-OP--the Publications Office of the Union.

French National Institute for Transport and Safety Research (INRETS)
Address: **http://web.inrets.fr/html/english/server.html**
Description: INRETS is a state-financed scientific and technological body under the dual administrative authority of the French Ministries of Transport and Research. Created in 1985, the primary mission of INRETS is to research transportation and technology issues. This site provides information about INRETS and its research, activities, and publications. (Note: This address is for the English version of the site.)

Inter-American Development Bank (IADB)
Address: **http://www.iadb.org**
Description: The Inter-American Development Bank, the oldest and largest regional multilateral development institution, was established in December 1959 to help accelerate economic and social development in Latin America and the Caribbean. This site contains information on IADB project documents, basic socioeconomic data on the region, abstracts of IADB publications, IADB press releases, and other material.

International Chamber of Commerce
Address: http://www1.usa1.com/~ibnet/icchp.html
Description: This site serves as a starting point for information from the International Chamber of Commerce and its thousands of member companies and associations in more than 140 countries.

International Energy Agency (IEA)
Address: http://www.iea.org
Description: IEA is the energy forum for 23 industrialised countries. IEA member governments are committed to taking joint measures to meet oil supply emergencies. They also have agreed to share energy information, to coordinate their energy policies, and to cooperate in the development of rational energy programs. IEA, founded in 1974 and based in Paris, is affiliated with the Organization for Economic Cooperation and Development. This site provides information about IEA and its activities and research. Site information is organized into the following main categories: what's new, guided tour, publications, technology, and statistics.

International Trade Administration (ITA), U.S. Department of Commerce
Address: http://www.ita.doc.gov
Description: ITA's mission is to encourage, assist, and advocate U.S. exports, to ensure U.S. business has equal access to foreign markets, to enable U.S. businesses to compete against unfairly traded imports, and to safeguard jobs. ITA is organized into several units. This site contains some ITA analyses and reports and links to contacts and other relevant sites. Information is organized by region and country as well as industry sector.

International Trade Centre (ITC), United Nations Conference on Trade and Development/World Trade Organization (UNCTAD/WTO)
Address: www.unicc.org/itc/Welcome.html
Description: ITC is the focal point in the United Nations system for technical cooperation with developing countries in trade promotion. ITC was created by the General Agreement on Tariffs and Trade (GATT) in 1964. This site provides access to ITC Infobases, ITC Index to Market Information Sources, trade statistics, market news service (MNS), and trade finance information in addition to other materials. UNCTAD trade statistics can also be accessed at the following site: gopher://gopher.unicc.org:70/11/itc/dir3. Data are categorized by products and listed for countries.

International Trade Information System (It-Is)
Address: http://lanic.utexas.edu/project/itis/
Description: This site provides information on It-Is, a computer software system designed to extract and report data pertaining to international trade in a wide range of product categories. It-Is employs United Nations Trade Statistics to provide fast, timely import/export information that can be useful to researchers, businesses, and export promotion agencies. Information is available for 42 of the world's largest trading nations. These nations' trade with all other nations can be assessed for more than 1,200 Standard Industrial Trade Classification (SITC) product categories at varying levels of specificity. It-Is is available for public access with support from the Center

for the Study of Western Hemispheric Trade, a consortium of the Texas A&M University System and the University of Texas System. Telnet is required to access the database.

International Trade Law (ITL)
Address: **http://itl.irv.uit.no/trade_law/**
Description: This site provides information and links related to international trade law. The ITL presents the full texts where relevant and details of several of the most important conventions and other documents used in international trade. It presents these materials by subject (e.g., free trade, sale of goods, transport, insurance, payment) and chronologically, and has information pages on trade-related organizations. The ITL also presents a "trade library" with extensive links to other sites related by the subject of international trade.

International Trade Statistics, Bureau of the Census, U.S. Department of Commerce
Address: **http://www.census.gov/ftp/pub/foreigntrade/www/**
Description: The Foreign Trade Division (FTD) at the Census Bureau is the primary source of statistics on foreign trade data. Specifically, FTD formulates and develops overall plans and programs for the collection, processing, review, linkage with other economic data, and dissemination of statistical data regarding various aspects of the export and import trade of the United States and foreign trade shipping. The site contains current and past press releases on U.S. international trade in goods and services, Schedule B commodity search and files, electronic shipper export declaration (SED) forms and instructions for completion, and other material.

Latin American Network Information Center--University of Texas (UT-LANIC)
Address: **http://lanic.utexas.edu/**
Description: The UTLANIC WWW server is managed by the Institute of Latin American Studies at the University of Texas at Austin, and sponsored by the Andrew W. Mellon Foundation and the Ford Foundation. The objective of UT-LANIC is to provide Latin American users with access to academic databases and information services throughout the Internet world, and to provide Latin Americanists around the world with access to information on and from Latin America. The site contains a variety of information about North American, South American, and Carribbean countries including country profiles, basic socioeconomic data, and pointers to other sites of interest for individual countries.

Maritime Global Net
Address: **http://www.mglobal.com/**
Description: This site provides information on and links to other maritime industry sites. Information is organized by several categories including: associations, institutions, and societies; government resources; intermodal transportation; marine transportation; news; and world ports.

Mexican Institute of Transport (IMT)
Address: **http://www.imt.mx/English/index.html**
Description: IMT is a center for research and technological development under the Mexican Communications and Transport Secretary's Office. The functions of IMT include basic and applied research, the generation and adaptation of new technologies, and

training. This site provides information on IMT and its research and activities. (Note: Although this is the English version of this site, some of the links still lead to Spanish documents.)

Mexico: National Institute of Statistics, Geography and Systems (INEGI)
Address: **http://ags.inegi.gob.mx/homeing/homeinegi/homeing.html**
Description: INEGI generates, incorporates, processes, and publishes information on the country's physical environment, geographical features, and natural resources, and on its population and economic activities. This site provides access to INEGI products, services, and statistical information. The address above is for the English version of the site.

NaftaLab
Address: **http://naftalab.bus.utexas.edu/**
Description: Naftalab, a collaborative effort among several Texas universities, is a site designed to provide information and links regarding NAFTA (North American Free Trade Agreement) and other trade related information. Some of the site categories include: general NAFTA member country information, technology transfer issues, telecommunications and information issues, economic development, and international trade information.

Organization for Economic Cooperation and Development (OECD): Transport Activities
Address: **http://www.oecd.org/transport/**
Description: OECD, based in Paris, is an organization that focuses on economic and social issues and policies in the industrialized economies of Western Europe, North America, Australia, New Zealand, Japan, Hungary, and the Czech Republic. This site provides information on OECD activities in the areas of transport economics and policy, road transport research, and maritime transport.

Organization of American States--Foreign Trade Information System (SICE)
Address: **http://www.sice.oas.org**
Description: SICE (from the Spanish acronym -- Sistema de Informacion al Comercio Exterior) was established by the Organization of American States to provide foreign trade information to the public and private sectors of member states, in order to help them promote the entry of their country's products into foreign markets and to assist them in the decisionmaking process. The site provides data, information, and documents on trade in the Western Hemisphere. It also provides full-text access to trade treaties and points to sites that offer sources of trade and investment regulations and data.

SeaPorts of the Americas
Address: **http://www.seaportsinfo.com/**
Description: This is the official web site of the American Association of Port Authorities. It provides information on ports and the maritime industry of the Western Hemisphere. Information is organized in categories including ports, ports and maritime services, expositions, seminars and trade shows, and industry information and announcements.

Statistics Canada
Address: **http://www.statcan.ca**
Description: Statistics Canada is Canada's national statistical agency, with programs organized into three broad subject matter areas: demographic and social, socioeconomic, and economic. The site provides access to "Canada at a Glance" (e.g., agreggate statistics on Canadian health, justice, travel, income, housing, and trade), information on Statistics Canada's databases, products, and services, as well as other links and material.

Trade Compass
Address: **http://www.tradecompass.com**
Description: This comprehensive site is devoted to international trade, transportation, electronic commerce, and international business. The site is organized into five main sections: Trade-News: top trade stories of the day in areas such as trade policy and regulations, privatization, international agreements, and shipping; Marketplace: an international trade Yellow Pages for service providers, manufacturers, and trade associations; Trade Library: government, legal, travel, shipping, and insurance information for conducting international business, organized into 12 main categories including government, shipping, travel/visa, publishing, legal, and freight forwarding; Trade Forum: fosters a dialog between buyers and sellers, contains trade show directories and schedules, and users can post trade-related questions; Search: provides tools to help conduct business on a day-to-day basis (e.g., a Logistics Management System provides an online searchable shipping schedule, a cargo booking service, cargo tracking, and a complete U.S. Customs interface). The site offer both guest and subscription access.

Trade Zone
Address: **http://www.tradezone.com/tz/trdzone.htm**
Description: This site is a comprehensive directory of international trade-related information sources on the Internet. Links to information sources are organized by category including banks, business opportunities, conventions and meetings, chambers of commerce, government, trade centers, trade law, and transportation.

Transportation Research Board (TRB): List of Non-U.S. Government Organizations
Address: **http://www.nas.edu/trb/link/government.html**
Description: This site provides an extensive listing of and links to non-U.S. transportation governmental organizations. The listing is alphabetical by country.

Transport Canada
Address: **http://www.tc.gc.ca/cgibin/makehtm.exe?tcgeneral/contents.txt**
Description: This site provides a general overview of Transport Canada and its programs. Site information is organized into several main categories, including: internal administration, regulatory consultation, regional information, multimodal policy, and safety and security.

United Nations
Address: http://www.un.org/
Description: This is the main web site for the United Nations. This site provides an overview of the UN, recent UN news and information, links to web sites of specific UN organizations, UN contact information, access to UN abstacts and publications, and other material.

United States International Trade Commission (USITC)
Address: http://www.usitc.gov
Description: USITC is an independent, quasi-judicial federal agency that provides objective trade expertise to both the legislative and executive branches of government, determines the impact of imports on U.S. industries, and directs actions against certain unfair trade practices, such as patent, trademark, and copyright infringement. USITC analysts and economists investigate and publish reports on U.S. industries and the global trends that affect them. The agency also updates and publishes the Harmonized Tariff Schedule of the United States. This site contains access to USITC analyses, reports, and findings as well as agency activities. The most recent copies of the Harmonized Tariff Schedule are also available.

United States Trade Representative (USTR)
Address: http://www.ustr.gov
Description: The Office of the USTR is responsible for developing and coordinating U.S. international trade, commodity, and direct investment policy, and leading or directing negotiations with other countries on such matters. This site contains information on all USTR activities and access to its reports and analyses.

Waterborne Commerce Statistics, Navigation Data Center, U.S. Army Corps of Engineers
Address: http://www.wrcndc.usace.army.mil/ndc/wcsc.htm
Description: The primary function of the Waterborne Commerce Statistics Center, under the authority of the Rivers and Harbors Act of 1922, is to collect, process, distribute, and archive vessel trip and cargo data. These statistics are used to analyze the feasibility of new projects and to set priorities for new investment, and for the operation, rehabilitation, and maintenance of existing projects. This site provides access to national summaries of domestic and foreign waterborne commerce, comparison of U.S. waterways tonnage, U.S. waterway monthly tonnage indicators, trends in commodity tonnage flows, waterborne commerce standard reports, U.S. principal ports reports, state tonnage reports, and other material.

World Bank
Address: http://www.worldbank.org
Description: This site provides information on current World Bank activities, research and publications, country project information, sectoral information, among other materials. Access to abstracts and some full-text reports and analyses are available.

World Trade Organization (WTO)
Address: http://www.unicc.org/wto/Welcome.html
Description: WTO, established on January 1, 1995, administers and implements multilateral and plurilateral trade agreements, acts as a forum for multilateral trade negotiations, seeks to resolve trade disputes, oversees national trade policies, and cooperates with

other international institutions involved in global economic policymaking. This site provides access to WTO press releases, trade policy reviews, WTO reports, and WTO publications.

World Fact Book, U.S. Central Intelligence Agency (CIA)
Address: **http://www.odci.gov/cia/**
Description: The annual CIA World Fact Book is accessible from the main CIA Home Page. It is located in the CIA Publications section of the site. The publication provides a variety of basic information about countries around the world, including information on transporation infrastructure.

World Interchange Network (WIN)
Address: **http://www.cam.org/~win/english.html**
Description: WIN is a global road transport knowledge exchange network. WIN is a nongovernmental, international, nonprofit organization at the service of the international road community. It is composed of local, national, and international nodes for knowledge and information exchange, and is headquartered in Montreal, Canada. This site provides information about WIN and its activities, including a directory of nodes and responsibilities for individual countries.

World Rail and Transit
Address: **http://home.cc.umanitoba.ca/~wyatt/rail-transit-list.html**
Description: This site offers a listing by country and city of different rail transit types in use worldwide. Definition and source material are also provided.

Research and Transportation (See also Colleges and Universities)

Bureau of Transportation Statistics (BTS), Department of Transportation
Address: **http://www.bts.gov**
Description: BTS was established in December 1992 to improve the knowledge base for public decisionmaking, and to improve public awareness of the nation's transportation system and its consequences. BTS compiles, analyzes, and makes accessible information on the nation's transportation systems, collects information on intermodal transportation and other areas as needed, and works to enhance the quality and effectiveness of government statistics.

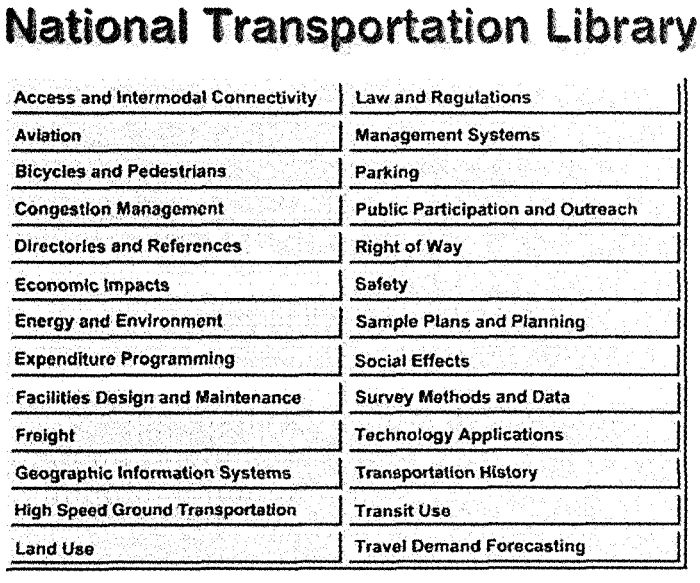
BTS is a statistical agency, a mapping agency, and an organization for transportation analysis. As a statistical agency, BTS is involved in data collection, quality assurance, and dissemination of statistical products. The Bureau's largest data collection programs are the Commodity Flow Survey and the American Travel Survey, conducted ointly with the Bureau of the Census to identify where freight and people go by all modes of transportation. The Bureau's Office of Airline Information also collects data on the timeliness, traffic, and market aspects of the air carrier industry through its On-Time Statistics and T-100 programs. As a mapping agency, BTS is involved in geographic data and geographic information systems (GIS) technology. BTS does not centralize the Department of Transportation's many statistical and mapping programs, but rather develops bridges for those programs to provide a complete, accurate picture of transportation. As an analytical organization, BTS assem-

bles and interprets information on the extent, use, condition, performance, and consequences of the transportation system. The Bureau's analyses are summarized its Transportation Statistics Annual Report.

The BTS web site is organized into the following six main categories: BTS Programs, BTS Products and Services, Geographic Information Services, National Transportation Library, Searchable Databases, and Other Transportation Resources. In addition to these six main sections, links are also provided to the BTS Briefing Room, a site map, and a what's new page. Descriptions of the six main organizational categories are provided below.

BTS Programs: This section of the BTS web site provides detailed information about the major program areas of the Bureau. Major program areas include the following: Commodity Flow Survey, American Travel Survey, National Transportation Library, Motor Carrier Statistics, Geographic Information, Airline Information, Information Technology, and International Travel and Transportation.

BTS Products and Services: This section of the BTS web site provides detailed information about the Bureau's products and services. Current and future printed and electronic products are described and ordering instructions are included. (An



The Bureau of Transportation Statistics' National Transportation Library Web page

online ordering form is available.) BTS services, including its Statistical Information Line (1-800-853-1351), its Fax-On-Demand System (1-800-671-8012), and its Technical Assistance Desk (202-366-6664) are also described.

Geographic Information Services: The Office of Geographic Information Services is responsible for the development, enhancement, and dissemination of geospatial data depicting transportation, facilities, and flows; the application of GIS technology to analyze strategic and operational issues in transportation; and the preparation of thematic transportation maps for the Department of Transportation (DOT) policymakers and the general public. This portion of the BTS web site provides access to the Bureau's GIS products and services, including the National Transportation Atlas.

National Transportation Library (NTL): The NTL is an attempt to facilitate information transfer between different organizations and groups within the nation's transportation research and planning communities. The NTL is a growing collection of materials from state DOTs, metropolitan planning organizations, and other organizations around the country. NTL documents are organized topically into 26 different categories ranging from "access" to "travel demand forecasting." The NTL is searchable by keyword or concept.

Searchable Databases: This portion of the BTS web site provides access to national transportation data and to a communications center of online discussions. National transportation data includes the Commodity Flow Survey data, American Travel Survey data, on-time airline statistics, transborder surface commodity data, Federal Accident Reporting System data, and highway statistics.

Other Transportation Resources: This portion of the BTS web site provides links to other transportation resources available on the Internet.

NewsPage (Transportation and Distribution)
Address: **http://www.newspage.com/**
Description: The NewsPage site provides daily business news, organized into over 2,500 topics from over 600 information sources. (For transportation news and information, select the "transportation and distribution" link from the homepage.) Note that some information at this site is free; some is fee-based. You must, however, register with NewsPage to access either. Once you've registered, you will be given a username and password.

Oak Ridge National Laboratory (ORNL), Center for Transportation Analysis (CTA)
Address: **http://cta.ed.ornl.gov/**
Description: CTA conducts research and development on transportation energy and environmental issues, national transportation planning and policy, military transportation and logistics, and transportation systems engineering. The Center focuses on multimodal national and international transportation systems. The CTA site provides information on the Center's organization, programs, publications, and research areas. Transportation data and links to other similar sites are also made available.

Regional Economic Information System (REIS), University of Virginia
Address: **http://www.lib.virginia.edu/socsci/reis/reis1.html**
Description: The REIS database provides local area economic data for states, counties, and metropolitan areas for 1969 to 1994. Statistics in the database include: personal income by source, per capita personal income, earnings by two-digit Standard Industrial Classification (SIC) code, full- and part-time employment by industry, and regional economic profiles.

Shipping Times of Singapore
Address: **http://www.asia1.com.sg/shippingtimes/**
Description: This site provides electronic access to the Shipping Times of Singapore, a newspaper that focuses on international shipping issues. Excerpts and some full-text articles and columns on shipping and air and land transport news and issues are available. A listing of ships arriving in and departing from Singapore is also available.

Social Sciences Data Collection (SSDC), University of California at San Diego
Address: **http://ssdc.ucsd.edu/ssdc/catalog.html**
Description: SSDC is a collection of large numeric social science datafiles as well as a set of computer programs that provide easy access to those datafiles through a menu interface. The site is keyword searchable, but the datafiles can also be browsed by subject and title listing.

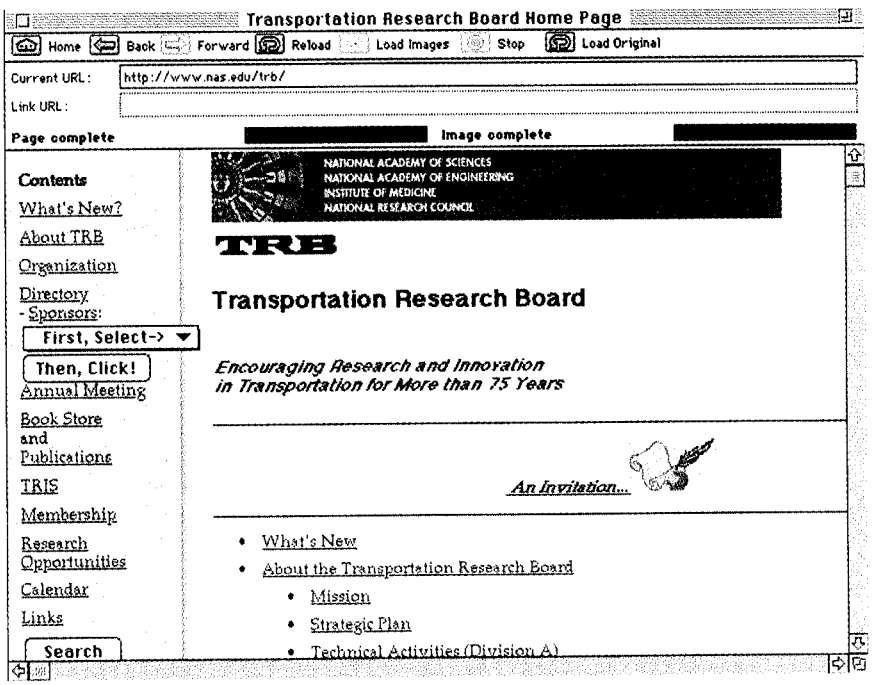
Tiger Line Files/Database, Bureau of the Census, U.S. Department of Commerce
Address: **http://www.census.gov/ftp/pub/geo/www/tiger/tiger.html**
Description: The Census Bureau's TIGER (Topographically Integrated Geographic Encoding and Referencing) system automates the mapping and related geographic activities required to support the decennial census and sample survey programs of the Census Bureau. This site provides overview information on the TIGER system, technical documentation, ordering information, and sample data sets.

Transportation Law Journal, University of Denver
Address: **http://mercury.cair.du.edu/~transplj/**
Description: The Transportation Law Journal, a publication of the University of Denver Law School, focuses on the field of transportation law. It addresses both domestic and international developments of legal, regulatory, economic, and political interest for all modes of transportation. The site provides information on the journal and online access to some previous editions of the journal.

Transportation Library, Northwestern University
Address: **http://www.library.nwu.edu/transportation/**
Description: The Transportation Library maintains an extensive collection of materials on transportation (air, rail, highway, water, pipeline), law enforcement and police management, and environmental impact assessment. The collection emphasizes current socioeconomic aspects, particularly management, operations, finance, planning, regulation, and safety. This site provides general information about the library and its collections. It also provides information about its online access options, and directions for accessing some of the library's collections via the Internet by using Telnet.

Transport News
Address: http://www.transportnews.com/
Description: The Transport News site provides a compilation of daily news and features on transportation topics from a variety of sources. News and features are organized into the following categories by date: air, ocean, rail, truck, intermodal, logistics, and more.

Transportation Research Board (TRB)
Address: http://www.nas.edu/trb/
Description: The Transportation Research Board is a unit of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering. The Board's purposes are to stimulate research concerning the nature and performance of transportation systems, to disseminate the information produced by the research, and to encourage the application of appropriate research findings. The TRB site provides information about its organization, publications, annual meeting, research opportunities, and other material. The site is searchable.



The Transportation Research Board Homepage

Safety and Transportation

Advocates for Highway and Auto Safety (AHAS)
Address: **http://www.saferoads.org/**
Description: AHAS is an alliance of consumer, health, and safety groups and insurance companies and agents that focuses on motor vehicle saftey issues. This site provides information on AHAS and its activities, and general information on motor vehicle safety issues.

Aviation Safety Reporting System (ASRS)
Address: **http://wwwafo.arc.nasa.gov/ASRS/ASRS.html**
Description: The ASRS was established in 1975 under a Memorandum of Agreement between the Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA). FAA provides most of the program funding; NASA administers the program and sets its policies in consultation with FAA and the aviation community. The ASRS collects, analyzes, and responds to voluntarily submitted aviation safety incident reports in order to lessen the likelihood of aviation accidents. This site provides information on ASRS including a program overview, a program "briefing," ASRS reporting forms, and ASRS publications.

Highway Loss Data Institute (HLDI)
Address: **http://www.carsafety.org/**
Description: HLDI is a nonprofit, public service organization that gathers, processes, and publishes data on the ways in which insurance losses vary among different kinds of vehicles. The HLDI site is organized into sections on injury, collision, and theft.

Insurance Institute for Highway Safety (IIHS)
Address: **http://www.hwysafety.org/**
Description: IIHS is an independent, nonprofit, scientific and educational organization. It is focuses on reducing the losses--deaths, injuries, and property damage--resulting from crashes on the nation's highways. The site provides information and statistics that are organized into categories including: roads and highways, passenger vehicles, pedestrians, alcohol and other drugs, traffic laws and regulations, large trucks, beginning drivers, motorcycles, bicycles, and fatality facts. The site is searchable.

National Center for Statistics and Analysis, National Highway Traffic Safety Administration, U.S. Department of Transportation
Address: **http://www.nhtsa.dot.gov/people/ncsa/**
Description: The National Center for Statistics and Analysis is responsible for providing a wide range of analytical and statistical support to the traffic safety community, through data collection, analysis, and accident investigation activities. This site provides facts sheets and sample data sets for several of the Center's databases, including the Fatal Accident Reporting System, the National Accident Sampling System General Estimates System, and the National Accident Sampling System Crashworthiness Data System.

National Crash Analysis Center
Federal Highway Administration (FHWA), National Highway Traffic Safety Administration (NHTSA), and George Washington University
Address: http://gwuva.gwu.edu/ncac/
Description: The Center concentrates its research on vehicle crashworthiness. This site provides information about the Center and its activities, research, and publications. The site also offers an online video library of actual vehicle crashes.

National Highway Traffic Safety Administration (NHTSA),
U.S. Department of Transportation
Address: http://nhtsa.dot.gov
Description: NHTSA, established by the Highway Safety Act of 1970, is responsible for reducing deaths, injuries, and economic losses resulting from motor vehicle crashes. This is accomplished by setting and enforcing safety performance standards for motor vehicle equipment, and through grants to state and local governments to enable them to conduct effective local highway safety programs. NHTSA also investigates safety defects in motor vehicles, sets and enforces fuel economy standards, helps states and local communities reduce the threat of drunk drivers, promotes the use of safety belts, child safety seats, and air bags, investigates odometer fraud, establishes and enforces vehicle anti-theft regulations, and provides consumer information on motor vehicle safety topics. NHTSA also conducts research on driver behavior and traffic safety, to develop the most efficient and effective means of bringing about safety improvements. This site provides information about NHTSA and its programs and activities. Site information is organized into the following main categories: NHTSA general information, cars--vehicle and equipment identification, people--traffic safety/occupant issues, what's hot, and what's new.

National Safety Council
Address: http://www.nsc.org/nsc/informa.html
Description: The National Safety Council's mission is to educate and to influence society to adopt safety, health, and environmental policies, practices, and procedures that prevent and mitigate human suffering and economic losses arising from preventable causes. This site provides information on the Council and its activities. Information on traffic safety is available at the following address: http://www.nsc.org/nsc/sbc/traf_saf.html.

National Transportation Safety Board (NTSB)
Address: http://www.ntsb.gov/
Description: NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant accidents in the other modes of transportation--railroad, highway, marine, and pipeline--and issuing safety recommendations aimed at preventing future accidents. This site provides general information, speeches and testimony, press releases, and NTSB recommendations. Recent accident and publication information is provided and is organized modally.

Office of System Safety, Federal Aviation Administration (FAA), U.S. Department of Transportation
Address: http://nasdac.faa.gov/
Description: The Office of System Safety was created in 1995 to monitor safety trends, identify emerging aviation safety issues and concerns, foster aviation safety research, and serve as a focal point for aviation safety data and information. The site provides a variety of safety publications and data (including aircraft accident data from more than 35,000 National Transportation Safety Board (NTSB) reports since 1983).

Testing Results, National Highway Traffic Safety Administration (NHTSA), U.S. Department of Transportation
Address: http://www.nhtsa.dot.gov/cars/testing/
Description: This portion of the NHTSA site provides information about buying a safer car and about compliance reporting. The "buying a safer car" section provides crash testing and comparative safety information by model year. It also lists safety features and gives crash test ratings of frontal protection of new and used cars to help consumers make purchase decisions. The "compliance testing" section provides information on crash tests and other safety tests to determine if car makers have met minimum federal requirements.

Other Internet Directories And Indices

Freight World
Address: http://www.ccnet.com/~ltlfield/
Description: The Freight World site provides an organized directory and links related to freight transportation and logistics. Links are organized by modes (airlines, forwarders, intermodal, logistics providers, maritime, moving and storage, package express, railroads, and trucking) and by services (finance and leasing, government, laws and regulations, news and weather, organizations, services, software, and suppliers.).

Galaxy Einet Transportation Index
Address: http://galaxy.einet.net/galaxy/Engineering-and-Technology/Transportation.html
Description: This site provides a list of and links to transportation-related Internet resources.

Internet Public Library (IPL): Transportation Ready Reference
Address: http://www.ipl.org/ref/RR/SCI/transportationrr.html
Description: The Internet Public Library, begun at the University of Michigan in 1995, is an attempt to build the first public online library of and for the Internet community. The Transportation Ready Reference provides links to and descriptions of transportation-related Internet resources. The site is searchable. (The homepage for the IPL is www.ipl.org.)

Internet Sources in Transportation, Northwestern University Transportation Library
Address: http://iti.acns.nwu.edu/tran_res.html
Description: The Transportation Library at Northwestern University provides this list of transportation-related Internet resources. Resources are organized into the following main categories: mailing lists, list servs, and news groups; telnet resources; and gopher and web sites.

Railroad Related Internet Resources
Address: **http://www.cse.ucsd.edu/users/bowdidge/railroad/railhome.html**
Description: This site provides a catalog of links to railroad-related information sources on the Internet. Most links refer to North American railroads, with a particular emphasis on Western U.S. and California railroads.

Transportation Resources, Princeton University
Address: **http://dragon.princeton.edu/~dhb/**
Description: This site offers a comprehensive and well-organized directory of transportationinformation and Internet links. Links are divided into the following sections: highway, transit, and rail information; airports and airlines; colleges and universities; private companies; transportation-related organizations; miscellaneous resources; other transportation resource directories; conferences, seminars, and calls; netAddress book of transportation professionals; and what's new. The site is searchable. It is maintained by the Intelligent Transportation Systems Program at Princeton University.

Transport Web
Address: **http://www.transportweb.com/**
Description: This site provides links to and information on a variety of transportation-related information and services available on the Internet. It is organized in over 20 different subcategories ranging from transportation mailing lists to transport product manufacturers.

Transport World
Address: **http://www.transportworld.com/**
Description: Transport World provides a variety of information on and links to transportation and logistics information via the Internet. Information is organized in several categories ranging from "good-cargo movers" to "organizations, associations, and government."

Transportation Research Board: Links
Address: **http://www.nas.edu/trb/index.html#Links**
Description: This portion of the Transportation Research Board's web site provides extensive links to a variety of transportation-related Internet and non-Internet resources. Links are organized into the following main categories: transportation organizations; transportation career opportunities; transportation directories, glossaries, and other Internet resources; transportation electronic publications; transportation events; and transportation mailing lists and news groups.

World Wide Web Virtual Library: Aviation
Address: **http://macwww.db.erau.edu/www_virtual_lib/aviation.html**
Description: This site, maintained by Embry-Riddle Aeronautical University, provides the aviation portion of the World Wide Web Virtual Library. The site offers a comprehensive and organized list of aviation-related Internet resources.

World Wide Web Virtual Library: Transportation
Address: **http://www.bts.gov/smart/links/transportation.html**
Description: This site, maintained by the Bureau of Transportation Statistics at the U.S. Department of Transportation, provides the transportation portion of the WorldWide Web Virtual Library. The site offers a comprehensive and organized list of transportation-related Internet resources.

Virtual Logistics Library
Address: **http://www.leeshore.com/logistics/index.html**
Description: This site provides a directory of logistics-related (transportation, warehousing, systems, academic, research, law, and consultants) Internet resources.

Yahoo: Business and Economy: Transportation
Address: **http://www.yahoo.com/Economy/Transportation**
Description: The Yahoo service provides a variety of subject-oriented indices to Internet resources. Yahoo is also searchable. Links to transportation resources are included under the "business and economy" section.

Archie: An Internet search tool that helps users find specific FTP (file transfer protocol) sites and files of interest on the Internet.

ARPA (Advanced Research Projects Agency): Government organization that designed the initial concept of distributed computer systems for military purposes in the late 1960s.

ascii text: Straight text without any special formatting or coding.

binary file: Computer file that is not just straight typed text, and can include, for example, word processing files, spreadsheets, or graphic files.

bps: Bits per second. (Also, kbps--kilo bits per second.) Used to describe modem speed (i.e., 9600 bps vs. 14.4 kbps)

browser: Software program used to view Web pages.

CERN: Developers at CERN, the European Laboratory for Particle Physics, in Geneva, Switzerland, designed a hypertext system to help the worldwide high-energy physics community share information. This later evolved into the World Wide Web of today.

cyberspace: Another term for the Internet.

cybersurf: Looking for information and data on the Internet.

direct access: A connection to the Internet usually made through a large organization's workstation via a leased phone line. Provides the fastest, most comprehensive, and most flexible Internet access. Also known as a permanent connection.

directory: A Web site that organizes Internet resources by subject. (See also index.)

domain: Three-letter code that indicates the type of organization behind a site address (i.e., government (.gov), education (.edu), business (.com), and so forth.

download: To transfer a file over a network from one computer to another.

Electronic mail: Internet tool that provides the means of sending an electronic "letter" or message between individuals or groups of individuals via computer. E-mail is not unique to the Internet.

File Transfer Protocol: Internet tool that allows the user to transfer (send and receive) files from one Internet connected computer to another. Especially useful when transferring large data files over the Internet.

gateway: Computer that connects one network to another.

Gopher: Internet tool that allows a user to easily "browse" a site to see what type of information and data is available. Gopher sites are organized through hierarchies of menus with increasing specificity.

graphical Web browser: Allows a user to view information at a World Wide Web site in a multimedia format and then utilize it through easy point and click access.

homepage: Main page of any Web site.

hyperlinks: Transparent "linkages" between text and multimedia on a World Wide Web site.

hypermedia: Transparent linkage of multimedia such as graphics, photos, sound, and video.

hypertext: Transparent linkage of textual documents to other related documents on the World Wide Web.

HTML: Hypertext Markup Language; programming language used in the creation of Web pages.

index: One of the means developed to enhance exploration of the World Wide Web. Organized by topic like an index at the back of a book. Also referred to as catalogs, directories, and lists.

Internet: A "network of networks" that seamlessly links computers and users across the globe. Also referred to as the 'Net or the I-Net.

Internet Service Providers (ISPs): Companies that provide access to the Internet through different connection options.

Jughead: Internet search tool that searches a particular Gopher site looking for all matches to a particular query.

mailing lists: Topic-specific lists that distribute messages to interested recipients. Also known as listservs or lists.

modem: Device that facilitates communication between two computers via phone lines.

Mosaic: First graphical World Wide Web browser developed at the National Center for Supercomputing Applications, University of Illinois, Champaign-Urbana, and released publicly in 1993.

Netscape: The name of a popular World Wide Web browser and company, founded by the original developers of Mosaic.

network: In general, a group or system of interconnected computer components.

online services: Companies (e.g., America Online, CompuServe, Microsoft Network, and Prodigy) that offer value-added information services to their customers, including connection access to the Internet.

players: Programs used to display multimedia files (such as video or sound). May also be called viewers.

protocol: Standard of communications for computers on a network.

search engine: Provide a user-driven means of locating data and information on the World Wide Web. Users submit a search query and the "engine" searches the Internet's resources for those that meet the specifications.

shell account: A type of connection where the selected service provider's computer is the user's conduit to the Internet. Also known as a dial-in/dial-up terminal account.

SLIP/PPP (Serial Line Internet Protocol/Point to Point Protocol): A type of connection that hooks a user's computer directly to the Internet.

TCP/IP (Transmission Control Protocol/Internet Protocol): Suite of protocols that defines how certain applications such as electronic messaging, online connections, and the transfer of files are accomplished on the Internet.

Telnet: Internet tool that allows a computer user in one location to establish an online connection with another computer elsewhere. Once a connection is established, the user can access the resources of the remote computer system. Also known as remote login.

URL: Uniform Resource Locator or Web address. Usually in the form of http://host.subdomain.domain. Example: http://www.bts.gov

Veronica: An Internet search tool that searches for specific Gopher sites based on a user's inquiry. Veronica stands for "Very Easy Rodent-Oriented Netwide Index to Computerized Archives."

World Wide Web: Internet tool that relies on a distributed system of interconnected linkages, or hyperlinks, when presenting information. Supports a full range of multimedia (sound, image, video, and graphics). Also referred to as the Web or WWW.

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