

**Internet Coordination  
Subcommittee Report  
to  
The Interagency Technology  
Policy and Coordination  
Committee**



**April 1997**



MONTGOMERY COLLEGE  
Office of Information Technology

April 23, 1997

MEMORANDUM

TO: ITPCC Members

FROM: Richard Leurig, Chair *RL*  
Internet Coordination Subcommittee

SUBJECT: Internet Coordination Subcommittee Report to the  
Interagency Technology Policy and Coordination Committee

On behalf of the Internet Coordination Subcommittee, I am pleased to transmit our report to the Interagency Technology Policy and Coordination Committee (ITPCC). The Subcommittee has been meeting periodically for the last year and a half to share and exchange technical knowledge and ideas on Internet issues. Work on this document was begun in January 1997.

The first chapter of the report provides an introduction, overview of the report, and a summary of the Subcommittee's recommendations. The report includes a number of recommendations that the ITPCC may wish to prioritize, since it may not be practical to implement all the recommendations in any single year. Implementation related to several of the recommendations would require an agency to dedicate scarce resources to conduct pilot programs. The Subcommittee suggests that the ITPCC discuss a timetable for implementing whatever recommendations are endorsed by the members.

The Internet Coordination Subcommittee wishes to acknowledge and thank Joan Pedersen of the Office of Legislative Oversight. Ms. Pedersen was assigned to us on a short-term basis to assist in writing our report. Subcommittee members are agreed that the report could not have been completed without Ms. Pedersen's guidance and help. Her energy, professional competence, and resourcefulness were invaluable in developing the final product. We would be pleased to work with her again.

RL/CC/lwb  
Attachment



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**Internet Coordination Subcommittee Report to the  
Interagency Technology Policy and Coordination Committee**

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**April 1997**



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## **I. INTRODUCTION AND OVERVIEW OF THE REPORT**

### **A. Introduction**

The Internet was originally developed with the idea of providing a means for transferring information and using remote-computer resources, and these services are generally still available today. A number of Internet resources allow users to upload and download files, and to use programs that are running on remote Internet hosts. In addition, electronic mail allows for communication with anyone who is connected to the Internet. (Appendix I contains a description of the development and growth of the Internet, and includes information on current user demographics.)

Today, the main product focus of the Internet is information, which is usually contained in files on an Internet host. The information can be presented in many different formats depending on what Internet service is being used and whether the service is through a graphical user interface or a terminal command-line interface. (Appendix II contains descriptions of various services that are available via the Internet and Appendix III contains a glossary of common Internet terms, many of which are used throughout this report.)

The World Wide Web (WWW) is a recent Internet service that makes using the Internet as easy as clicking a mouse button. Numerous organizations are using the Web to provide access to their products and services. There are businesses that allow users to peruse their catalogs and order merchandise over the Internet. Many manufacturers have also begun providing product information over the Internet. The potential for information access is almost unlimited.

There are now thousands of Federal agencies, state and local governments, and educational institutions that have Web sites containing public information, and citizens are increasingly asking for additional sources. In addition, the Internet connects these agencies' employees to resources that would not have been as easily available through traditional means.

Once Montgomery County government agencies developed a Web presence, there became a need for the various organizations to coordinate their efforts and join forces whenever possible to logically present their information to the public in the most efficient and effective ways. The Internet Coordination Subcommittee was formed to share technical information among the County and bi-County agencies and make recommendations on how the agencies may cooperate and coordinate their efforts.

There are five agencies represented on the Internet Coordination Committee that contributed to this report. The five agencies are: Montgomery College, Montgomery County Public Schools, Montgomery County Government, Maryland-National Capital Park and Planning Commission, and Washington Suburban Sanitary Commission.

## **B. Overview of the Report**

This report describes the current uses that agency employees are making of the Internet, the Web presence of each of the agencies, and discusses future plans and directions.

Chapter II, Agency Policies and Implementation, contains a module for each agency that discusses how the agency went about establishing its Internet presence and deciding what information to provide to the public. Each agency also explains how employees and other users are being connected to the Internet, the security measures in place or being implemented, and the services and kinds of information sought by users. In addition, each agency attempts to identify the costs and benefits of the decisions that were made and discusses future plans for expanding the agency's Web presence and use of the Internet. The table on page 4 summarizes, by agency, some of the information presented in the five modules.

Chapter III, Inter-Agency Cooperation, identifies areas of opportunity for the agencies to share their knowledge, experiences, and resources, and discusses how the agencies can coordinate their efforts to provide information and services to the public through their Web sites. The agencies also examine electronic commerce opportunities and e-mail and researching capabilities.

Chapter IV, Summary of Future Plans and Directions, is a summation of the five agencies' future plans and directions. Basic information was derived from the individual agency modules contained in Chapter II of the report, and expanded upon to provide a more government-wide perspective.

Chapter V, Findings and Recommendations, contains the Internet Coordination Subcommittee's findings and recommendations made to the Interagency Technology Policy and Coordination Committee (ITPCC). The findings and recommendations are presented in four categories: Web Presence and Providing Public Services, Internal Uses of the Internet, Policies and Procedures, and Agency Coordination.

Major recommendations made by the Subcommittee include:

### **Web Presence and Providing Public Services**

1. The agencies should require their departments and offices to submit justification that includes a cost-benefit analysis as part of any request to place major new services on the agency's Web site.
2. The agencies should jointly develop criteria that will provide a common approach for departments and offices to follow in preparing their cost-benefit analyses. The criteria should recognize that some costs and benefits cannot be stated in dollars, but may be expressed in some other form of measurement.
3. Each agency should develop procedures for their program managers to report costs and personnel efforts expended in developing services offered via their Web site and for maintaining their Web pages.

4. A process for reporting on Internet-related budget requests to the Council should be considered as part of the IT Decision Structures project.
5. The ITPCC should consider establishing a pilot program in one of the agencies as a first step toward conducting commerce over the Internet. An agency might begin by accepting applications and reservations on-line.
6. The agencies should consider training some employees in advanced research methods for obtaining information from the Internet.
7. The ITPCC should consider selecting one of the agencies to examine the costs and benefits of establishing an Intranet.

#### *Policies and Procedures*

8. The ITPCC should agree on guidelines that: (1) establish broad policy on connecting employees and others to the Internet, (2) define acceptable use of the Internet, and (3) address security measures.
9. Each agency that does not currently have written policies on connecting employees and others, acceptable use of the Internet, and security measures should adopt and disseminate policies.
10. The agencies should require that all employees receive training or detailed instructions on proper/improper uses of the Internet, security requirements, and protecting the enterprise, including directions on how to avoid viruses and how and when to run anti-virus software.

#### *Agency Coordination*

11. The agencies should continue to explore opportunities to combine or coordinate Internet-related purchases of goods and services to achieve economies of scale. In addition, procedures should be established for the agencies to notify each other of pending RFP efforts.
12. The agencies should continue to use interdisciplinary groups to contribute expertise in the following areas: legal and copyright issues; security; training; creating and maintaining Web pages; technical aspects of accessing the Internet and connecting employees; and technical aspects of providing services over the Internet.
13. Internet Coordination Subcommittee members should continue to meet quarterly or consult via some other communication medium to discuss and share information. In addition, the group should draw from areas of expertise on the interdisciplinary teams in the various agencies to hold discussions on various topics of concern or interest.

Category	College	MCPS	MCG	M-NCPPC	WSSC
Approximate number of County employees	1,900	14,700	8,000	980 this County	2,000 bi-County
Service provider for Internet access and e-mail	BBN Planet	In-house server	UUNET	PSI	DIGEX
Number of employees connected to the Internet	1,000 including e-mail	150 schools 11,000 e-mail	360 3,400 e-mail	120 400 e-mail	12 including e-mail
Policies and procedures for connecting employees	yes - not yet in writing	yes - in writing	yes - in writing	yes - not yet in writing	policies/procedures to be developed
Policies and procedures to ensure security and virus protection	yes - not yet in writing	yes - in writing	yes - in writing	yes - not yet in writing	policies/procedures to be developed
Restricting/monitoring use by employees and others	written policies on use - limited monitoring	no restrictions or monitoring	limited monitoring	no restrictions or monitoring	policies/procedures to be developed
Training methods	in-house staff and faculty	in-house staff and info on Web site	contractors and in-house staff	contractor and in-house staff	methods to be developed
Service provider for Web site and home pages	Clarknet	in-house server	in-house server	Clarknet	no official pages
Policies and procedures for creation and review of Web pages	yes - not yet in writing	yes - in writing	yes - in writing	yes - not yet in writing	policies/procedures to be developed
Responsibility to review/approve content and style	Office of Institutional Advancement	school principals and office managing supervisors	Council and Executive Public Information Offices	Community Relations Office	content review and approval procedures will be developed
On-line services being provided to the public	public information only	public information, e-mail feedback, database lookup	public information and e-mail feedback	public information only	limited public information only
Start up costs to connect users and establish an agency Web presence	\$135,000	\$160,865	\$175,000	\$23,900	under development
Annual on-going costs	\$345,000-\$505,000	\$265,630	\$227,040	no current estimate	under development

## **II. AGENCY POLICIES AND IMPLEMENTATION**

This chapter contains a “liftable module” for each agency. Each module constitutes a section in the chapter. In the individual modules, each agency discusses how it went about establishing its Internet presence and deciding what information to provide to the public. The agencies also explain how employees and other users are being connected to the Internet, the security measures in place or being implemented, and the services and kinds of information sought by users. In addition, each agency attempts to identify the costs and benefits of the decisions that were made and discusses future plans for expanding the agency’s Web presence and Internet use by employees and others. There are six possible sections and an attachment for each agency module.

### **1. Establishing an Internet Presence**

Explains how the agency went about setting up its Web site, whether the agency is using an Internet service provider or in-house servers, and the security approach.

### **2. Providing Information to the Public**

Examines how the agency determined what information to provide on its Web site, how the home pages were developed and are maintained, and how much the agency currently interacts with the public via its Web site.

### **3. Providing Access to Employees and Others**

Discusses how the agency determines who will be given Internet access, how the access is provided, what training is provided to employees, and the Internet services used by employees and any methods the agency uses to restrict and monitors use.

### **4. Acquiring Services via the Internet**

Explains whether the agency currently advertises for services on the Internet and describes the services that are advertised.

### **5. Costs and Benefits**

Describes the costs of hardware, software, connections, staff time, training, etc. needed to establish and maintain the agency’s Web site, connect Internet users, provide security, and train employees and others on connecting and using the Internet.

### **6. Future Plans and Directions**

Discusses the agency’s plans to enhance its Web site offerings to the public, connect additional users, and possibly conduct electronic commerce over the Internet.

### **Agency Attachment A**

Example pages from the agency Web site. Many of the pages selected for inclusion in the attachment are introductory, index, or table of content pages that contain links to many of the information and services on the Web site. These pages were selected to demonstrate the variety of information being offered to the public via the agency’s Web site.

The following is an abbreviated table of contents for Chapter II.

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## **A. Montgomery College**

Montgomery College (MC) is Maryland's oldest and largest community college and employees 1,200 full-time and 700 part-time employees. The College is chartered by the State of Maryland and is governed by a nine-member Board of Trustees. Campuses are located in Takoma Park, Rockville, and Germantown, and are complemented by Continuing Education offering courses at off-campus sites to serve residents throughout Montgomery County. MC is widely recognized for the quality and scope of its academic programs in liberal arts, sciences, business, and technologies. The College offers day, evening, and weekend courses to meet the diverse needs of the student body.

Over 20,000 students from around the world who attend classes at three campuses each semester, and more than 16,000 people of all ages, educational backgrounds, and interests participate in approximately 1,500 continuing education courses offered annually by the College.

### **1. Establishing an Internet Presence**

In the early 1980's, Montgomery College provided access to the Internet through the BITNET system for faculty and students. The service was mainly used for electronic mail between educational and research institutions, and as a means for students to interact more often with faculty. In 1993, MC contracted with an Internet service provider and began using a graphical interface Web browser. During this time, College personnel were receiving numerous requests from the public for information via the Web.

In 1995 the College established its presence on the WWW in response to public demand and the Governor's request that all state agencies have a Web presence. The Office of Institutional Advancement posted on the MC Web page some of the College information that is currently available to the public in print format. This information is static at this time.

#### **(a) Servers and Networks**

The Montgomery College administrative Network (MCNet) is the internal College-wide network that connects about 1,000 computers located at three campuses and the administrative offices. One of the functions of MCNet is providing access to the Internet. This access is achieved through a router to the College's Internet service provider, BBN Planet. However, the MC home page is posted on another service provider, Clarknet. The College also has a SMTP Mail server to route e-mail messages between the MCNet and the Internet.

#### **(b) Security**

The College maintains physical security over all network server hardware and routers, and periodically reviews the disaster recovery procedures. MC is in the process of acquiring hardware and software to establish a firewall because Internet services that the College will need to provide in the near future, will require additional security protection (see the section on future plans and directions).

Security over the Internet servers is provided by the service providers, BBN Planet and Clarknet. Access on the MCNet is secured through the required use of multiple logins and individual passwords.

Virus protection is installed on all College computers and kept current through periodic updates.

## **2. Providing Information to the Public**

The Office of Institutional Advancement is responsible for maintaining the College's Web site. To date, the College's policy has been to provide information in electronic format that is currently available in printed format.

### **(a) Determining What Information to Provide**

The MC Web page is essentially a one-way communication medium and the official College pages only include material already available in print. The content is centrally controlled by the Office of Institutional Advancement.

### **(b) Creating and Maintaining Pages**

The current MC Web pages are simple and functional. While they deliver basic information, they are essentially static. That is, they do not change from day to day (apart from occasional changes in the calendar listing), and they do not provide any means of interaction with our audience. For example, people cannot e-mail the College for more information, and they cannot apply or register for classes through the Internet. The equivalent of approximately 0.25 workyear is currently responsible for adding information and maintaining the College's Web pages.

College administrators have received many requests to place information on the Web site. In response, the Offices of Institutional Advancement and Information Technology are collaborating on how best to move forward and what policies will need to be developed for dealing with these requests and approving additional pages for the College Web site.

### **(c) Interacting with the Public**

There is no interaction with the public via the Web site at this time.

## **3. Providing Access to Employees and Others**

Currently MC provides access only to faculty and some staff, which is consistent throughout the higher education community. The College is working on developing more extensive policies and procedures, which will be comparable to practices at other County agencies and at other higher educational institutions. As part of this effort, MC is reviewing the policies of MCPS and other County agencies, the University of Maryland, and various community colleges throughout the State. Policies and procedures that are appropriate to the MC environment will be adopted.

**(a) Determining Need for Access**

Netscape is a feature that goes on each workstation connected to the College's internal computer network, MCNet. All faculty are or will be connected to the network, which will give them access to the Internet as well. Staff that need to be connected to the College's network will also have Internet access as part of the package.

**(b) Local and Dial-up Connections**

All connections to the Internet are accessed through the College's wide area network. MC does not provide for any dial-up connections.

**(c) Use of the Internet by Employees and Others**

**(1) E-mail**

E-mail is available to each workstation connected to the College's internal administrative network (MCNet). This includes a connection to the Internet. A gateway SMTP mail server passes e-mail messages between the internal MCNet and the external Internet service provider. The College supports approximately 1,000 e-mail accounts, that are used by faculty and staff to communicate with peers, vendors, professional organizations, and others.

**(2) Researching Issues**

Several of the College's offices and departments use the Internet for research purposes. Examples include:

- The legal office uses the Internet to review current legislation and research court decisions.
- The President's office gathers current local news from the Internet.
- The Procurement office uses Internet access to acquire vendor information and communicate with professional associations.
- Various faculty conduct research to support classroom instruction and professional development and to communicate with colleagues.

**(3) Downloading Files**

The College has a strict policy that any PC connected to the network include a copy of the latest anti-virus software. All users are periodically notified by the software to request an update from the system administrator.

With the introduction of the Web, there is a variety of ways to obtain information from the Internet. Information that was previously available at FTP sites can either be printed locally or saved directly to disk. Also, the Web has made it easier to download files increasing download activity.

Indeed, many software and hardware vendors are only offering fixes (corrections to unanticipated software problems), updates to applications and drivers, and new releases available this way.

**(4) Other Uses (newsgroups, telnet, listservs)**

College faculty and staff who have Internet capability can telnet to other systems on the Internet. External users are not offered access to systems via telnet to the College. Faculty and staff make extensive use of listservs but do not have access to newsgroups at this time.

The College libraries provide stand-alone computers that can dial-up to Sailor, the Maryland State Library Internet service.

**(d) Restricting and Monitoring Use**

The College views Internet access as another resource provided to assist employees do their jobs effectively. Like other resources provided by MC, use is restricted to College business. Restricting or monitoring individual use is determined through the normal management process.

Bandwidth utilization is monitored by the Internet service provider, and copies of the utilization reports are forwarded to and reviewed by MC staff. The College manages the bandwidth utilization to ensure reasonable throughput and system response.

**(e) Training**

MC includes training for faculty and staff on Microsoft Mail and Netscape as a component of the orientation given for the standard office applications loaded on the individual computers. To supplement this introductory training, the College periodically offers Internet workshops and demonstrations. During the Fall 1996 semester, the College offered 13 Internet classes to faculty and staff in conjunction with the Center for Teaching and Learning.

**4. Acquiring Services via the Internet**

The College does not acquire any services via the Internet at this time.

**5. Costs and Benefits**

This section describes the College's costs for servers, hardware upgrades, and other equipment that had to be acquired specifically for establishing an Internet presence; and any other special software for connecting, managing the site, connecting and monitoring use, and providing security for the Web site.

Estimated costs for establishing and maintaining the MC Internet site are summarized in the table below.

<u>Item</u>	<u>Estimated Cost</u>
Cisco router	\$ 25,000
Domain Name Server (DNS)	7,000
SMTP mail server	4,000
Firewall (MC is acquiring)	106,000
Software (Netscape, Front Page, etc)	
Less than \$200	-0-
Total initial costs	<u>\$ 142,000</u>
Estimated 30% for on-going costs	\$ 43,000
Annual leaseline to service provider	40,000
Estimated annual cost for training	3,000
Annual home page and account cost	1,000
Estimated 3.25 to 5.25 workyear for staff	260,000 to 420,000
Total on-going costs	<u>\$ 347,000 to 507,000</u>

**(a) Servers and Software**

The combination of hardware and software Montgomery College chose to best meet the current requirements for Internet access is a typical configuration of purchased equipment and software with some functions being provided via contract agreement.

**(b) Establishing and Maintaining Pages**

A faculty volunteer worked with staff in the Office of Institutional Advancement to design and develop the initial Web pages. FrontPage software was acquired for the public relations staff to develop the MC Web site. The equivalent of about 0.25 workyear is expended by the staff to maintain the pages.

These resources indicate a minimum cost for providing a college presence on the Internet.

**(c) Connecting Employees and Other Users**

There is no additional cost per initial connection because all faculty and most staff will be connected to MCNet. However, there is additional cost as people utilize the Internet, which increases bandwidth needed for MCNet and the Internet connection.

Some of the benefits of faculty and staff being connected to the Internet include:

- the ability of faculty to directly communicate and collaborate with colleagues at other institutions;
- the ability for students who have Internet access to communicate with instructors via e-mail;
- the environment specialist can share information in a timely manner on the appropriate disposal of hazardous wastes which can benefit MC as well as other institutions faced with the same concerns;
- extensive research capabilities for faculty and staff through use of the Web browser and the ability to obtain the most recent data;
- faculty and staff can pull information and software updates when needed, as opposed to requesting and waiting for delivery;
- opportunities for professional training and development via e-mail and the WWW; and
- using listservs to exchange information regarding department's areas of expertise.

**(d) Access Security and Restricting/Monitoring Use**

At this time, there is very little cost to the College for access security and monitoring of use. The College controls the use of the Internet predominantly through supervisory responsibility, just as MC controls other resources given to employees to do their jobs. Only the bandwidth is actively monitored, since excess use can tie up the resources and prevent access or severely slow down the system response. Anti-virus software was acquired to protect all MCNet applications from malicious destruction.

**(e) Training**

In-house orientation is provided to faculty and staff for the standard College software, which is Microsoft Office. The training covers all the MS Office applications, including the mail facility and the Internet browser application. Faculty and staff are also encouraged to use the built-in tutorials that accompany the various software programs, including the tutorial for the Web browser.

Workshops on Internet use are also provided at costs of approximately \$100 for each one-hour class and \$125 for a two-hour class by in-house faculty and personnel. This is extremely cost effective for classes of 20 faculty and staff. This cost equates to about \$5.00 to \$6.00 per person. Vendors that provide comparable training cannot offer classes at the same prices. The College expects to continue to offer about 26 of these workshops each year, for an annual cost of about \$3,000.

## **6. Future Plans and Directions**

MC must meet and exceed the use of technology in MCPS and provide a bridge for students attending state or university systems. MC must also meet the needs of the business community we support through training efforts. But each of these scenarios incurs an investment. More investment in personnel, hardware, software, support, and training yields the interactive presence on the Internet that is being required for MC to stay competitive in the business of education and training. Some level of investment is required just to make an appearance; making a difference will require a commitment towards the future. Regardless of the path taken, the Internet and telecommunications technology are changing forever the way we do business in our modern world.

### **(a) Providing Information and Interacting with the Public**

Near future plans include posting the summer 1997 class schedule on MC's home page to attract four-year College students home with their families in Montgomery County for the summer. These students would be interested in taking classes at MC for the summer and transferring credits back to their four-year schools.

The next level of capability would allow a prospective student not only to look up a class, but also to register for the class. This access should be possible from a home or office computer with a modem or faster communications device or from computers made available in libraries or on campus for this purpose. Some future capabilities for students and others may include:

- Students would view up-to-the-minute schedules for any of the campuses, find out if the class is available, register and pay for the class, and confirm their seat.
- Students could apply for financial aid, check on grades and graduation status, or get advice from counselors on-line about curriculum options and financial assistance.
- Companies could learn about and sign up for noncredit, continuing education courses for their staff, saving hours of employees' time.
- Information on room assignments, instructors, College events, and other day-to-day information could be made instantly available to students and others in the community.
- College reports and data can be provided to requesting county and state offices.

### **(b) Access and Use by Employees and Others**

Montgomery College plans to connect eight classrooms, three training centers for faculty and staff, and place 11 workstations in libraries at the various campuses to provide Internet access for student development resources and for researching transfer colleges.

**(c) Acquiring Products and Services via the Internet**

MC does not currently acquire products and services via the Internet, but management is interested in exploring the possibilities.

**(1) Procurements via the Internet**

When the technology becomes available for a secure method of procurement via the Internet, Montgomery College will consider this possibility.

**(2) Ordering Products via the Internet**

When the technology becomes available for a secure method of ordering products via the Internet, Montgomery College will consider this possibility.

**(3) Other**

— — — Montgomery College is considering the use of an Intranet to provide — information to employees and faculty through their browsers. An Intranet can be used to disseminate information and post other kinds of materials that are currently printed and distributed. Some postings might include: the College's various policies and procedures, employee benefits manuals, and other similar kinds of materials that are currently printed and distributed.

**(d) Providing Services via the Internet**

Although the College does not currently provide services via the Internet, management is interested in investigating the possibilities.

**(1) Registrations for Classes and Recreational Activities**

Admissions and registration to the College and application for financial aid could be done via the Internet. Many colleges and universities have already begun to offer this benefit to students.

**(2) Teaching Over the Internet**

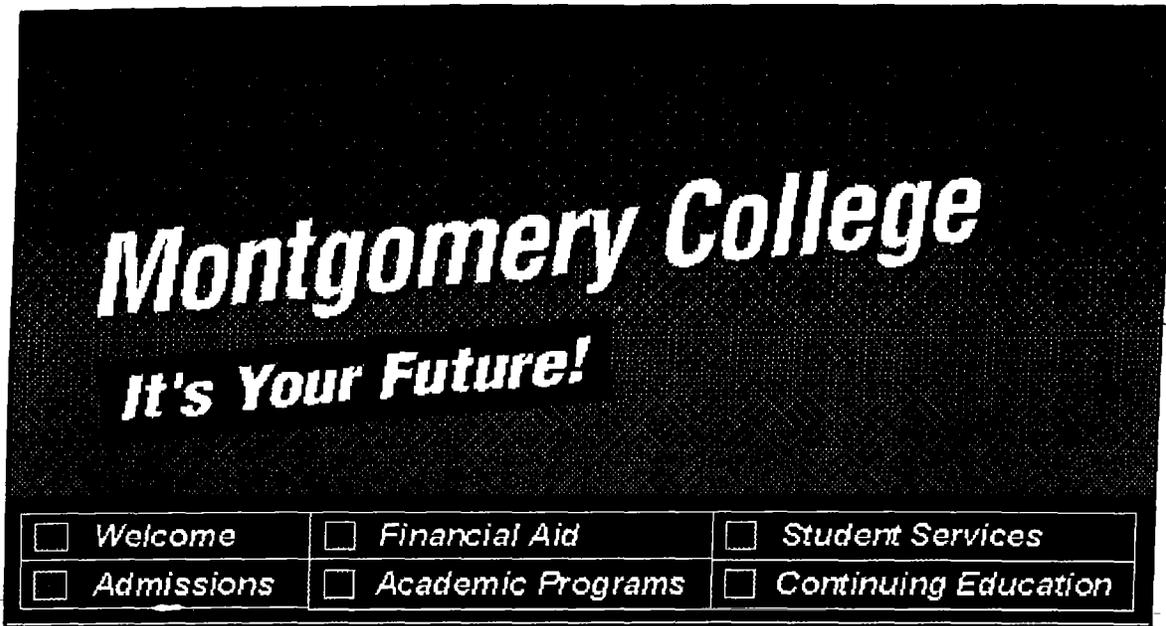
Many faculty are interested in teaching courses over the Internet. Ultimately, the Internet can improve quality and access to education by providing the means to deliver courses to students 24 hours a day anywhere they need to be. With some training and planning, faculty could deliver interactive seminars, provide lessons and test materials, and chat with students in on-line classrooms. Students with disabilities could attend classes from home, working students could attend classes during their lunch breaks from their desktop computers, and mothers with small children could get a degree without ever leaving the house.

Teaching over the Internet may become a necessity for MC to maintain a competitive advantage with businesses and special adult populations. Several colleges and universities in the United States are already offering classes via the Internet.

**(3) Security Issues**

If MC is to expand its internet presence and provide for interactivity with potential students, enhanced security measures must be implemented to protect the College's data assets. MC has issued a request for proposals to acquire hardware and software to implement a firewall to meet future security needs as the College moves forward in using the Internet to interact with students and the public to accomplish College business.

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**Montgomery College**  
***It's Your Future!***

- Welcome
- Admissions
- Financial Aid
- Academic Programs
- Student Services
- Continuing Education
- Directions to MC Campus Locations
- 50th Anniversary Calendar of Events
- Important Dates

*What's New!*

High Technology and Science Center Opens

Produced by the Montgomery College Office of Institutional Advancement, 2/10/97

**Montgomery College 50th Anniversary Celebration**

**February**

**Black History Month.** Additional events and guest lecturers to be scheduled throughout the month.

**1-28 -- The Coors' Heritage Collection, Photo Exhibit** (Black History Month Event), 220 Campus Center, 8:30 a.m.-5 p.m. Contact: Continuing Education, 251-7188

# Montgomery College

## It's Your Future!

[Home Page](#)

## Montgomery College

### Welcome

**W**elcome to Montgomery College, Maryland's largest community college. For 50 years, Montgomery College has helped serve the educational needs of nearly half a million students from diverse backgrounds. At Montgomery College you can earn a degree or certificate, prepare for transfer to a four-year school, complete an apprenticeship, or retrain for a new career. To ensure your success, Montgomery College offers an excellent teaching and learning environment, comprehensive academic advising, career and personal counseling, financial aid services, and child care at each campus location.



- [MC Celebrates 50 Years](#)
- [Accreditation](#)
- [Just the Facts](#)
- [How to Get There](#)
- [How to Get Involved at MC](#)



### MC Celebrates 50 Years

During the 1996-97 academic year, Montgomery College will celebrate a very important anniversary--its 50th year. Over the past half century, the College and its faculty, staff, and students have made an enormous contribution to the well being of the community. Through the accomplishments of students and graduates, Montgomery College has established itself as a vital part of Montgomery County's cherished culture and quality of life.

Montgomery College has enjoyed 50 years of service since its humble beginning: opening in borrowed classroom space and serving a student body of 186 men and women. To celebrate, Montgomery College's faculty, staff, and students invite the citizens of Montgomery County to join with us to recognize those who have provided leadership in the past--and those who will lead us into the 21st century.

**For general information about Montgomery College, call (301) 279-5000.**

If you would like to be a part of Montgomery College's 50th anniversary celebration, please call or write to the Office of Institutional Advancement, Montgomery College, Suite 140, Mannakee Building, 900 Hungerford Drive, Rockville, MD 20850, (301) 251-7490.

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## **Accreditation**

Since 1950, Montgomery College has been accredited by the Commission on Higher Education, Middle States Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA, 19104-2680, (215) 662-5606. Individual MC programs are accredited by associated professional organizations.

## **Degrees**

The Maryland State Department of Education has authorized the College to confer the associate of arts, associate of science, and associate of applied science degrees upon its graduates. The College awards a diploma to individuals who satisfactorily complete their requirements for an associate's degree.

## **Certificates**

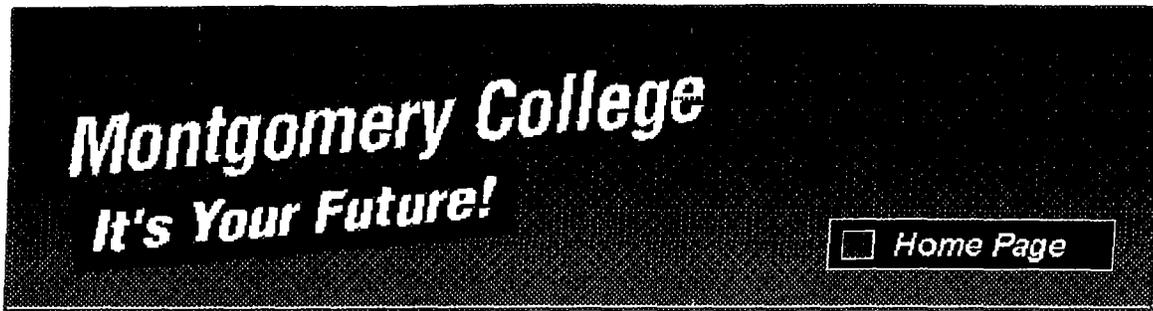
The College awards a certificate or letter of recognition to individuals who satisfactorily complete their requirements for other types of studies in the following ways:

- a certificate for a program of study representing a planned sequence of learning experiences that consists of at least 12 semester hours of college-level work (more credit hours may be required);
  - a certificate or letter of recognition for completion of selected noncredit courses; or
  - a letter of recognition for completion of less than 12 hours of credit courses in a specialized field of study.
- 

## **Just the Facts**

Community college graduates can earn as much as \$5,000 more per year than those with a high school diploma, according to U.S. Census Bureau statistics and other studies. And they'll save money by getting the degree at Montgomery College. In addition to reasonable tuition, MC offers a wide variety of grants, scholarships, and other financial aid to help make an education affordable. The College's continuing education courses are also competitively priced.

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## Montgomery College

### Student Services

College, of course, isn't just classes--outside activities are an important part of the whole experience, too. At MC, there's always a lot going on--movies, plays, festivals, art exhibits, brown bag lunch discussions, symposia. You can become involved with student publications, radio stations, and government. Or you can pursue a special interest through one of the more than 40 campus clubs and organizations. At MC, athletics are considered an integral part of a student's education. We have rigorous programs open to all full-time students interested in competing in football, soccer, basketball, tennis, baseball, cross-country, golf, lacrosse, volleyball and track. MC provides an array of services to help students reach their educational goals, including counseling and advising, child care, learning labs, disability support services, and career/transfer centers where students can get guidance on how to reenter the job market, pick appropriate courses, and assess their abilities. For more information on services for students, please call the Office of Student Activities on any campus.

- Germantown (301) 353-7841
- Rockville (301) 279-5092
- Takoma Park (301) 650-1486

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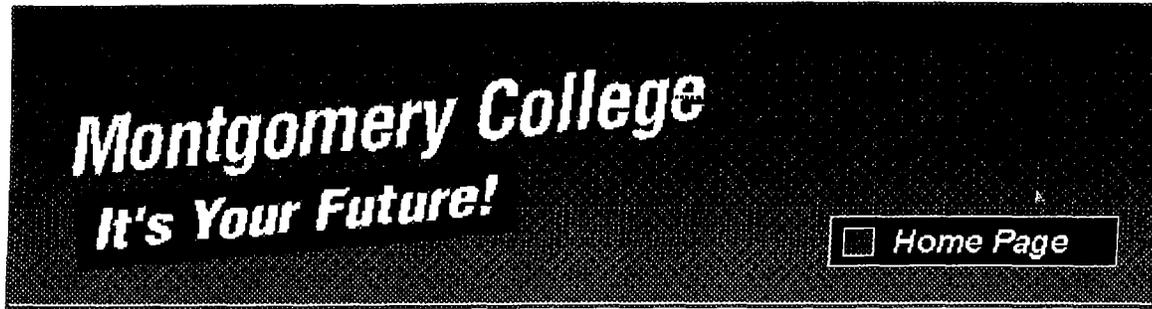
### Please select from the following...

- Athletics and Intramural Sports
- Bookstores
- Career/Transfer Centers
- Child Care Centers
- Counseling and Advising
- Cooperative Education
- Disability Support Services
- Learning Labs
- Libraries
- Student Activities
- Veteran Affairs

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### Athletics and Intramural Sports

Intercollegiate athletics for men and women are a part of the total offering of the College. The College belongs to



## Montgomery College

### Continuing Education

The Continuing Education program at Montgomery College provides a wide range of noncredit and credit, quality educational offerings and services through a planned, diversified program which includes forums, lectures, exhibits, short courses, and activities for county businesses and residents.

Continuing Education courses in bookkeeping, technical trades, computers, management, and small business are designed to meet the needs of the county's industries, businesses, professionals, and individuals. Many of these courses are offered contractually to business and industry either at one of the College's convenient locations or at the business site.

To receive a Montgomery College Noncredit Schedule of Classes, please call (301) 279-5188.

- Business Development
- Alternative Delivery

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### Business Development

As an educational resource center, Continuing Education also provides tailor-made training and organizational education for public, private, civic, and governmental groups. These services include:

- on-site training
- contractual services
- corporate training
- apprenticeship/technical training
- small business training
- professional certification

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### Alternative Delivery

As an integral part of its total program, the College offers courses at times and in formats that meet the needs of a diverse student population. The following are nontraditional learning programs offered for students:

#### E-Mail/Computer Conferencing Courses

The College offers a varied selection of courses taught entirely through an electronic mail (e-mail)/bulletin board system. Instruction and discussion occur through computer conferencing. Assignments are sent electronically through the system. The College can lend both modems and telecommunications software to students who are first-time users. For more information on E-Mail/Computer Conferencing Courses, please call the Office of Extended Learning Services at (301) 279-5254.

### **Telecourses**

Telecourses are a convenient and practical alternative to on-campus courses. Each semester local PBS and cable television channels broadcast televised lectures. Courses include campus seminars as well as campus-monitored examinations. Videos can also be viewed on campus. Students are also encouraged to use the new e-mail system to interact with course instructors and other students. For more information on Telecourses, please call the Distance Learning Programs office at (301) 587-9216.

### **Two-Way Interactive Instruction**

Selected courses are conducted live at each campus simultaneously through two-way audio/video interactive connections. Students register and attend at the campus which is most convenient for them while the instructor rotates among the sites. For more information on Two-Way Interactive Instruction, please call the Office of Extended Learning Services at (301) 279-5254.

### **Off-Campus Courses**

Credit courses are offered at conveniently located government and company sites near major thoroughfares. These courses are frequently taken by area residents and are supported by all three Montgomery College campuses. For more information on Off-Campus Courses, please call the Office of Extended Learning Services at (301) 279-5254.

### **On-Site Training/Employer-sponsored Programs**

Numerous public agencies and private companies have arranged for college courses to be provided to their employees on-site either during or after normal working hours. These courses are typically job-related and are normally paid for by the employer. Fairchild, David Taylor Research Center, and the National Institutes of Health have sponsored MC programs. For more information on On-site Training/Employer-sponsored Programs, please call the Office of Extended Learning Services at (301) 279-5254.

## **B. Montgomery County Public Schools**

The Montgomery County Public School (MCPS) system employs 14,704 staff and utilizes 51,500 volunteers to manage and operate 181 schools to provide educational opportunities for nearly 124,000 students. As part of these educational opportunities, MCPS furnishes computer equipment, computer services, and network access to students and teachers. These services are provided to improve learning and teaching through research, teacher training, administrative support, collaboration, dissemination, and use of materials and resources. Implementation of the MCPS educational technology policy supports the Success for Every Student plan.

### **1. Establishing an Internet Presence**

The MCPS site on the World Wide Web includes offerings from more than 40 departments and curriculum areas and over 100 schools that are currently publishing electronic pages for the world to read. The MCPS Web site at <http://www.mcps.k12.md.us> gets up to 10,000 visits a day, with about half from computers outside the school system in at least ten different countries.

How the task was approached to establish the MCPS Internet presence.

- MCPS staff worked with National Institutes of Health on technical details of configuring network hardware and software between MCPS and Internet.
- MCPS worked with consultants to determine specifications for servers, ordered servers, and configured them.
- MCPS worked with staff and community members to develop network policies and determine scope and direction for the Web site.
- MCPS worked with students, staff, and parents to develop content for the agency's Web pages. This cooperation is an ongoing effort.

#### **(a) Servers and Networks**

MCPS has four multi-purpose servers that are used primarily to support Web services, one domain name server (DNS), and one mail server to provide a gateway for Internet e-mail.

Over 180 schools and administrative offices are connected via a frame relay based wide area network (WAN). In Global Access schools, any computer on the building-wide local area network (LAN) has Internet access. Access at non-Global Access schools is primarily gained from Research and Learning Hubs.

#### **(b) Security**

MCPS has installed a firewall to protect servers from intruders while allowing access to Internet services from within MCPS. In addition, strict password and privilege group access security measures have been implemented to allow the Webmaster to maintain Web pages, yet discourage unauthorized access to the servers.

## **2. Providing Information to the Public**

The MCPS policy is that the establishment of a Web page on the Internet must have an educational purpose. An educational purpose is defined as one which is related to an MCPS assignment, project, job, or function for which the user is responsible.

### **(a) Determining What Information to Provide**

Guidelines for establishing an MCPS Web page are published on-line and include discussion of appropriate versus inappropriate content. Central office departments and schools generally publish pages to assist students, teachers, and parents by providing information of interest and curriculum support. Examples of information of interest include: schools directories, school lunch menus, and aggregate test scores. Examples of curriculum support include: curriculum Web sites, links to curriculum guides on-line, a social studies Field Trip database, and an athletic events database.

Any MCPS department or curriculum office may request space for public information pages. Department and curriculum office supervisors approve the pages that are posted.

Every County school can request Web server space to develop and publish pages that will communicate school information to staff, students, and the community; recognize and display student work; and provide information and Internet links for instructional projects. Principals are ultimately responsible for school publications, and schools have taken a variety of approaches to ensure that the school's Web pages are appropriate. Typically the principal or designee reviews pages before they are posted. (Examples of pages from the MCPS site can be found at MCPS Attachment A.)

### **(b) Creating and Maintaining Pages**

MCPS creates accounts for one or two staff members at each school (at the principal's request) who are able to post, delete, and modify pages for the school. The agency provides on-line information about establishing Web areas and putting pages on the Internet as guidance for page content and style. In addition, MCPS provides extensive initial training and follow-up workshops for staff, students, and parents responsible for school and department Web sites. The training includes hyper-text markup language (HTML) worksessions where users can work on pages with some technical support. Further individual support is provided on the MCPS Web site through links to on-line guides to HTML coding and tutorials on implementing advanced features on the Web.

### **(c) Interacting with the Public**

MCPS encourages Webmasters to post e-mail addresses on all Web pages to encourage communication. The agency also uses Web-based forms to collect data. Searchable databases are also provided for public information (i. e., athletic database, stream studies, and early childhood software database).

### **3. Providing Access to Employees and Others**

Over 11,000 employees and students have FirstClass accounts that provides them with Internet e-mail, as well as internal mail and conferencing services. Teachers and students have Internet access at Global Access schools and Research and Learning Hubs at more than 150 schools (all schools will be connected to the wide area network by year-end). MCPS provides student access to support the "Success for Every Student Plan."

#### **(a) Determining Need for Access**

Internet access is an integral part of current instructional strategies in the classroom and teachers are granted access to Internet applications if they sign the "Staff Request for Access to Networks" form.

Students may get Internet e-mail access for use in instructional projects based on teacher requests and parent notification. Supervised Internet access is also granted to students for working on instructional activities that require Internet access. Unsupervised access is available to students who complete the "Student Request for Access to Networks" form which needs to be signed by a parent/guardian. Access is then granted based on privileges assigned to their network login.

#### **(b) Local and Dial-up Connections**

Every computer that is connected to the wide area network has Internet access. There is currently no dial-up Internet access except for access to the MCPS mail system which has an Internet gateway for e-mail messages. Classroom teachers can acquire free Internet dial-up accounts through the University of Maryland.

#### **(c) Use of the Internet by Employees and Others**

Once users (staff and students) fill out the appropriate forms, access to Internet applications is granted based on their login privileges. Connections are made using the MCPS wide area network.

As mentioned previously, all employees connected to the wide area network have Internet access; however access at non-Global Access schools is limited to a small number of workstations in the Research and Learning Hubs.

#### **(1) E-mail**

MCPS is currently using e-mail and conferencing software called FirstClass from Soft Arc Inc. This package supports 250 simultaneous users per server who can connect either through dial-up sessions or network connections via the MCPS wide area network or the Internet. Messages to and from the Internet are sent to the Nastagate Internet gateway which manages communications between FirstClass and the Internet.

## **(2) Researching Issues**

Teachers, students and MCPS staff are taking advantage of free research opportunities available on the Internet. In addition, schools have discretion to purchase fee-based research services based on demonstrated need. Acquiring these services is subject to the MCPS instructional materials approval process and is dependent on network compatibility and the availability of funds in the schools' allocated media budgets.

## **(3) Downloading Files**

MCPS allows files to be downloaded from the Internet. Virus protection is installed on all workstations to protect local disks and networks.

## **(4) Other Uses (newsgroups, telnet, listservs)**

Newsgroups: MCPS does not currently get a newsgroup feed; but is planning on getting a limited feed of educationally appropriate newsgroups in the near future.

A telnet client is installed on all MCPS Internet-ready computers and it is configured to be launched either as a stand-alone application or from within the Netscape browser application.

A limited selection of educationally related listservs are available in public conferences on FirstClass, the MCPS e-mail and conferencing system.

## **(d) Restricting and Monitoring Use**

MCPS has a number of safeguards to restrict unauthorized use. The agency currently restricts all mail traffic using Netscape to discourage unauthenticated mail. Students can get an MCPS Internet e-mail account only by teacher request and with parent permission. FTP file transfers from non-MCPS computers to MCPS servers are blocked by the firewall. In addition, the MCPS network servers have elaborate software schemes to authenticate user and group privileges. The software automatically denies any user requests for access that fail the authentication criteria.

Public postings to the FirstClass e-mail and conferencing system are monitored to make sure they conform to MCPS guidelines. Postings must be "for educational purposes." Access to the Web servers is monitored with the assistance of software that generates logs that are reviewed for unusual activity.

## **(e) Training**

All schools have training funds to support School Improvement Plans that can be used to hire technology trainers, bring in consultants, or send staff to workshops and conferences. Global Access schools have extensive training based on client needs. A technology instructional specialist is assigned to the school one day per week to provide training.

There is some system-wide technology training that covers the use of FirstClass (including Internet e-mail) and the use of Netscape as an instructional tool. There has also been some curriculum specific Internet training offered by Social Studies, Foreign Language, and Science departments at the Carver Educational Service Center.

Media Specialists have an active user group that has included discussions of Internet topics, and some schools have taken advantage of local computer user groups (CPCUG and WAP) for training and support. Many schools have also benefited from training provided by parents and local businesses.

#### **4. Acquiring Services via the Internet**

MCPS does not directly acquire services via the Internet. Employment opportunities are posted and requests for proposals are posted for informational purposes, but applications are not currently accepted via electronic media.

##### **(a) Employment Opportunities**

An electronic version of the MCPS employee newsletter, *The Bulletin*, that includes job announcements is currently published on the MCPS Web.

##### **(b) Requests for Proposals**

Requests for proposals are posted in the Materials Management area on the MCPS Web. Interested vendors can obtain detailed information on the specifics of the services being sought and print copies locally.

#### **5. Costs and Benefits**

This section includes the MCPS costs for servers, hardware upgrades, and other equipment that had to be acquired specifically for establishing an Internet presence; and any special centralized software for connecting, managing the site, monitoring employee use, and providing security.

##### **(a) Servers and Software**

The costs for servers acquired by MCPS to connect to and establish an Internet presence were as follows.

DEC Alpha Servers (3)	\$ 55,743
DEC Alpha Upgrades	26,108
NT Servers (2)	40,000
Mac Web Server	9,500

**TOTAL INITIAL COST      \$ 131,351**

The servers initially came with software for various Internet services. MCPS has since changed software in some cases but has been able to install free versions of all server and client software.

Benefits and economies resulting from MCPS efforts.

- In addition to providing space for Web pages, MCPS needed most of these machines to support other Internet services (e.g., the e-mail gateway, DNS, proxy servers, etc.).
- These acquisitions provided MCPS with the capability to configure services offered (e.g., tailoring mail services offered to students, teachers, and staff).
- The hardware ensures adequate security for data and network services.
- MCPS installed free browsersoftware on the servers.

**(b) Establishing and Maintaining Pages**

The costs for software and MCPS staff time to design and maintain the Web pages are shown in the table below.

<u>Position/Class</u>	<u>Positions</u>	<u>Annual Salary</u>	<u>Annual Fringe</u>	<u>Total Annually</u>	<u>Staff Expense</u>
Tech. Instructional Specialist	0.5	\$ 47,995	\$ 9,599	\$ 57,594	\$ 28,797
Tech. Support Specialist	0.2	\$ 52,520	\$ 21,008	\$ 73,528	\$ 14,706
Student Part Time	1.0	\$ 1,824		\$ 1,824	\$ 1,824
Summer Students	2.5	\$ 3,648		\$ 3,648	\$ 9,120
<b>TOTAL STAFF EXPENSES</b>					<b>\$ 54,447</b>

NOTE: MCPS estimates approximately 10 percent as initial cost with 90 percent needed yearly.

Most people creating MCPS Web pages are using free text editors. Some schools have chosen to purchase a few copies of dedicated HTML Editors for Web page design. The most popular program of this type that is being purchased is Claris Home Page, which is approximately \$30 to license each workstation.

Benefits and economies resulting from MCPS efforts include:

- The ongoing staff costs listed above are primarily for providing maintenance of services on all Internet servers and not exclusively for maintaining Web pages. MCPS probably saves some money by doing the Web page creation in-house instead of hiring outside experts. Staff spends more time gathering the information than in creating glitzy Web designs.
- Content can be regularly updated by hundreds of Webmasters throughout the County.
- Information can be timely and meet the needs of clients.
- Web links are appropriate to the curriculum and provide useful guidance to students and teachers.

- Most pages are created by teachers and students who get no additional monetary compensations for creating pages, and many of the pages relate to curriculum.

**(c) Connecting Employees and Other Users**

MCPS incurred very little cost for lines, modems, software, and installation to connect employees and students to the Internet, for the following reasons:

- MCPS was in the process of installing its frame relay wide area network for connectivity to the mainframe and other servers when the Global Access project began. It is an added bonus (with no extra cost) that this network can also handle Internet traffic. MCPS expects to have all schools connected to this network before the end of the 1996-1997 school year.
- MCPS Internet connectivity relies on having computers connected to the Internet via a network connection and does not purchase modems for Internet access.
- MCPS uses free software for Internet access on workstations that is either in the public domain or available at no cost to educational institutions.
- Installation of Internet software typically takes place when Global Access school computers and Research and Learning Hub computers are initially configured or general upgrades take place. The process involves creating a master drive with thousands of files configured to allow access to a wide variety of software in a secure environment. There are usually 10 to 15 Internet applications that are installed at this time.
- Internet software is installed by "cloning" the hard drives of workstations from the master drive. There is no additional cost to putting Internet applications on the master drive. It takes about a week of a technology instructional specialist's time to select and configure the Internet specific applications for the master drive at a cost of about \$1,100.

Benefits and economies resulting from MCPS efforts include:

- MCPS software choices have put workstation costs for Internet software at \$0.
- MCPS has obtained approximately 10,000 free Internet addresses. While this requires configuration of workstations with unique TCP/IP numbers, it allows many workstations to get access at minimal cost.
- The use of WAN network connections saves the cost of individual phone lines and modems for workstations.

**(d) Access Security and Restricting/Monitoring Use**

The costs listed below include staff time spent configuring and monitoring the firewall, TCP/IP connectivity on the wide area network, and maintaining accounts on Internet servers.

<b>Position/Class</b>	<b>Positions</b>	<b>Annual Salary</b>	<b>Annual Fringe</b>	<b>Total Annually</b>	<b>Staff Expense</b>
Tech. Support Specialist	0.70	\$ 52,520	\$ 21,008	\$ 73,528	\$ 51,470
Senior WAN Engineer	0.10	\$ 55,057	\$ 22,022	\$ 77,079	\$ 5,506
Tech. Instructional Specialist	0.25	\$ 47,995	\$ 9,599	\$ 57,594	\$ 14,398
<b>TOTAL STAFF EXPENSES</b>					<b>\$ 71,374</b>

NOTE: MCPS estimates approximately 10 percent as initial cost with 90 percent needed yearly.

Benefits and economies resulting from MCPS efforts include:

- MCPS is able to maintain a large complex network with tight monitoring controls to make sure assets are protected.
- MCPS can easily tweak the network and security to relax or tighten security as needed.
- The MCPS interoffice mail (pony) workload has been reduced in some measure due to the increased use of fax machines and electronic mail.

**(e) Training**

MCPS costs for 18 instructors to provide Internet training are as follows.

<b>Position/Class</b>	<b>Positions</b>	<b>Annual Salary</b>	<b>Annual Fringe</b>	<b>Total Annually</b>	<b>Staff Expense</b>
Tech. Instructional Specialists	2.94	\$ 47,995	\$ 9,599	\$ 57,594	\$ 169,326
<b>TOTAL STAFF EXPENSES</b>					<b>\$ 169,326</b>

NOTE: MCPS estimates approximately 10 percent as initial cost with 90 percent needed yearly.

The costs for teachers who have been trained are a little bit harder to quantify. The bulk of teacher training at Global Access schools takes place during planning periods by Technology Instructional Specialists with no additional expense beyond teacher salaries. The databases of substitute and stipend expenses for training that required additional expenses does not explicitly have "Internet" as a category. MCPS records show ten substitute days used at a cost of \$811.50, and \$1,250 used for stipends (however, there are probably some days used under more general headings and this does not include substitute and stipend expenses paid through school accounts).

## **6. Future Plans and Directions**

### **(a) Providing Information and Interacting with the Public**

In the future, MCPS would like to put all its policies on-line, add more school and department Web sites, increase the number of interactive databases, and work with ongoing advisory groups to receive advice on content and services expected by the public and other visitors to the Web site.

### **(b) Access and Use by Employees and Others**

MCPS will continue to add users and will need to provide increased access as more computers are added to the network. MCPS also anticipates a future need to develop an Intranet for internal use.

### **(c) Acquiring Products and Services via the Internet**

MCPS does not currently acquire any services via the Internet but expects to consider such options in the future. The agency would only consider these options if secure transactions can be guaranteed. As electronic commerce over the Internet continues to develop and vendors offer more products and services through the medium, the benefits of using the Internet should outweigh the costs.

### **(d) Providing Services via the Internet**

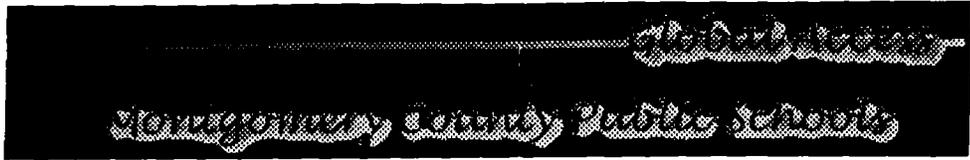
#### **(1) Registrations for Classes**

MCPS anticipates that the public will someday expect to be able to register and pay for adult education classes on-line. MCPS may someday consider such options based on a cost/benefit analysis but only if secure transactions can be guaranteed.

#### **(2) Teaching Over the Internet**

MCPS currently has a few classes where teachers deliver instructional material over the Internet, and anticipates additional similar projects in the future. In the near future, MCPS also expects to set up a low-cost video conferencing reflector for instructional use.

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What's New
MCPS Info
Curriculum
Departments
Schools
Other Resources
About MCPS Web
Help!
<b>1997-98 Course Bulletin GRADES 9-12</b>

### "Project Ice" Connects Wyngate ES Students with Teacher in Antarctica



Patricia Nuzum, a fourth grade teacher at Wyngate Elementary School in Bethesda, left for Antarctica on Sunday, February 9, to participate in the Antarctica Marathon, a 26.2-mile run in the harsh environment of the polar region, and to share her experiences with her students via the Internet.

During the past year, Nuzum and Mary Stripling, a special education teacher at Oak Hill Elementary School in Herndon, Virginia have designed a program dubbed "Intercontinental Education" or ICE that includes a variety of activities for teachers and students that relate to the topography, wildlife, weather and other aspects of Antarctica. The ICE Web Site on the World Wide Web will document their trip and provide key information for student activities.

Daily electronic mail messages between students and teachers will include longitude and latitude positions which students will pinpoint on a map; temperatures which students will compare, record and graph; other weather conditions; and marine life sightings. Images produced by a video camera and a digital camera will also be available on the World Wide Web. For the rest of the story...

The new MCPS Search Engine powered by Excite is up in beta form.

Use the MCPS Athletics - Sports Calendar Search for the schedules of athletic events.

RFIs and RFPs are available at the Materials Management web area or from these links to the Student Information System.

What's New updated on 1/2/97



## About the MCPS Web

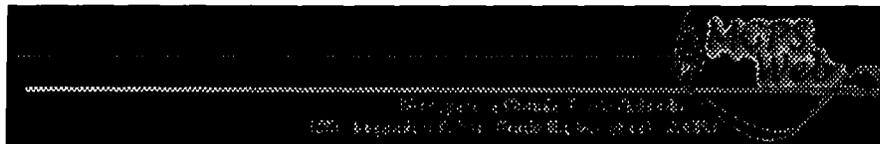
This Web site is part of Global Access, the Montgomery County Public Schools' educational technology plan to equip and electronically connect all classrooms, media centers, and offices so that students and staff can access information and communicate both locally and globally. This site is provided to improve learning and teaching through research, teacher training, collaboration, dissemination, and use of materials and research. Access to networks both inside and outside MCPS carries with it the responsibility for proper use of those resources and MCPS computing facilities.

Additional information on acceptable use can be found in the MCPS Network Access Rights and Responsibilities document. (Note: this document is a .pdf file and must be viewed with Acrobat Reader)

MCPS Web pages should conform to Guidelines for Establishing a Webpage on the Internet and MCPS Web - Establishing School Web Areas.

The MCPS web was designed by students and staff from MCPS. A more extensive list of credits is available.

If you have questions about something in the web pages, feel free to visit the Help Page.



*Last updated on August 15, 1996  
Maintained by David Kreisberg <davidk@umd5.umd.edu>*



## MONTGOMERY COUNTY PUBLIC SCHOOLS

### HIGH SCHOOLS

Bethesda-Chevy Chase HS [REDACTED]  
Montgomery Blair HS [REDACTED]  
Winston Churchill HS [REDACTED]  
Damascus HS  
Gaithersburg HS  
Walter Johnson HS  
John F. Kennedy HS  
Magruder HS [REDACTED]  
Paint Branch HS  
Richard Montgomery HS [REDACTED]  
Rockville HS  
Sherwood HS  
Springbrook HS [REDACTED]  
Wheaton HS  
Walt Whitman HS  
Wootton HS

### ALTERNATIVE SCHOOLS

RICA [REDACTED]

### MIDDLE SCHOOLS

Cabin John MS  
Roberto W. Clemente MS [REDACTED]  
Eastern MS [REDACTED]  
Forest Oak MS  
Robert Frost MS [REDACTED]  
Herbert Hoover MS [REDACTED]  
Lee MS  
Pyle MS  
Rocky Hill MS  
Sligo MS  
Julius West MS [REDACTED]

### ELEMENTARY SCHOOLS

Ashburton ES [REDACTED]  
Bannockburn ES  
Beall ES  
Belmont ES  
Bethesda ES [REDACTED]  
Beverly Farms ES  
Brookhaven ES  
Burning Tree ES [REDACTED]  
Chevy Chase ES  
Cresthaven ES  
Damascus ES  
Fairland ES [REDACTED]  
Falls Mead ES  
Forest Knolls ES  
Georgian Forest ES  
Jackson Road ES  
Jones Lane ES  
Ronald McNair ES  
Mill Creek Towne ES [REDACTED]  
Meadow Hall ES  
Oakland Terrace ES  
North Chevy Chase ES [REDACTED]  
Pinecrest ES  
Piney Branch ES  
Rock Creek Valley ES  
Rosemary Hills ES  
Rosemont ES  
South Lake ES  
Thurgood Marshall ES [REDACTED]  
Travilah ES  
Viers Mill ES  
Westover ES  
Westbrook ES [REDACTED]



*Last updated on January 5, 1997  
Maintained by David Kreisberg <davidk@umd5.umd.edu>*



## MCPS CURRICULUM

Each department of each school offers a variety of courses and instructional experiences, all Montgomery County Public Schools' courses achieve a certain set of instructional goals.

Internet resources to support the general MCPS curriculum can be accessed by clicking on the links below.

- |  |  |
|--|--|
| <input type="checkbox"/> <a href="#">Art</a>                                 | <input type="checkbox"/> <a href="#">Health and Physical Education</a> |
| <input type="checkbox"/> <a href="#">Business Education</a>                  | <input type="checkbox"/> <a href="#">Math</a>                          |
| <input type="checkbox"/> <a href="#">Community Based Programs</a>            | <input type="checkbox"/> <a href="#">Math Content Connections</a>      |
| <input type="checkbox"/> <a href="#">Computer Science</a>                    | <input type="checkbox"/> <a href="#">Music</a>                         |
| <input type="checkbox"/> <a href="#">English, Reading, and Language Arts</a> | <input type="checkbox"/> <a href="#">Outdoor Education</a>             |
| <input type="checkbox"/> <a href="#">ESOL</a>                                | <input type="checkbox"/> <a href="#">Science</a>                       |
| <input type="checkbox"/> <a href="#">Home Economics</a>                      | <input type="checkbox"/> <a href="#">Social Studies</a>                |
| <input type="checkbox"/> <a href="#">Industrial Education</a>                | <input type="checkbox"/> <a href="#">Special Education Instruction</a> |
| <input type="checkbox"/> <a href="#">Foreign Language</a>                    | <input type="checkbox"/> <a href="#">Technology Education</a>          |

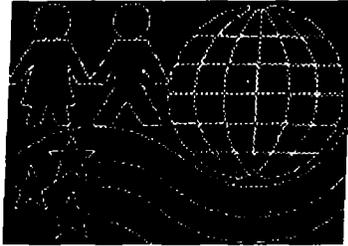
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### Instructional Projects and Resources

- [Early Childhood Technology Links](#)
- [Multicultural Book Database](#)
- [Maryland Virtual High School of Science and Mathematics](#)
- [Chesapeake Bay Watershed](#)
- [e- me: Electronic Self-Portraiture](#)
- [Event-Based Science](#)
- [Save Our Streams Streams Studies Project Database](#)
- [MSPAP Resources](#)
- [Scholastic Network](#)



*Last updated on July 30, 1996*  
*Maintained by David Kreisberg <davidk@umd5.umd.edu>*

<p><b>Curriculum</b></p> <ul style="list-style-type: none"><li>▣ <a href="#">Grades K - 5</a></li><li>▣ <a href="#">Grades 6 - 8</a></li><li>▣ <a href="#">Grades 9 - 12</a></li></ul> <p><a href="#">State Standards</a></p> <p><a href="#">What's New!</a></p>	<h2>Social Studies</h2> 	<p><a href="#">Bookmarks</a></p> <p><a href="#">Field Trip Data Base</a></p> <p><a href="#">Maryland Resources</a></p> <p><a href="#">Leave a Comment</a></p> <p><a href="#">Greetings</a></p>
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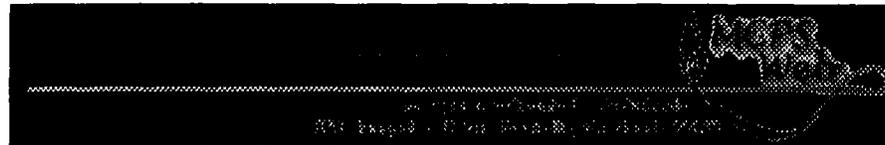
[African American History Bookmarks](#)

[Clarification of MSPAP Indicators with Sample Student Activities](#)

[MSPAP Exemplar Tasks for Grades 5, 7 and 8](#)

There have been **010334** visitors to this site since Feb. 1, 1996.

[See statistics on access to the MCPS Social Studies Web pages.](#)



Last updated on February 5, 1997

Maintained by John L. Day

<jday@umd5.umd.edu>



## Elementary Social Studies Field Trips



### Greetings

Welcome to the Montgomery County Public Schools Social Studies Field Trip Data Base. This resource lists over 150 field trip sites in the Greater Washington, DC metropolitan area that are linked to the social studies curriculum for Grades K-5.

### Value of Field Trips

Field trips enable teachers to expand children's learning beyond the walls of the classroom into the vast community outside. They provide children with experiences that cannot be duplicated in the school but are nonetheless an integral part of school instruction. Perhaps a field trip can best be described as a living laboratory in which learning is acquired through active hands-on experience with the rich resources of the local community.

Research has shown that field trips are important for many reasons:

- they increase student knowledge and understanding of a subject,
- they add realism to the topic of study, and
- they provide an opportunity to develop and enhance a student's socialization and citizenship skills.

### Planning for Field Trips

In light of their valuable contribution to a child's education, field trips should be preceded by good planning. Careful attention should be given to trip selection, previsit preparation, the trip itself, appropriate follow up, and evaluation. Such efforts should ensure that students will have a successful educational experience. When considering a field trip, teachers are advised to first consult with their administrator regarding existing school board policies and follow those recommended procedures. For assistance in planning a field trip, view the following:

- [MCPS Field Trip Checklist](#)
- [Items to Bring on the Trip](#)
- [Field Trip Tips](#)
- [Tips for Primary Grades](#)

### Note to Parents

While the primary audience for the Social Studies Field Trip Data Base is teachers, parents and students may find valuable information in the listings. Times and dates, however, may not reflect the hours of public operation. Please

contact the site directly for full information about services to the public.

## Feedback

The Social Studies Field Trip Data Base is constantly growing. Parents, teachers, and students with information about additional sites, or suggestions for improvements for the existing listings, should contact:

- Dr. Dawn F. Thomas, coordinator, elementary social studies, [e-mail Dawn\_Thomas@fc.mcps.k12.md.us] (301) 279-3356
- John Day, instructional specialist, social studies [e-mail jday@umd5.umd.edu] (301) 279-3357

## Ways to search the database:

- By the name of the field trip site**
- By the location (city, county or state) of the field trip site**
- By the grade level related to the field trip site**
- By the specific unit related to the field trip site**
- By the type of field trip site**
- By the multicultural focus of the field trip site**
  
- By the field trip site for which activities have been written**

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[Return to the Social Studies Home Page.](#)

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There have been **004150** visitors to this site since Feb. 1, 1996.

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Last updated on April 9, 1996  
Maintained by John L. Day  
<jday@umd5.umd.edu>



## **Guidelines for Establishing A Webpage on the Internet**

The establishment of a Webpage on the Internet must have an educational purpose. An educational purpose is one which is related to an MCPS assignment, project, job, or function for which the user is responsible (IGT-RA: Appropriate Use of Computer Networks). The following should be used as working guidelines for the creation of a Webpage on the Internet:

1. Do not post student home addresses or phone numbers. (student names should not be published if the parent has withheld consent on the fall directory information form.)
2. \*Information may not be posted if it :
  - violates the privacy of others
  - jeopardizes the health or safety of students
  - is obscene
  - is libelous
  - causes disruption of school activities (i.e. encouraging a riot, destruction of property, etc.)
  - violates copyright \*\*
  - plagiarizes the work of others
  - is a commercial advertisement
  - is not approved by the school administrator or designee (if a school home page), or a central office supervisor (if it is a non-school based home page).
3. Photographs which identify individual students may be published with parent permission.
4. Hyperlinks imbedded in a Webpage are subject to the same substantive guidelines as #2 above
5. If any MCPS employee becomes aware that a Webpage contains questionable material, the employee is expected to notify the immediate, responsible administrator, teacher or supervisor will determine if any applicable policies, guidelines, rules, or regulations have been violated and take the appropriate action.

\*JFA-RA: Implementation of Student Rights and Responsibilities, pages 9-11, section F3, F4 and F5 may provide additional guidance

\*\* See EGB-RA: Using Copyrighted Materials and EGB-EA: Guidelines for Educational Copying



*Last updated on May 22, 1996*

*Maintained by David Kreisberg <davidk@umd5.umd.edu>*



## **General Information**

- [Introduction to Montgomery County Public Schools](#)
- [How Your School System Works](#)
  - Boundaries, Registration and Attendance; Physical Examinations and Immunizations; Community Use of Schools
- [MCPS Fact Sheet, 1996-97](#)
  - Educational Facilities, Student Enrollment, Employees and Volunteers, Operating Budget, Student Performance, Student Services
- [MCPS FY 1998 Organization Chart](#) (9K Adobe Acrobat PDF file)
- [School Calendar](#)
  - 1996-97
  - 1997-98
- [1996-97 Report Card Schedule](#)
- [Testing Information](#)
  - [Summary of MCPS Annual Report on the Systemwide Outcome Measures of the Success for Every Student Plan](#): Student performance on Maryland Functional Tests, SAT, PSAT, and more
  - [Scholastic Assessment Test \(SAT\) Results](#)
  - [1996-97 Testing Schedule](#)
- [Student Transfer Request Process](#)
- [Employment Information, Department of Personnel Services](#)
- [Student Rights and Responsibilities](#)
- [Sexual Harassment Policy](#)
- [School Lunch Menu for the Month](#)
- [Weather Emergency Procedures](#)

## **Montgomery County Board of Education**

- [Agenda for Next Meeting](#)

## **Department of Information**

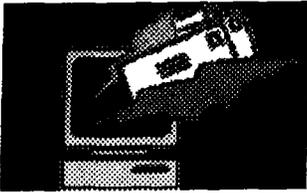
- [Media Announcements](#), updated frequently
- [Frequently Called Phone Numbers](#)
- [Listing of Montgomery County Public Schools](#) including principals, addresses, and telephone numbers
- [Administrative Arrangement of School Clusters](#): Lists elementary and middle schools that feed into each high school.
- [Responding to Inquiries and Complaints from the Public](#)

## **Publications of Interest**

- [MCPS Directory--Offices, 1997](#) 1/24/97  
Includes staff listings and phone numbers for administrative offices in searchable Adobe Acrobat PDF format.
- [Education--A Quality Investment: FY 1998 Educational Priorities](#) 1/21/97  
Presents a comprehensive overview of the factors that go into the planning, development, and implementation of the budget for MCPS. Addresses the county's economic outlook and demographic trends, provides multiyear operating budget projections and FY 1998 Operating Budget costs, explains the educational facilities planning process, lists areas of critical need, discusses strategic planning, past management

efficiencies and savings, and details opportunities for community members to become involved in the budget planning process.

- The Bulletin*, a weekly newsletter
- Our Commitment to Quality: A Guide to the 1996-97 School Year*, an annual document about the school system
- Telephone and staff listings for schools and administrative offices
- MCPS Organization Chart, FY 1998
- Test scores
- Budget publications
- Cable TV schedule



**Visit the**  
**MCPS Web**  
**Feedback Page**



Maintained by MCPS Electronic Graphics and Publishing Services



*Last updated on January 24, 1997*

Maintained by Susan Eskite <Susan\_Eskite@fc.mcps.k12.md.us>



Welcome to the

Department of Personnel Services

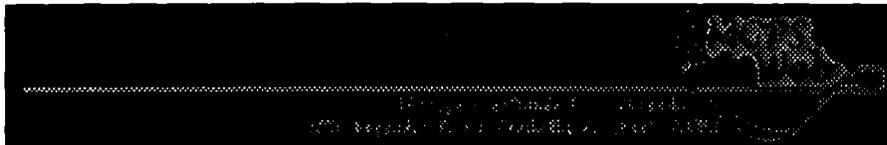
# Employment Information Page

## Guest Book

<a href="#">What's New</a>	<a href="#">MCPS Vision and Goals</a>
<a href="#">Key Telephone Numbers</a>	<a href="#">Employment Opportunities</a>
<a href="#">How To Apply for Employment</a>	<a href="#">Employment Testing</a>
<a href="#">Teacher Recruitment Information</a>	<a href="#">Salary Schedules</a>
<a href="#">Position Classification Information</a>	<a href="#">Certification Information</a>
<a href="#">Department of Personnel Services</a>	<a href="#">Human Resources Bookmark File</a>

[Home](#) | [What's New](#) | [MCPS Vision](#) | [Telephone Numbers](#) | [Employment Opportunities](#) | [How to Apply](#) | [Testing](#) | [Recruitment](#) | [Salary Schedules](#) | [Position Classification](#) | [Certification](#) | [Personnel Office](#) | [HR Links](#)

Thank you for being visitor number  
**003692**  
to this web page since March 22, 1996!!



Maintained by [Gary S. Levine](#)  
[<Gary\\_Levine@fc.mcps.k12.md.us>](mailto:Gary_Levine@fc.mcps.k12.md.us)

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### **C. Montgomery County Government (Executive & Legislative Branches)**

Montgomery County has a population of approximately 819,000 residents, is located adjacent to the nation's capital, and includes 495 square miles of land area. The County was established by the State Convention in 1776 and functioned under a county commission system until 1948, when voters adopted a charter giving the County home rule and establishing a council-manager system of government. In 1968, the voters approved a new charter providing for separate legislative and executive branches of government, with the legislative power vested in an elected council and executive power in an elected county executive.

The Montgomery County Government (MCG) is responsible for providing general services to citizens to ensure the peace, good government, health, safety, and welfare of the County in accordance with, and under authority of, the Constitution and laws of Maryland and the Montgomery County Charter. To accomplish this mission, MCG provides public laws and oversight through the County Council and the offices and boards of the Legislative Branch; the administration of judicial offices; and public programs, services, and infrastructure through the County Executive and departments, offices, boards, and commissions within the Executive Branch.

MCG serves a diverse citizenry. The ethnic breakdown in the County is 74.1 percent white, 13.4 percent black, 9.6 percent Asian/Pacific Islander, 7.6 percent Hispanic, and 2.9 percent other. The median age is 35 years and the median household income is \$64,791. Approximately 47 percent of County households have computers and 26 percent have modems. Over 50% of County residents have college degrees.

MCG employs about 6,500 full-time and 1,600 part-time personnel to operate its programs and provide services to citizens through approximately 45 departments, offices, boards, commissions, and court offices. Managers and administrators view the Internet as an additional means for employees to accomplish their job functions and provide information to the public about County programs and activities.

#### **1. Establishing an Internet Presence**

The MCG is establishing its Internet presence as a vehicle to facilitate citizen access to County officials and services, to augment economic development efforts, present County information to the public, and expedite staff research. As part of the pilot test, the County's Department of Information Systems and Telecommunications (DIST) provides a 24-hour, 7 day-a-week secure centralized connection to the Internet. This connection allows County PCs that have a standard configuration to connect to the Internet via a high-speed telecommunications link while being simultaneously connected to the County's computer network backbone. As a part of the centralized Internet connection, DIST also established a secure dial-up connection to the Internet.

DIST surveyed MCG departments and offices to determine what existing forms of information that citizens request and are suitable for Web presentation. DIST then worked with the Office of Public Information to establish the County's flagship Web site, which includes the County's home page and a framework of Web pages that cover all essential County information.

This Web site was designed and is being maintained in such a way as to allow its expansion to include Web pages representing all County departments and offices. Design of the MCG Web site was accomplished in a manner that provides links to many government services, including those in the other County and bi-County agencies, and some services at the State level.

**(a) Servers and Networks**

The County's hardware architecture supports access to the Internet from workstations that are connected to token-ring backbone and remote workstations such as laptops. The Web server is a pentium based server with Berkley Systems Data Inc. software. The e-mail gateway is an SMTP based server provided by the County's e-mail software vendor (Verimation, Inc.). It is fully integrated with the County's enterprise e-mail system (MEMO). DIST has granted access to about 375 users in 32 offices and departments under the pilot program.

The MCG Internet service provider (ISP) is UUNET. County staff researched and selected UUNET after reviewing services available from more than 20 service providers. With the Internet pilot period nearly completed, the County put ISP services on a competitive bid and UUNET has again been selected.

**(b) Security**

Physical security of the County's component architecture is accomplished by placing the County's Internet server in the DIST Computer Center. This ensures round the clock coverage, facility level security, and disaster recovery contingencies. Internet access to the County's WWW server and connected computing resources are protected through a combination hardware/software firewall operating in conjunction with dual routers that facilitate network traffic. These security measures range from simple password protection during login to application level security firewalls with strong user authentication and encryption. Software components feature auditing, logging, file and session encryption, a variety of mutual authentication schemes, and challenge/response encryption.

As part of the pilot test, the County's DIST developed and implemented an Internet security and use policy. The policy is designed to protect the County's computer networks and data assets against unauthorized and malicious use, and prevent potential misuse of County resources. DIST maintains the security policy to keep current with Internet services as they are added, deleted or modified on the County's Internet connections, and publishes the Internet policy each time it is updated.

The security policy requires that DIST approve/disapprove any connections to the Internet via the County's centralized connection and any alternative means of connection that may be proposed by the departments and agencies. The individual offices and departments are required to install anti-virus software on their PC's and network servers; approve of and request connections on behalf of their employees; and enforce the Internet security and use policies by taking remedial action if their employees do not adhere to the policies.

## **2. Providing Information to the Public**

MCG offices and departments determine what information to provide on the County's pages, subject to Office of Public Information (OPI) review for consistency of format and content.

### **(a) Determining What Information to Provide**

DIST and the OPI worked with the departments and offices to design and implement the County's flagship Web site, which includes forty core home pages. The OPI continues to oversee all subsequent additions/changes to the Web pages. As part of this effort, the OPI established a procedure for the departments to submit requests for the placement of information and Web pages consistent with the County's standards for the publishing and maintenance of County Web pages. The OPI monitors, audits, and enforces information management standards on updates to Web pages on the County's Web site. (Examples of pages from the Web site can be found at MCG Attachment A.)

### **(b) Creating and Maintaining Pages**

The individual offices and departments are responsible for the design, development, and funding of their Web pages, and must coordinate the establishment of their pages with the OPI. The departments must gain DIST approval prior to embarking on the establishment of any alternate Web site platforms. Offices must submit a formal application before proceeding with Web page development. OPI reviews and approves the proposed pages for content and style and DIST reviews and approves the platform and other technical aspects of the application.

DIST and the OPI jointly established and disseminated Web-site publishing and maintenance standards for all departments that propose to develop their own Web pages on the County's server. DIST and OPI also offer consulting services and assistance to the departments that need to retain contractors to develop their Web pages.

### **(c) Interacting with the Public**

E-mail (using SMTP protocol integrated with County's existing enterprise e-mail system MEMO) is the basis for interacting with the public. It is used in QUESTIONS FOR COUNTY EXECUTIVE, Guest Book, and other e-mail functions as deemed necessary by individual departments and offices.

DIST supports 3,000 employee e-mail accounts. The County recently used the Internet to conduct a technology survey aimed at County citizens to get their thoughts on how the County can best use technology to provide information and services electronically.

### **3. Providing Access to Employees and Others**

The County established a limited capability for access under the pilot test. During this phase, employee access has been limited to about 375 employees. Whether the system should be expanded, and to what extent, will be determined as part of the evaluation of the pilot test.

#### **(a) Determining Need for Access**

County department and office directors approve business-related access to the Internet for employees on an individual need basis, dependent on each employee's County work assignments.

#### **(b) Local and Dial-up Connections**

Most employee access is currently provided through local connections (via workstations connected to the County's wide area network). Twenty dial-up connections are also provided via InfoKey secure access for the pilot.

#### **(c) Use of the Internet by Employees and Others**

The County's policies and procedures specify that department and office directors are responsible for nominating employees for an Internet connection. Internet connections through the County's system are accomplished through Windows over a Novell LAN. Dial-in connections require access through a Windows 95 operating system.

##### **(1) E-mail**

The County uses the MEMO e-mail system internally to provide Internet mail capabilities to all employees that have workstations connected to the wide area network. Mail is routed to and from the Internet through a mail gateway server in such a way that mail can be transacted between these two mail systems without manual intervention while retaining the maximum function of both mail systems. DIST established and published e-mail naming standards and conventions in support of the Internet e-mail connection. There are 3,000 e-mail accounts and 1,700 active users.

The e-mail system can be used by employees to communicate with other employees, business partners, other government agencies, and any individuals with Internet accounts. File transfers can be made via e-mail attachments.

##### **(2) Researching Issues**

Some of the many research uses by County employees are for:

- obtaining comparison prices for the purchase of products and services;
- tracking legislative bills;

- accessing free legal services to obtain legal rulings and case decisions;
- polling citizens through surveys to assist with technology decisions;
- accessing current research related to social and health issues, consumer affairs issues, economic development, and other issues; and
- keeping current on new product information, software revisions, and user experiences with software and hardware anomalies.

### **(3) Downloading Files**

The subject of computer viruses being transmitted via downloads is a major topic of discussion in Internet training. County employees are required to ensure that a current version of virus detection software is installed on their workstations, and must use the software to virus check all downloaded files prior to copying the files to network or hard drives. Types of files commonly downloaded by employees include: court decisions, legal opinions, technical reference material, software patches, updates to virus protection software, executable files, etc.

### **(4) Other Uses (newsgroups, tenet, listservs)**

County employees that currently have connections to the Internet have newsgroup, telnet, listserv, and FTP services available to them.

### **(d) Restricting and Monitoring Use**

The County's policy is that Internet resources are to be used for business purposes. Restricting or monitoring individual use is determined through the normal management process. The County has limited metering capability at this time, but expects to buy new software within the next few months. DIST is particularly interested in acquiring more comprehensive and concise reporting capabilities.

Bandwidth utilization is monitored by the Internet service provider, and copies of the utilization reports are forwarded to and reviewed by MCG staff. The County manages the bandwidth utilization to ensure reasonable throughput and system response.

### **(e) Training**

DIST worked with the Office of Human Resources (OHR) to develop an Internet training program for County employees. This training program covers the County's Internet policies and procedures as well as Internet etiquette, acceptable practices, and resources.

The departments and offices are required to fund for and arrange with the OHR or other resource to provide Internet training to all employees that will be required to access the Internet. Employees must receive training and sign the Internet use policy prior to being connected to the Internet.

DIST provides the latest County Internet Policies and Procedures to employees as an integral part of the training. These policies are also posted on the MEMO bulletin board for employee review, and users must abide by the most current postings.

To date, training has been accomplished using a combination of vendor and in-house staff. Training programs will be re-examined prior to any County-wide expansion of the service.

#### **4. Acquiring Services via the Internet**

The County does not currently complete acquisitions of products or services over the Internet, but does advertise for some services.

##### **(a) Employment Opportunities**

The Department of Health and Human Resources has the employment bulletins on their pages of the Web site.

##### **(b) Requests for Proposals**

MCG does not post requests for proposals on its Internet pages but does provide information to vendors regarding the County's automated information delivery system to which vendors may subscribe. The fee is \$100.00 for a 2-year subscription that provide vendors with the ability to view information, download files, or receive faxes instantly on procurement opportunities and information from six County and bi-County agencies. Information available through the service includes: pending solicitations, solicitation notices, bid tabulations, invitations for bid, request for proposals, vendor application forms, contractual terms and conditions, and notices of conferences and seminars.

#### **5. Costs and Benefits**

This section describes the MCG's costs for servers, hardware upgrades, and other equipment that had to be acquired specifically for establishing an Internet presence and any special software for connecting and managing the site, connecting and monitoring employee use, and providing security. In addition to costs shown under the various categories in this section of the report, MCG contracted with a consultant to evaluate the pilot program for a fee of \$14,000.

##### **(a) Servers and Software**

The costs to MCG for acquiring servers and server software to establish the Internet connections were as follows.

SMTP gateway server and software	\$20,000
Web server	7,000
Routers	5,000
<b><u>TOTAL INITIAL COST</u></b>	<b><u>\$47,000</u></b>

### **(b) Establishing and Maintaining Pages**

Initial consulting services on how to establish an Internet presence cost MCG \$12,000. In addition, MCG spent \$16,716 to develop the initial home pages on the flagship site. The original set of pages were developed by a contractor in consultation with staff from DIST and OPI. Since then, departments and offices have been using a combination of employees, outside vendors, and volunteers.

No full-time staff were assigned for maintaining the Web site. Two staff from OPI and three staff from DIST have been working part-time on the site. A full-time Webmaster is needed, in addition to part-time assistance.

The benefits of having dedicated staff include providing assistance to decentralized departments in Web page development and maintenance of the pages. Maintenance would include "policing" pages, working with departments and offices to further develop their pages, writing code, and updating pages.

Some benefits and efficiencies MCG expects to derive from establishing the MCG Web site include:

- the ability to encourage economic development by providing information and using strategies to recruit companies from all over the world to relocate in Montgomery County;
- the ability for departments and office to share information globally by posting on the Web site;
- the ability to provide timely information via the Web pages, which can be easily and quickly updated, the potential for savings in publishing and mailing costs because of a reduced need to print and mail hard copies of information that can be put up on the Web site;
- the potential for reducing advertising costs associated with promoting programs and activities; and
- the potential for savings in staff time needed to answer phone and mail inquiries, as more public information is posted by departments and offices and citizens become comfortable with using the site.

### **(c) Connecting Employees**

MCG has contracted to lease lines to the Internet service provider at an annual cost of \$24,000, which will support approximately 1,000 users. For the pilot program, County employees were generally connected through existing workstations by having them follow instructions to download the browser software. Technical support for setting up the browser software was provided by local personnel with some assistance from DIST. The Netscape browser software is free for government users.

The exceptions to this are the set of users not on the County backbone Local Area Network who needed to get access via InfoKey and modem. The cost for this option was \$150.00 for InfoKey and an additional \$200.00 if a modem was needed.

These costs were covered by the department or office needing the equipment. Approximately 20 InfoKeys have been installed to allow users to dial into their LANs and access the Internet from remote sites. The costs to establish dial-in access were as follows.

Terminal server	\$13,000
CSU/DSU terminal server modem	3,000
8 analog lines	2,000
<b><u>TOTAL INITIAL COST</u></b>	<b><u>\$18,000</u></b>

Some benefits and efficiencies associated with connecting MCG employees to the Internet include:

- Using e-mail in place of telephone services eliminates "telephone tag" situations and reduces long-distance charges.
- Information retrieval is much faster than other means, saving time and allowing continuity for employees.
- Price and product comparisons are much easier to research.
- MCG staff that have questions or comments when they visit a Web site can correspond via e-mail to their counterparts throughout the world.
- Project information can be exchanged through e-mail saving on long distance phone calls, faxes, and/or postage costs.
- Staff can pull information and software updates when needed, as opposed to requesting and waiting for delivery. For instance, County Attorney staff access opinions and briefs; Consumer Affairs staff research consumer issues from all over the country; analysts and attorneys can go to State and Federal legislative pages to see the status of bills; and systems administrators download virus protection and software updates.

**(d) Access Security and Restricting/Monitoring Use**

The system was designed with access security as the top priority and it is probably safe to say that most of the total hardware and software costs indicated above could be attributed to security. Costs for the initial configuration were:

Novix gateway security hardware and software	\$ 32,000
Firewall software	23,000
Systems integration/firewall consulting services	15,000
<b><u>TOTAL INITIAL COST</u></b>	<b><u>\$ 70,000</u></b>

Some of the benefits and efficiencies of MCG's approach to security and restricting or monitoring employee use of Internet services include:

- the security measures prevent outside access to County computer resources and data, and
- the software provides capabilities to monitor user activities.

**(e) Training**

MCG has spent \$6,140 for contractual services to train employees on accessing and using the Internet. Much of the training has been accomplished with in-house staff at nominal costs. Although the in-house training effort requires existing employees to temporarily divert their attentions from other business activities to prepare training materials and teach the two hour classes, there is no additional cost to the MCG for salaries or contractual services. Some of the benefits and efficiencies of MCG's approach to training users include:

- quality training that is being provided at a small cost, and
- special emphasis on security and virus protection in training classes,

**6. Future Plans and Directions**

MCG is still in the evaluation-of-pilot stage of the Internet project, in which an outside contractor is examining all facets of the program and interviewing users. The consultant will be providing management with a report on recommended changes prior to County-wide rollout. MCG anticipates that the consultant will make recommendations for major changes in the hardware and software configuration to result from the study.

Funding for the pilot program is currently at a maintenance level. As might be expected, there is a tremendous demand for this service and support and DIST resources are quite strained!

**(a) Providing Information and Interacting with the Public**

There is much information and many possible services that MCG departments and offices could someday provide over the Internet. Some areas with potential include: procurement and bid information and applications for vendors; permit information and application services for builders; tax and real estate information for citizens and others; Council agendas, actions and voting records; employment opportunities and aggressive recruitment of "hard to fill" positions (such as police officers, firefighters, and computer programmers); and downloading of forms and applications for a variety of County services.

**(b) Access and Use by Employees and Others**

In the near future MCG expects to go beyond the pilot stage and increase access to between 1,500-2,000 users. Access to the Internet will continue to be made available to all employees with a business need, subject to department director approval and continuation operating budget funding.

**(c) Acquiring Products and Services via the Internet**

**(1) Procurements via the Internet**

MCG is currently posting the Employment Bulletin on the Web site, but not accepting applications via the Internet as yet. MCG will try to expand service acquisition via the Internet, contingent upon the ability to transact such business in a secure manner.

**(2) Ordering Products via the Internet**

There is potential for MCG to order products via the Internet, provided secure transactions can be guaranteed by the vendors.

**(d) Providing Services via the Internet**

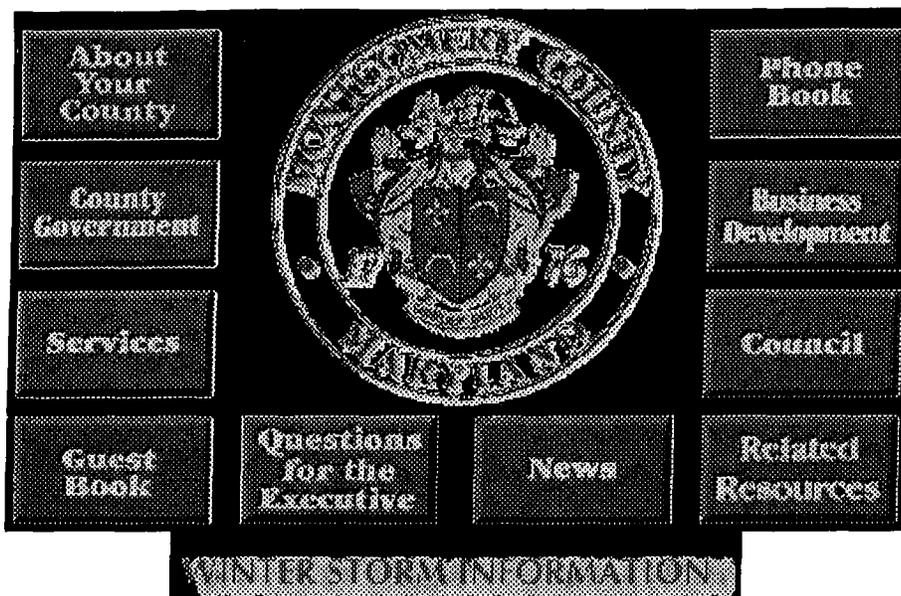
Having a presence on the Internet will allow MCG to easily conduct surveys and obtain citizen input on a myriad of topics and issues. This medium provides an alternative means for citizens to contact the government to obtain information or express their views.

**(1) Applications for Permits and Licenses**

In the near future, MCG expects to examine the feasibility, costs, and benefits of providing permit and licensing services over the Internet. MCG also expects to include a feature that will allow applicants to review the status of their permit or license at any time.

**(2) Registrations for Classes and Recreational Activities**

There is potential for MCG to provide registrations for classes and recreational activities via the Internet, provided secure transactions can be guaranteed. MCG is also interested in using the Internet to interact with and handle citizen and group requests for space in government facilities. These services are managed by the Interagency Coordinating Board for Community Use of Government Facilities.



[What's New Around the County!](#)

[SAFETY TIPS](#)



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This Site Is Best Viewed In Netscape 2.0 or higher

**About Your County.** A brief history of the County, demographic information, the County Charter, and a map.

**County Government.** Welcome from the County Executive, a County Government Organization Chart, the State of the County Speech, information on public officials, and budget information.

**Services.** A topical listing of County services and phone numbers.

**Guest Book.** Your comments are welcome.

**Questions for the Executive.** Communicate directly with County Executive Douglas M. Duncan.

**News.** The latest press releases, media advisories, and Cable 55 Guide.

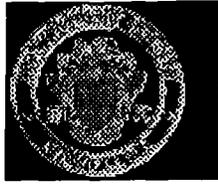
**Phone Book.** Frequently requested telephone numbers.

**Business Development.** Information on economic opportunities in Montgomery County, Maryland.

**Council.** Legislative Branch information.

**Related Resources.** Connect to information about other public services.

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# About Montgomery County, Maryland

Montgomery County is Maryland's most populous jurisdiction and its most affluent. The County is located adjacent to the nation's capital, Washington, D.C., and includes 495 square miles of land area. The topography is rolling with small hills. Elevations range from 52 feet above sea level near the District Line to 850 feet in the northern portion of the County near Damascus. To help orient people unfamiliar with the County, a simple map is included on this Web site.

Montgomery County, established by the State Convention in 1776, functioned under the County Commission system until 1948, when voters adopted a charter giving the County home rule and a council-manager form of government. In 1968, the voters approved a new charter providing for separate legislative and executive branches of government, with the legislative power vested in an elected council and executive power in an elected county executive. The new charter was fully implemented in 1970 with the November election of an executive and a council. The County Council is currently composed of nine members, four of whom are nominated and elected by voters from the entire County, and five who are elected by voters in each of the County's five Councilmanic districts. Terms for the County Executive and County Council are 4 years.

Current budget information is available at this site, including general information about the budget process and fiscal policy.

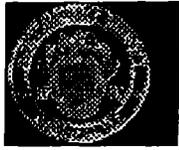
The current County Executive is Douglas M. Duncan.

The current County Council members are:

- Derick Berlage (District 5)
- Nancy Dacek (District 2)
- Gail Ewing (At-Large)
- William E. Hanna, Jr. (District 3)
- Betty Ann Krahnke (District 1)
- Isiah Leggett (At-Large)
- Neal Potter (At-Large)
- Marilyn Praisner (District 4)
- Michael L. Subin (At-Large)

## Municipalities

The incorporated cities, towns, villages, and municipalities enact many of their own laws. The incorporated cities are Rockville, Gaithersburg, and Takoma Park. Other incorporated municipalities are Barnesville, Brookeville, Chevy Chase, Friendship Heights, Garrett Park, Glen Echo, Kensington, Laytonsville, Poolesville, Somerset, and Washington Grove.



# Welcome from County Executive Douglas M. Duncan



Welcome to Montgomery County's pages on the World Wide Web. I hope that you find this information useful, and that it will save you some time in finding out all you want to know about our County. On December 2, I gave my annual **State of the County Speech**, which summarizes the County's progress during my administration. I have also set forth the County's **legislative priorities** for the 1997 Maryland General Assembly.

Montgomery County is proud of the services it offers. These include some of the best in the nation. An **Organization Chart** is provided within this Web site to show you the various levels of the County government. **Budget information is also available.**

In addition, this Web site includes profiles of the following County public officials:

- Bruce F. Romer** (Chief Administrative Officer of Montgomery County)
- Deborah S. Goodwin** (Special Assistant to the County Executive)
- George F. Griffin** (Special Assistant to the County Executive)
- Jerry Pasternak** (Special Assistant to the County Executive)
- Susan E. Tabach** (Special Assistant to the County Executive)

If you can't find the information that you need, be sure to let us know in the **Questions for the Executive** section. We would also like to know more about you, so sign the **Guest Book** if you have time.

Thank you for visiting Montgomery County's Web pages, and please stop by again. We'll have new information for you on a regular basis.



**Douglas M. Duncan**  
County Executive

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**County Home** | **About Your County** | **County Government** | **Services** | **Guest Book** | **Questions for the Executive**  
**News** | **Phone Book** | **Business Development** | **Council** | **Related Resources**

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# Services

Valuable newcomer information is available for new Montgomery County residents.

Montgomery County is proud to offer some of the best services in the nation. To better serve its residents and to inform others about Montgomery County, this Web site includes contact information for the following County services:

- Animal Control and Humane Treatment**
- Commission for Women**
- Community Use of Schools**
- Conference and Visitor's Bureau**
- Consumer Affairs**
- County Cable 55**
- Economic Development**
- Environmental Protection**
- Finance**
- Fire and Rescue**
- Health and Human Services**
- Housing and Community Affairs**
- Human Relations Commission**
- Human Resources**
- Libraries**

**MCG Attachment A**

- Licenses and Permits**
- Liquor Control**
- Management and Budget**
- Police**
- Procurement**
- Recreation**
- Regional Services Centers**
- Supervisors of Elections**
- Transportation**
- Volunteer Center**
- Other Agencies**

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# Questions for the Executive

Welcome to the Montgomery County site on the World Wide Web. I look forward to answering your questions and responding to your concerns. Please indicate when you submit your form whether you prefer a written, e-mail, or fax response. I will provide you with a response as quickly as possible. Thank you.

## Tell Me About Yourself

Name:  
Title:  
Organization:  
Street Address 1:  
Street Address 2:  
City:  
State/Province:  
ZIP/Postal Code:  
Country:  
Telephone Number:  
FAX Number:  
E-Mail Address:

## Questions for the County Executive

How can I be of help to you?

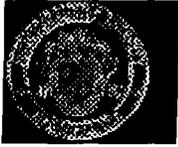
## How would you like me to send my response?

E-Mail  
Postal  
FAX

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**MCG Attachment A**

# News

Montgomery County strives to keep residents as well as all interested individuals up to date on news and current events occurring within the County. This Web site provides a vehicle for the news media as well as individuals to obtain the latest press releases and media advisories available. These pieces of information will be updated on this site as frequently as needed. So be sure to return to this page often to find out what's happening throughout the County. In addition, a current County Cable 55 schedule is also available.

## **County Cable 55 -- the County Government Channel** Program Schedule

### **Executive Branch**

Press Releases

Media Advisories, Speeches, and Testimony

### **Legislative Branch**

Speeches

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[News](#) | [Phone Book](#) | [Business Development](#) | [Council](#) | [Related Resources](#)

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Welcome to the Montgomery County Council Web site. We look to the Internet as another way for you to share your concerns and ideas with us, for us to let you know about our voting records and initiatives, and about upcoming issues that will be on our agenda for action.

After you have explored our offerings, please take the time to let us know how we can do a better job of serving you via the Internet. You can contact us at [county.council@co.mo.md.us](mailto:county.council@co.mo.md.us).

- |   |   |
|---|---|
|  <a href="#"><u>Table of Contents</u></a>                |  <a href="#"><u>About the County Council</u></a>     |
|  <a href="#"><u>Future Agendas and Past Actions</u></a> |  <a href="#"><u>About Councilmembers</u></a>        |
|  <a href="#"><u>Public Participation</u></a>           |  <a href="#"><u>Legislative Branch Offices</u></a> |
|  <a href="#"><u>Search</u></a>                         |  <a href="#"><u>Council News</u></a>               |

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[Montgomery County Home Page](#)

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# ABOUT THE COUNCIL MEMBERS

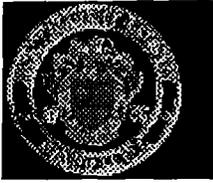
- [How the Council is Organized](#)
- [Derick P. Berlage](#)
- [Nancy Dacek](#)
- [Gail Ewing](#)
- [William E. Hanna, Jr.](#)
- [Betty Ann Krahnke](#)
- [Isiah Leggett](#)
- [Neal Potter](#)
- [Marilyn J. Praisner](#)
- [Michael L. Subin](#)



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[Council News](#) | [Legislative Branch Offices](#) | [Montgomery County Home Page](#) | [Search](#)

**This page is under construction**



# Related Resources

## **BI-COUNTY AGENCIES**

- Maryland-National Capital Park and Planning Commission
- Metropolitan Washington Council of Governments

## **EDUCATION**

- Montgomery College
- Montgomery County Public Schools
- University of Maryland

## **STATE**

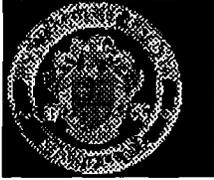
- Maryland General Assembly
- Maryland State Government
- Sailor -- Maryland's Online Public Information Network

## **UTILITIES**

- Potomac Electric Power Company (PEPCO)
- Washington Suburban Sanitary Commission

## **TOWNS & CITIES**

- Gaithersburg
- Garrett Park
- Glen Echo
- Poolesville
- Rockville
- Takoma Park



# Phone Book

**All phone numbers are in area code 301 unless otherwise noted**

**SEARCH** the County Employee Phone Directory

**Police or Fire Emergency -- 911**

**Information and Referral -- 217-6500**

**-- TTY (for the hearing impaired) -- 217-6505**

**County Government Directory Service -- 217-1000**

## **County Departments:**

Community Use of Schools - Gail Ayers, Director, 217-2706  
Correction and Rehabilitation - Devon Brown, Director, 217-7545  
Environmental Protection - James Caldwell, Director, 217-2355  
Finance - Timothy Firestine, Director, 217-2042  
Fire/Rescue Services - Jon Grover, Director, 217-2444  
Health and Human Services - Charles Short, Director, 217-1245  
Housing & Community Affairs - Elizabeth Davison, Director, 217-3600  
Information Systems and Telecommunications - Donald Evans, Director, 217-2553  
Liquor Control - Frank Orifici, Acting Director, 217-1900  
Permitting Services - Robert Hubbard, Acting Director, 217-6383  
Police - Col. Carol Mehrling, Chief, 217-4050  
Public Libraries - Que Bronson, Acting Director, 217-3850  
Public Works and Transportation - Graham Norton, Director, 217-2170  
Recreation - Gregory Bayor, Director, 217-6820

## **Useful Telephone Numbers**

Aging and Disability Services -- 217-1246 -- (TTY) 217-1236

Animal Control (County)

-- (24-hour recording about operations and programs) -- 217-6999

-- For calls other than those listed below -- 279-1066

Shelter

-- General information, animal bites, animal licensing (279-1095), complaints involving pets, adoption, dead animal pick-up from County roads (from State roads, call -- 948-2477), lost and found pets, neutering -- 279-1823

-- Animal Rescue (emergencies only) -- 279-1694

-- Animal Rescue Non-emergency -- 279-1823

-- Humane Society, Inc. (operates shelter under contract) -- 279-1823

-- Rat Control (Health and Human Services Department) -- 217-7272

-- Wildlife Nuisance Problems

-- State Department of Natural Resources, Animal Nuisance Hotline -- 1-800-442-0708

Animal Control (City)

- Gaithersburg City Department of Animal Control -- 258-6343
- Rockville City Department of Animal Control -- 309-3115

Child Care Connection (child care referrals) -- 279-1773

Children, Youth and Family Services -- 217-1100

Community Action Agency -- 217-1200

Community Use of Schools -- 217-2706

Conference and Visitor's Bureau -- 588-8687 or 1-800-925-0880

Construction Permits and Licenses

- (inspections, plan review, building applications and permits, electrical permits, electrical licenses, use and occupancy permits, zoning enforcement) -- 217-6370

Consumer Complaints -- 217-7373

County Cable 55 -- 217-6530

Crisis Hotline (supportive listening) -- 738-2255

Crisis Stabilization (24-hour line) -- 656-9161

Economic Development

- General Information -- 217-2345
- Small Business Hotline -- 217-2343
- Contracting Opportunities with Montgomery County -- 217-6430

Elections -- 217-6450

-- 24-Hour Registration/Voting Information -- 217-VOTE

Environmental Protection

- Environmental Policy and Compliance -- 217-2177
- Water Resources -- 217-6350

Fire and Emergency Rescue Services

(see Fire and Emergency Rescue Services under Services for complete listing of individual Fire and Rescue Corporations)

- Emergencies -- 911
- Director's Office -- 217-2444
- Emergency Management -- 217-2470
- Fire Marshal -- 217-2442
- Fire Safety Education -- 217-2442
- Plans Review and Fire Code Enforcement -- 217-4570

Fuel Assistance -- 468-4050

Health

- Public Health Newsline -- 217-6981

**MCG Attachment A**

- Communicable Disease and Epidemiology -- 217-1755
- HIV/AIDS Program -- 217-7681 or 217-1760
- Immunizations/Children -- 217-1600 or 217-7290
- Immunizations/Foreign Travel -- 217-1755
- Sexually Transmitted Diseases -- 217-1760
- TB Clinic/Chest X-Rays -- 217-1800
- Family Health Services -- 217-1600

Homelessness -- 468-4122

Housing and Community Affairs

- Consumer Affairs -- 217-7373
- Housing Code Enforcement -- 217-3725 or 217-3750
- Commercial Revitalization -- 217-3650
- Moderately Priced Housing -- 217-3705

Human Relations Commission

- (to file discrimination complaints) -- 468-4260 (TDD/TTY) 530-6436
- County's Partnership Fund (compensation to victims of hate/violence for property replacement) -- 468-4260

Pet Licensing -- 279-1823

Licenses and Permits (other than construction, liquor, and pets) -- 217-7272

Libraries

- (see Libraries under Services for complete listing of individual libraries)
- Library Services Information -- 217-3850
- Telephone Reference Service -- 217-INFO

Liquor Control

- (see Liquor Control under Services for complete listing of individual retail outlets)
- General Information (Director's Office) -- 217-1900

Liquor License Commissioners, Board of

- (licenses, inspections, enforcement) -- 217-1999

Police (County)

- Emergencies -- 911
- Non-emergency -- 279-8000
- Crimesolvers -- 217-2255 or 1-800-673-2777
- Anti-Hate/Violence Tipster Fund -- 217-2255

Police (City)-Non-emergency

- Gaithersburg -- 258-6400
- Rockville -- 309-3100
- Takoma Park -- 270-8724

Maryland-National Capital Park and Planning Police -- 949-3010

Maryland State Police -- 424-2101

Recreation

**MCG Attachment A**

- General Information -- 217-6797
- Disability Services -- 217-6890 or (TDD) 217-6891
- Recording of class, program, performance offerings -- 217-6880

Recycling Information -- 217-2870

Regional Service Centers

- Bethesda-Chevy Chase Services Center -- 986-4325 (TDD) 986-4327
- East County Services Center -- 989-1230
- Mid-County Services Center -- 217-4900 (TDD) 217-4909
- Silver Spring Services Center -- 217-3100 (TTY) 217-3149
- Up-County Services Center -- 217-3400 (TDD) 217-3402

Senior Centers

(see Recreation under Services for complete listing)

Senior Services -- 468-4443 (TDD) 468-4444

Social Services

- Emergency Help -- 468-4353 (TDD) 468-4637
- Adult Foster Care -- 468-4441
- Adult Respite Care -- 468-4350
- Adoption -- 217-3618
- Child Foster Care -- 217-1641
- Program Eligibility -- 468-4301

Substance Abuse

- Adult Substance Abuse Prevention -- 217-1300
- Drawing the Line (underage youth) -- 217-1123 or 929-8550
- Prevention Center -- 929-8550

Tax Information -- 217-2920

Transportation

- Bus Routes and Schedules -- 217-7433
- Also see -- Potholes -- 217-2159
- Public Parking -- 217-2159
- Recycling -- 217-2870
- Sidewalks -- 217-2159
- Snow Removal -- 217-2159
- Street Lights -- 217-2190
- (call PEPCO if light pole is wooden) -- (202) 833-7500
- Traffic Engineering -- 217-2190
- Trash Collection -- 217-2410
- Urban Maintenance -- 217-2159
- Transit Information Center -- 217-7433

Victim Services

24-Hour Crisis Line:

- Abused Persons Crisis Line -- 654-1881 (TDD) 656-1412
- Crisis Stabilization -- 656-9161 -- (TDD) 656-1412
- Sexual Assault Victims Crisis Line -- 656-9420 -- (TDD) 656-1412

Volunteer and Community Service Center -- 217-4949

Women, Commission for -- 279-8301 -- (TDD) 279-1034  
-- Counseling and Career Center -- 279-1800

**Numbers of Other Agencies**

Housing Opportunities Commission -- 933-9750 or 929-6700 -- (TDD) 949-3222

Maryland-National Capital Park and Planning Commission -- 495-4600 -- (TDD) 495-1331

**Montgomery College**

-- Germantown Campus -- 353-7700

-- Rockville Campus -- 279-5000

-- Takoma Park Campus -- 650-1300

Montgomery County Public Schools -- 279-3391

Revenue Authority -- 762-9080

Washington Suburban Sanitary Commission -- 206-8000

**Helpful Numbers for Newcomers**

Automobile Registration (Maryland Department of Motor Vehicles)

-- 24-Hour Recording -- 948-3177

Property Assessments Information -- 279-1355

Public School Information -- 279-3391

Trash Pickup in Montgomery County -- 217-2410

-- Rockville City Trash Pickup -- 309-3094 -- (TDD) 424-8011

**Utilities**

**Electricity**

-- PEPCO -- (202) 833-7500

-- Baltimore Gas and Electric -- (410) 685-0123

-- Potomac Edison -- 1-800-492-7020

**Gas**

-- Washington Gas -- (703) 750-2500

**Telephone**

-- Bell Atlantic -- 954-6260 -- (TDD) 1-800-564-0999

(for repairs, call 954-2222)

**Water and Sewer Service**

-- Washington Suburban Sanitary Commission -- 206-8000 or 1-800-634-8400

Voter Registration/Information (24-hour recording 217-VOTE) -- 217-6450



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## **D. The Maryland-National Capital Park and Planning Commission**

The Maryland National Capital Park and Planning Commission (M-NCPPC) serves as the planning and parks agency for Montgomery and Prince George's 1.5 million residents. With more than 28,000 acres of park land in Montgomery County, the Commission provides local, neighborhood, urban, regional and stream valley parks, for the enjoyment of more than 819,000 County residents.

The Commission's Montgomery County Planning Board and planning staff created the General Plan for the County's physical development and are updating many area Master Plans for more detailed land use planning. In addition, the Board uses regulatory, zoning and land use powers to create and foster the economic, environmental and social well being of County residents and to create pleasing urban and community designs.

The Commission views its Internet home page as a valuable addition to its extensive outreach to involve the public in its land use planning, environmental, transportation, zoning, regulatory and park planning work as well as an employment recruiting tool. For those with mobility or hearing disabilities, the World Wide Web offers expanded community outreach to segments of the population not previously involved in Commission business.

### **1. Establishing an Internet Presence**

The Commission has established an Internet home page to offer the public immediate, 24-hour-a-day access to a wealth of M-NCPPC information and services, and to augment staff research capabilities. To launch the first generation home page that would provide an initial overview of Commission services to the public, the Commission's Montgomery County Research Center, Community Relations Office and Finance Department staff worked closely with the Commission's planning and parks staffs in both counties and occasionally with a consultant who created the home page graphic design and layout.

#### **(a) Servers and Networks**

Access to the Internet from workstations is provided by service provider, PSI. The Ethernet backbone connects through a T1 link (wide-band telephone line) to the PSI Web server. The agency's cc:Mail software provides Internet e-mail capability through the PSI linkage.

#### **(b) Security**

PSI provides the security since the Commission does not have a Web server at this time

### **2. Providing Information to the Public**

Open and honest government requires public access to all kinds of information. M-NCPPC's home page is currently providing a great deal of information and is communicating with the public, not only in the two counties but also with a world-wide audience. (See copies of sample pages at M-NCPPC Attachment A.)

**(a) Determining What Information to Provide**

M-NCPPC created an Internet Task Force to determine what information to provide for the initial home page effort. The Internet Task Force decided to include basic, existing printed information, data, and reports as a way of getting started. To help assure that all documents and photos reflect Commission policies and are sensitive to diverse audiences, information to be considered for the Internet must be approved by an employee's supervisor, division chief, and the Community Relations Office before coding and loading onto Web site. Currently, the long and complex documents, such as Master Plans or weekly agenda packets, cannot reasonably be provided due to limited staff resources available for coding the information and keeping it up to date.

**(b) Creating and Maintaining Pages**

Internet Task Force members in various departments and divisions are responsible for preparing, coding, and updating their assigned Web pages.

**(c) Interacting with the Public**

E-mail (using TCP/IP protocol integrated with the Commission's cc:Mail system) is the basis for interacting with the public, although it is only available on a limited scale at the present time.

**3. Providing Access to Employees and Others**

The Commission is slowly expanding employee access to the Internet. Currently, approximately 120 M-NCPPC employees in Montgomery County have access.

**(a) Determining Need for Access**

Internet Task Force Members and selected others with business-related needs or responsibilities now have Internet access. Individual employees are linked on a case-by-case basis with the approval of the division chiefs, and subject to available technology.

**(b) Local and Dial-Up Connections**

Employee access is currently provided through the Commission's LAN. There are no dial-up connections.

**(c) Use of the Internet by Employees and Others**

**(1) E-mail**

The Commission uses the cc:Mail e-mail system internally to link employees with workstations connected to the wide area network.

## **(2) Researching Issues**

Commission employees use the World Wide Web to research a wide number of issues, some examples of which include the following.

- brainstorming ideas with planners and researchers,
- tracking state legislation,
- obtaining court rulings and other legal information,
- receiving feedback on technology purchasing decisions,
- comparing prices and product features, and
- technical information for computer/LAN support.

## **(3) Downloading Files**

Procedures and guidance for downloading files are provided by the Research Center. All users have been instructed to scan their computer drives for viruses after downloading files.

## **(4) Other Uses**

Selected staff use FTP to upload files to the Internet service provider to update the Web pages.

## **(d) Restricting and Monitoring Use**

At the current time, the Commission does not provide monitoring and relies on the integrity and personal responsibility of the limited numbers of individuals with access to the Internet. The agency is currently examining software applications that will provide management with periodic reports on employee use.

## **(e) Training**

To date, Internet training has only been provided to those who are responsible for coding documents using the Hot Dog software for conversion to HTML, and to a few other staff who have received general training on the Wide World Web, its use and etiquette.

# **4. Acquiring Services via the Internet**

## **(a) Employment Opportunities**

The agency posts employment information on its Web site. The Commission's Department of Human Resources and Management is responsible for coding and uploading the bi-weekly Job Opportunities Bulletin.

## **(b) Requests for Proposals**

Requests for proposals, primarily for construction contracts, occasionally appear under the home page's Bid and Jobs button.

## **5. Costs and Benefits**

The Commission's Internet Task Force has yet to develop a method for evaluating the costs versus the benefits of maintaining the current home page. However, as a part of its five-year plan for technology, the Research Center is now seeking estimates for expanding the scope and capabilities of the home page.

### **(a) Servers and Software**

M-NCPPC spent about \$18,000 to connect employees and establish its Web presence. This includes consulting services, equipment purchases or upgrades, and software needed to design and code home pages and manage the Web site.

### **(b) Establishing and Maintaining Pages**

No staff are now or were ever assigned full-time to launching or maintaining the home page. Internet Task Force members met frequently during their lunch hours to strategize and plan for getting the first home page on-line. A few Commission staff members have responsibility for regular update to parts of the home page, such as the weekly agendas, bi-weekly Jobs Bulletin, bi-monthly Nutshell News, and other elements. Employees continue to maintain the agency's Web pages as part of their other duties, as time allows.

### **(c) Connecting Employees and Other Users**

IP addresses, TCP/IP transport software and Netscape were installed on workstations for accessing the World Wide Web. Employee e-mail access is through the Commission's LAN/WAN to the Internet service provider.

### **(d) Access Security and Restricting Monitoring Use**

The Internet service provider incorporates security measures to prevent external access to the agency's network. There is no additional cost for this security.

### **(e) Training**

To date, the formal training to access or use the Internet has been primarily done in-house. A consultant conducted Introduction to Internet classes and HTML instruction, plus planning sessions for the design and content of the agency's Web site, for a cost of \$5,900 (this amount also included consulting services on initial Web page development).

## **6. Future Plans and Directions**

Given the expectation that the Internet will be an even more indispensable method of doing business in the future, the Commission is committed to an Internet presence in some form.

**(a) Providing Information and Interacting with the Public**

If funding and other resources permit, the Commission plans to offer the complete Planning Board packets on-line each week. Given adequate funding, within five years a relational database will be developed to allow Internet users to key in the name of a particular area of the County, such as Silver Spring, and be able to find out about any development plans, special exceptions, master plan updates, etc. under way in their neighborhood.

This long-range Internet/GIS project would be called, "Where Am I." Residents would be able to give their street address, and the program would list the political districts associated with the address and the nearest public facilities (parks, libraries, police stations, etc.).

**(b) Access and Use by Employees and Others**

For fiscal and other management reasons, employee access to the Internet will increase slowly and be limited to those with a valid business need for access.

**(c) Acquiring Products and Services via the Internet**

**(1) Procurements via the Internet**

M-NCPPC recognizes there is a potential to obtain services via the Internet. However, the agency will not consider service procurements until such time as secure transactions can be guaranteed.

**(2) Ordering Products via the Internet**

M-NCPPC recognizes a potential in this area, but will not consider using the Internet as a medium for purchasing products until such time as secure transactions can be guaranteed.

**(d) Providing Services via the Internet**

**(1) Applications for Permits**

If future funding allows, the Commission plans eventually to offer on-line park permitting for picnic shelters, recreation centers, etc.

**(2) Registrations for Classes**

The Commission likely will offer nature center class registrations sometime in the future.

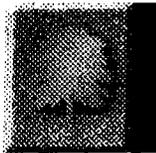
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**W**elcome to The Montgomery County Planning Board's Home Page. Whether you're looking for a golf course, a Planning Board Agenda or a Park Police program, you'll find something of value and interest here.

### What's New?

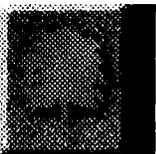
For upcoming special events in Montgomery County's outstanding parks and for news of the Commission's work in planning and parks, check out the what's new button then look below to find out what else we offer.



### What's Fun?

- Golf, tennis, camping, hiking, boating, nature classes, miniature train and carousel

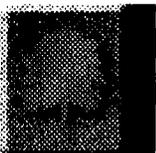
rides, playgrounds, basketball courts, stables, and equestrian trails, ice skating, and much more are waiting for you in Montgomery County's many parks. Check out this section to see some highlights.



### Parks

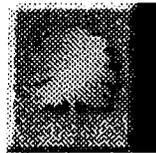
- Our 28,000-acre park system boasts beautiful park facilities, offering passive and active

recreation, special events, horticultural education, natural and cultural history, and volunteer opportunities.



### Planning Board Meetings

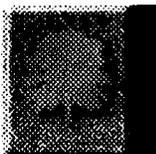
- You'll find agendas for the Planning Board's weekly public hearings on planning, zoning



### Facts, Figures, and Maps

- Decision-makers look to the

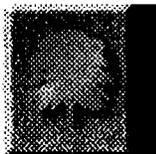
Research Center as a central source of essential information. Programs consist of: census update information and demographic analysis, land use data, and forecasts. Maps include a location map for the Park and Planning Board Offices, regional parks, and the MC MAPS project, an interagency effort to build and maintain a GIS Database for Montgomery County.



### Publications

- Get the inside scoop on the Park and Planning Department through its various publications such as

brochures, newsletters, and area master plans and reports.



### Protecting Our Environment

- Montgomery County's environment is rich in natural, archaeological, and historical

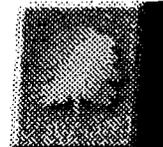
and subdivisions as well as upcoming forums and other public meetings. Planning Board members' biographies highlight their experience.

resources. As a planning and regulatory agency and a land owner, the M-NCPPC safeguards our environment through a comprehensive program for planning and managing County-wide natural resources.



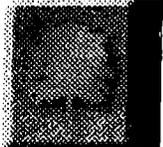
## **Planning and Development**

- The Department plans for livable communities by developing large and small scale plans which provide guidelines for the pattern and face of future development and by preserving historic resources throughout the 323,000-acre County.



## **Employment and Volunteer Opportunities**

- Current and continuous eligibility job listings, and how to apply for these positions. Want to volunteer? Check out all the possibilities.



## **Your Safety**

- Get to know the Montgomery County Park Police. Learn about a number of special events and the exciting programs they offer. Find out how you can get involved to help keep your parks safe. Check the various rules and regulations park users need to know.



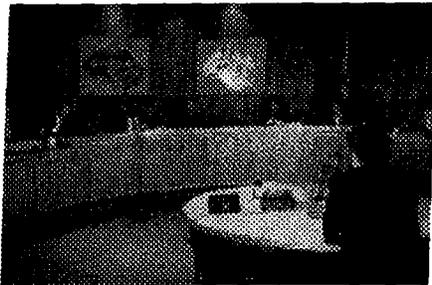
## **Important Links**

- If you're looking for recreation classes, Montgomery County Executive Offices, Montgomery County Council, or economic development information, we're connected.

*This site was created by The Montgomery County, Maryland, Planning Board Web Site Team.*

Montgomery County Government

Comments and Questions



## Planning Board Meetings

Each week, the Planning Board's agenda lists all planning, zoning, subdivisions and other items for action and discussion at its public meetings held on Thursdays at 8787 Georgia Avenue, Silver Spring, Maryland.

## Involving Our Citizens

Citizens provide valuable input in the Board's planning and regulatory responsibilities, and the Board welcomes your testimony at its weekly public hearings. To contact the Planning Board directly, send a fax to 301-495-1320, or write to the Chairman, Montgomery County Planning Board, 8787 Georgia Avenue, Silver Spring, Maryland 20910. You may also call 301-495-4605. Citizens Advisory Committee meetings, County Council hearings and other public meetings and forums provide additional opportunities to get involved.

## Protecting Our Environment

Through its extensive planning and regulatory work, the Montgomery County Planning Board seeks to protect the County's environment as it balances the community's needs for jobs, homes, shopping, roads, parks and the infrastructure necessary to support them. Supporting small businesses as well as the County's large employers, the Board will advocate for funds to enhance and maintain a high quality of life for all County residents. The Board strongly supports the County's agriculture preserve areas, family farms, and the County's rich agricultural heritage.

## Planning for Development

The Planning Board decides on applications for subdivisions of land, site plans and project plans supported by considerable technical work by the Department of Park and Planning staff. It also makes recommendations to the County Council on the County's General Plan of land development and on specific master plans for more than 20 areas within the County. Master plans provide specific policy guidelines for land use, transportation, conservation, open space and parks, public facilities, employment and housing.

The Planning Board also makes recommendations to the Board of Appeals on Special Exceptions to the County's Zoning Code and to the Hearing Examiner. The Board also reviews and comments on land development proposals from federal, state and local government agencies on their plans to develop property within the County. These development proposals are known as mandatory referrals.

## Planning Board Members

Appointed by the Montgomery County Council, the full-time Planning Board Chairman and four part-time Planning Board members may serve a maximum of two four-year terms.

Currently, the five Planning Board members are: Chairman **William H. Hussmann**, Vice Chairman **Patricia S. Baptiste**, **Ruthann Aron**, **Arthur Holmes, Jr.**, and **Davis M. Richardson**.



## Facts, Figures and Maps

### Montgomery County Research Center



As the Research Center for all of Montgomery County, the Department is a central source of information needed by County decision-makers, both in the public and private sectors. Programs consist of: A) census information and demographic analysis, including the Census Update and Household Surveys; B) development tracking, which provides development and land use data; and C) forecasting activities, including population, household, and at-place employment forecasts.



Locating Montgomery County Montgomery County, Maryland, one of the nation's most diverse and best educated counties, is adjacent to Washington, D.C., the nation's capital.

The Montgomery County Planning Board's offices are conveniently located in Silver Spring, Maryland.



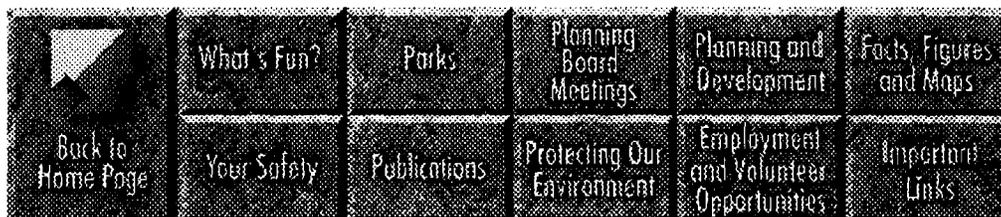
GIS

MC:MAPS: digital maps of Montgomery County. *Note: This section has a graphic dependent interface. NEW*

GISnews is a quarterly publication of the Research and Information Systems Division in cooperation with the MC:MAPS Consortium.

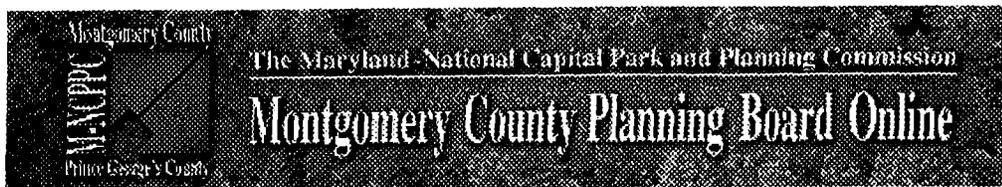
December 1995

Please send any questions or comments about this home page to: [research@mncppc.state.md.us](mailto:research@mncppc.state.md.us)



### Quick Links to Other Pages

[Home Page](#)



## Publications

The Maryland-National Capital Park and Planning Commission offers many publications including:

Area Master Plans and Reports are publications you may want to review before you sign a contract on a new home to see what is proposed for the future. Master plans for Montgomery County's 27 planning areas establish specific policy guidelines for land use, transportation, conservation, open space and parks, water and sewer systems, employment, and housing.

Brookside Gardens Program Guide is a quarterly publication by Brookside Gardens staff featuring gardening programs and events.

GISnews is a quarterly publication of the Research and Information Systems Division in cooperation with the MC:MAPS Consortium. GIS stands for Geographic Information Systems. The newsletter provides a forum to educate and inform readers about the GIS technology, while at the same time reporting the current status and developments of the County's GIS mapping efforts. Regular features in each issue include an update to the MC:MAPS development, a GIS jargon column, and a schedule of important GIS dates to remember.

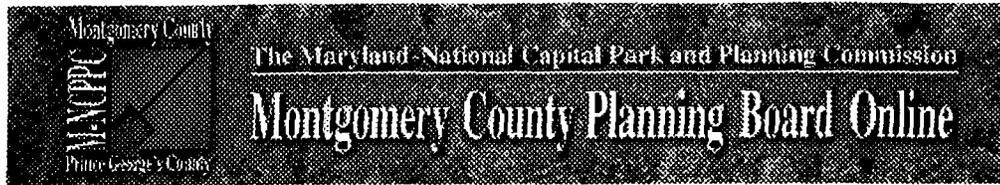
Nutshell News is a bi-monthly publication produced by park naturalists. It lists various nature centers, projects they offer and special events they hold. Activities geared to children and adults include wildlife, camping, planting, hiking, and endangered species programs.

The Guardian is a bi-monthly publication of the Montgomery County Park Police Division. It highlights the division's employees, its philosophy, activities, and contributions to the community. In addition, it contains profile articles on key decision makers within the county and those with the Park and Planning Department.

Planning Area Profiles Tabular demographic profiles of Montgomery County's planning areas are reported by four housing structure types: single-family detached, townhouse, garden apartment, and high-rise apartment. The tables for each area and the County detail population, employment, housing, and income data collected from the **1994 Census Update Survey**. Definitions of the data items found in the table as well as a map of the planning areas are included.

Highlights 1994 Resident And Household Characteristics present the demographic trends of the **1994 Census Update Survey**. Findings focus on major changes, or lack of change, in the characteristics of Montgomery County's population, households, employment, and households with a foreign born head or spouse.

For more information call 301-495-4610.



## Protecting Our Environment

The M-NCPPC's Montgomery County Planning Board, through its extensive system of parks and its planning and regulatory activities, protects Montgomery County's natural resources as it balances the competing needs of the larger community.

As a planning and regulatory agency as well as a land owner, the M-NCPPC safeguards the County's environment through natural resources planning, development planning, and review of development projects, as well as land acquisition and conservation of County parklands. Staff carry out a comprehensive program for the planning and management of County-wide natural resources (on private lands) and resources on lands under the stewardship of the M-NCPPC (public parklands).

Our responsibilities are mandated by Article 28 of the Annotated Code of Maryland and more recent environmental law and policy, including the County's General Plan and amendments (i.e. area and functional master plans, including the Park Recreation and Open Space (PROS) Plan), forest conservation and wetland legislation, federal National Pollution Discharge Elimination System (NPDES) requirements for park maintenance facilities, and the Maryland Economic Growth, Resource Protection, and Planning Act of 1992.



M-NCPPC staff members collect and analyze natural resources data needed for effective land use and land management decision-making from both the biological and planning aspects for best natural resources management. Our four-fold functions of inventory, planning, management, and research allow us to serve our customers including private citizens, the business community, other planning divisions, park managers, and federal, state, regional, and county government agencies.

Our work program includes:



Resource mapping; resource planning; support in development of area master plans, functional master plans, and park master plans; environmental review of development proposals, including management of the County forest conservation program; stewardship and enhancement of forest, aquatic, and wildlife ecology; and special projects.

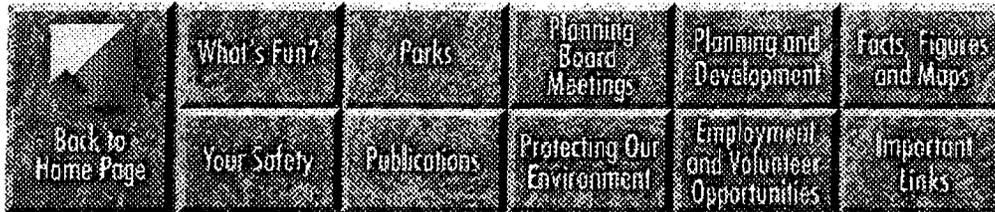
This organization balances healthy community development with effective natural resources protection and enhancement for the benefit of current and future generations of Montgomery County residents and visitors.

Programs for the enjoyment of the County's natural, historical, and archaeological resources are offered through the park system's nature centers, historic sites and interpretive programs.

Volunteering, employment and internships in the fields of natural resources management and environmental planning are also available.

Other agencies with environmental protection responsibilities in Montgomery County include:

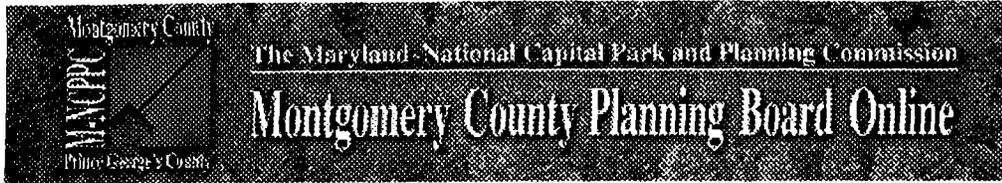
- Municipalities of [Rockville](#), [Takoma Park](#), [Gaithersburg](#)
- [Montgomery County Department of Environmental Protection \(DEP\)](#)
- [Washington Suburban Sanitary Commission \(WSSC\)](#)
- [National Park Service](#)
- [State of Maryland, Department of the Environment \(MDE\)](#)
- [State of Maryland, Department of Natural Resources \(DNR\)](#)
- [U.S. Environmental Protection Agency \(EPA\)](#)
- [U.S. Fish and Wildlife Service](#)
- [U.S. Army Corps of Engineers](#)



**Quick Links to Other Pages**

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[Parks](#) | [Planning/Development](#) | [Your Safety](#) | [What's New?](#) | [Planning Board Meetings](#) | [What's Fun?](#) | [Facts & Figures](#) | [Protecting Our Environment](#) | [Employment and Volunteer Opportunities](#) | [Publications](#) | [Important Links](#)



## Parks and Recreational Opportunities

As stewards of a 28,000-acre park system, we have achieved a level of park planning and development that has gained national recognition. Our park facilities offer passive and active recreation, special events, horticultural education, natural and cultural history, and volunteer opportunities. We also provide a variety of great meeting, conference, and wedding facilities that you can rent. And we have The Maryland-National Capital Park Police, who have your safety as their top priority.

Since we are in the business of developing and maintaining park facilities, we frequently seek contractors through our bid proposals.

In Montgomery County, the Commission does not oversee the active recreation programs. For more information about these programs, see Montgomery County Department of Recreation.

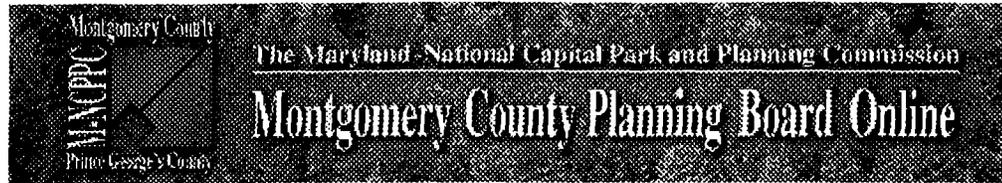


### Table of Contents

- Montgomery County Parks -- Yours for Life: an alphabetical list of park facilities.
- Park facilities listed by category:
  - Administrative Offices
  - Campgrounds
  - Gardens
  - Golf Courses
  - Group Picnic Areas
  - Indoor Ice Rinks
  - Indoor Tennis Courts
  - Lakes
  - Meeting, Conference, and Wedding Facilities
  - Nature Centers
  - Playgrounds
  - Stables
  - Trains and Carousel
  - Regional and Special Parks

Park Planning and Development

Bid Proposals



## What's Fun?

If you're looking for ideas to entertain and enlighten children, out of town guests or to give yourself a needed break, you'll find plenty of fun in Montgomery County's 28,000 acres of parkland. For even more details, call 301-495-2525.

If there's a wedding or family reunion in your future, Rockwood Manor, The Lodge at Seneca Creek, Armory Place or Woodlawn Mansion just may be the perfect place. Call 301-585-5563.

In the future, we'll add a new page Just for Kids and their parents to give you ideas for a great afternoon.

### **Golfers, do we have a course for you!**

Four outstanding Golf Courses suit every golfer from the beginner to the pro. For a real challenge on hilly terrain and spectacular scenery, try tackling the new Little Bennett Golf Course in Clarksburg near the Frederick County line. At Northwest Park and Needwood, you can choose from the 9-hole courses or the 18-hole courses at both locations. Sligo's nine hole golf course, located inside the Beltway in Silver Spring and close to Washington, DC, offers a challenge to beginners and intermediate golfers. All four have pro shops and a snack bar or club house.

### **Tennis Anyone?**

281 outdoor tennis courts are scattered throughout the county in small and large parks, and some have coin-operated lights. For the location nearest your home or office, call 301-495-2525. Cabin John and Wheaton Regional Parks have two indoor tennis facilities that provide reservable courts for your enjoyment all year.

### **Basketball**

Shoot hoops on any of 133 courts scattered throughout our parks.

### **Horseback riding**

Board your horses, take lessons or arrange for a trail ride at three stables and equestrian centers.

### **Camping**

Pack up your tent, stow your gear and take the whole family camping at one of four campgrounds, open March through November. Little Bennett Campground, with 91 campsites with water and electricity, even stays open Fridays through Sundays during the winter months. Our primitive campsites are for small groups at Cabin John Regional Park and Parklawn Group Picnic Area.

Special Events - We have ongoing nature center classes, forums, fairs, children's activities and more.

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## **E. Washington Suburban Sanitary Commission**

The Washington Suburban Sanitary Commission (WSSC) is a bi-county agency founded in 1918 by an act of the Maryland General Assembly. WSSC provides water and wastewater services in an areas covering roughly 1,000 square miles, with nearly 1.5 million customers in Prince George's and Montgomery Counties.

The policy-making board of WSSC is comprised of three commissioners from Prince George's County and three commissioners from Montgomery County. The Commission employs over 2,000 people in 18 locations throughout the two counties to provide safe and reliable drinking water.

### **1. Establishing an Internet Presence**

Internet connectivity is increasingly becoming a business requirement for many WSSC network users. These business requirements range from obtaining information that was formerly received via the mail to communicating with customers, contractors and employees. WSSC is currently evaluating a two-phased approach to address these business requirements that first provides WSSC's network users with secure connectivity to the Internet and second develops a foundation for WSSC's use of the Internet for business applications and communications.

In the interim, WSSC is using a Web site external to the organization to assist with project management and communication for one of its projects. WSSC established a link from this page to public information pages about the project that can be accessed by any Internet user. In addition, WSSC is providing a limited number of individual Internet accounts through a commercial Internet service provider for users with a business requirement as approved by management.

#### **(a) Servers and Networks**

WSSC's Facilities Construction Division recently established a Web site ([wssc.gcn.net](http://wssc.gcn.net)) with the Global Construction Network to assist with project management and communication for the Parkway Waste Water Treatment Plant construction project. The WSSC's Environmental Advisory Committee page, which is linked to this site, contains meeting minutes and other environmental information related to WSSC. This Web site is external to and not connected to WSSC's networks. (Copies of pages from this site are at WSSC Attachment A.)

WSSC has also recently obtained an account with a commercial Internet service provider (DIGEX) for employees to access Internet services from a stand-alone computer located in Information Systems. Services include WWW access, file transfer through FTP, and electronic mail.

#### **(b) Security**

As part of its first phase of establishing secure Internet connectivity for WSSC network users, WSSC expects to secure access to the Internet by implementing a firewall system that will allow WSSC network users access to the Internet while protecting WSSC's internal networks from unauthorized external access.

## **2. Providing Information to the Public**

WSSC expects to use its Web pages to present information to and communicate with customers, contractors, and employees. An important element of this process will be establishing standards for the design and content of the Web pages, including review by the Office of Communications.

### **(a) Determining What Information to Provide**

WSSC currently provides information on the Parkway Waste Water Treatment Plant project and activities associated with that project. Also included on that site is a brief introduction to WSSC, including the agency's mission statement.

The agency expects to determine what information to provide on its official Web pages during phase two of the proposed two-phase implementation plan. WSSC also expects to develop policies and guidance for offices and divisions to follow when developing pages for the Web site.

### **(b) Creating and Maintaining Pages**

As a precursor to establishing a home page, WSSC recently reserved an Internet domain name: [wssc.dst.md.us](http://wssc.dst.md.us). Policies, procedures, and guidance to divisions and offices for putting up pages will be developed as part of phase two of the proposed implementation plan. To ensure consistency among the pages, the policy will include a mandatory review by the Office of Communications.

In the interim, WSSC established a Web site ([wssc.gcn.net](http://wssc.gcn.net)) with the Global Construction Network to assist with project management and communication for the Parkway Waste Water Treatment Plant construction project. The site contains a public section containing general information about WSSC and the project that is accessible to anyone on the Internet.

### **(c) Interacting with the Public**

WSSC does not currently interact with the public via the Internet.

## **3. Providing Access to Employees and Others**

As part of phase one of the proposed implementation plan, WSSC will define an acceptable usage policy and determine the types of Internet services and sites that will be available to authorized WSSC users with business requirements. In the interim, WSSC is providing access to a limited number of employees for management of the Parkway Waste Water Treatment Plant construction project and approximately six other employees that have demonstrated a business need to management. Access is provided through a commercial service provider.

**(a) Determining Need for Access**

Currently, access to the Internet is being provided on a case by case basis. The agency expects to develop a formal policy during the first phase of its proposed implementation plan.

**(b) Local and Dial-up Connections**

WSSC does not provide local access to the Internet through the agency's local area network. WSSC currently provides dial-up connections through commercial Internet service providers that are used to access Internet services. One connection is located on a stand-alone computer in the Information Systems office. WSSC has also provided a limited number of individual Internet accounts through a commercial provider for users with a business requirement as approved by management.

**(c) Use of the Internet by Employees and Others**

As part of phase one of the implementation plan, WSSC will define an acceptable usage policy and determine the types of Internet services and sites that will be available to authorized WSSC users with business requirements.

**(1) E-mail**

WSSC does not have an enterprise-wide e-mail system. Employees that have been granted Internet access can use e-mail as part of their services. WSSC is in the process of evaluating agency-wide e-mail systems, which will include an Internet gateway.

**(2) Researching Issues**

WSSC employees do not currently subscribe to any Internet fee-based research services. Some of the current Internet research uses are:

- obtaining comparison prices for the purchase of products;
- tracking state legislative bills;
- accessing free legal services to obtain legal rulings and case decisions,
- receiving input for technology decisions; and
- new product information and fixes or shared user experience with software and hardware bugs.

As part of phase one of the implementation plan, the agency will develop policies, procedures, and guidance to divisions and offices on research activities and subscriptions to special services.

### **(3) Downloading Files**

Current Internet users can download files and e-mail attachments through the external Internet service provider. WSSC will examine the experiences of the current employee use of these services and develop policies and guidelines as part of phase one.

### **(4) Other Uses (newsgroups, telnet, listserves)**

WSSC employees that currently have connections to the Internet have newsgroup, telnet, listserve, and FTP services available to them through the external service provider.

### **(d) Restricting and Monitoring Use**

WSSC is not currently restricting or actively monitoring employee use of the Internet. All of the employees having Internet access were approved for connections by management based on a demonstrated business need. This issue will be examined further during the agency's considerations for providing more employees with access.

### **(e) Training**

To date, WSSC has not provided training on using the Internet or the browser software. The external service provider gives each user the necessary software and is available for technical support. The browser software has a help facility and there are numerous sites on the Internet that provide information and help for the most widely used Internet services. As part of phase one, WSSC will develop a training program that will be required of users in order to ensure that Internet services are used effectively.

## **4. Acquiring Services via the Internet**

WSSC does not acquire any services via the Internet at this time.

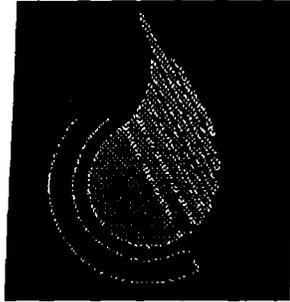
## **5. Costs and Benefits**

Costs and benefits will be examined during each phase of the WSSC's efforts to establish an Internet presence and provide connections for the agency's employees. The agency will examine the costs and benefits associated with securely connecting employees, implementing an agency-wide e-mail capability with an Internet gateway, establishing and maintaining Web pages, and providing necessary training.

## **6. Future Plans and Directions**

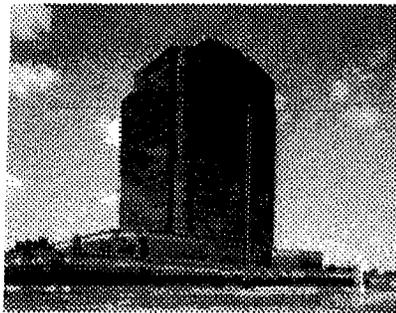
WSSC management has identified additional benefits of employee access to the Internet, which include opportunities for WSSC to communicate with customers and contractors via a Web site and with employee via internal use of Internet communications capabilities on what is called an Intranet. These opportunities range from posting of requests for proposals by Procurement to collaborative communication with contractors on capital projects to the processing of Human Resources benefits requests.

# WASHINGTON SUBURBAN SANITARY COMMISSION



## **HEADQUARTERS**

Richard G. Hocevar  
Building  
14501 Sweitzer Lane  
Laurel, MD 20707  
Information: (301)  
206-8000



WSSC is a bi-county agency founded in 1918 by an act of the Maryland General Assembly. It provides water and wastewater services to Prince George's and Montgomery Counties. The Commission is also responsible for plumbing/gasfitting testing, regulation and inspection.

The policy-making board of the WSSC is comprised of six Commissioners, three from Prince George's County and three from Montgomery County. WSSC's General Manager is responsible for carrying out the Commission's policies and managing its operations.

WSSC serves an area covering roughly 1,000 square miles, with nearly 1.5 million customers. To serve those customers, the Commission employs over 2000 people in 18 locations throughout Montgomery and Prince George's Counties.

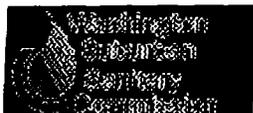
**Mission Statement:** We are entrusted by our community to provide safe and reliable water, life's most precious resource, and return clear water to our environment, all in a financially responsible manner.

### ***WSSC Projects on the World Wide Web***

- Parkway
- Suitland Water Tank

### **WSSC Environmental Advisory Committee**

# Project Mission Statement



We the members of the Parkway partnership team are committed to upgrade the facility with a high level of quality in a professional and cooperative manner. We further pledge to complete the project while earning the mutual trust and respect of the partners.

**Our Goals are to:**

- Construct a quality project meeting contract requirements within contract time and budgets
- Minimize disruption of ongoing plant operations
- Minimize change orders
- Have no Claims
- Utilization of the Project Specific Web Site as a communications, record keeping and tracking tool
- Achieve timely resolution of issues at the lowest practical level
- Maintain and continually improve the partnering process
- Create a safe work environment with no lost time injuries
- Completed project exceeds team expectations
- Address all rocks in the road in a timely manner
- Maintain a high level of open communications
- Have fun

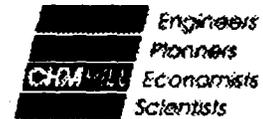
With a commitment to excellence, we will create a win-win relationship for the mutual benefit of all team members and the public which we serve.

[Project Players](#) | [About WSSC](#) | [About PSWS](#)

# Parkway Wastewater Treatment Plant Phase III Upgrade Contract #75 CD 2431-H

On May 2nd and 3rd of 1996 history was made in construction. The first World Wide Web based project partnering was conducted. This was a 2 day partnering session between the Washington Suburban Sanitary Commission, Danis Heavy Construction and CH2M Hill for the Phase III Upgrade of the Parkway Waste Water Treatment Plant. The focus of the partnering session was to establish good working relationships on the project and to outline the processes involved in using the project specific web site.

## Project Players

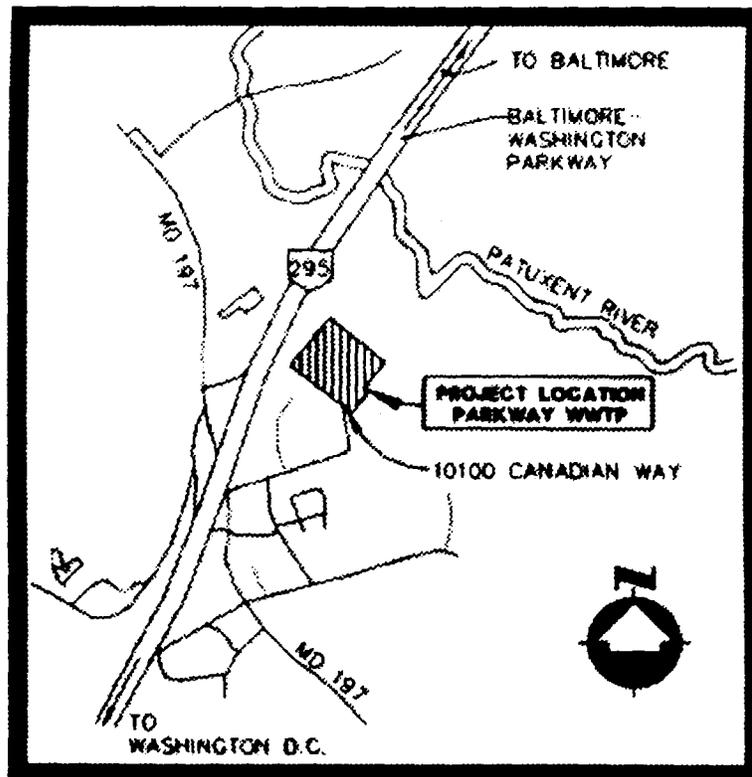


Project Site Photograph  
Location Map  
Vicinity Map

Vicinity Map

<http://wssc.gcn.net/public/vicinity.html>

## Vicinity Map



[Back to Project Players](#)

<http://wssc.gcn.net/public/progress.html>

## **Progress Photos**

**August, 1996** - Driving timber piles for the new Grit Removal Facility foundation. The pile driving operation was performed by Midlantic, a subcontractor to Danis Heavy Construction Company. [View Photo.](#)

**September 1996** - Formwork, Reinforcing Steel & Embedments for the Grit Facility Base Slab. [View Photo.](#)

**October 1996** - Reinforcing Steel and Embedded Conduits for Grit Facility Base Slab. [View Photo.](#)

**November 1996** - New Chlorine Contact Basin Excavation. [View Photo.](#)

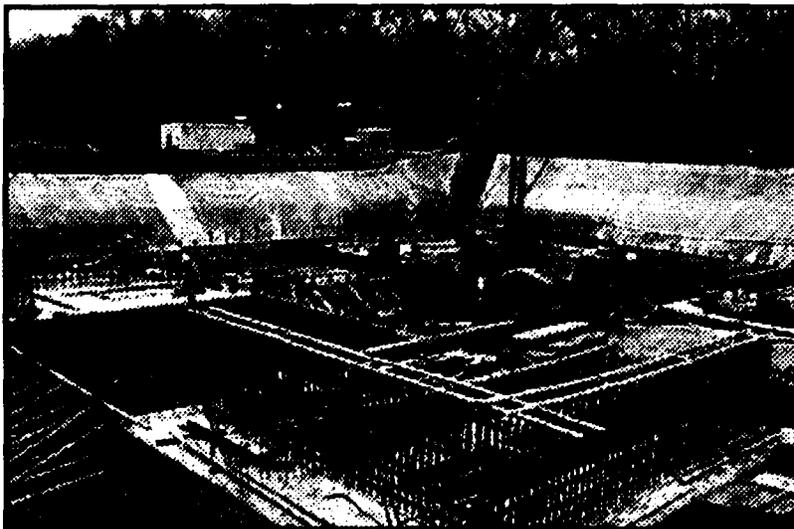
**November 1996** - Chlorine Contact Basin Base Slab Construction. [View Photo.](#)

**December 1996** - Chemical Building Concrete Demolition. [View Photo.](#)

Project Progress Photos

<http://wssc.gcn.net/public/prog5.html>

## **Progress Photos**



**November 1996 - Chlorine Contact Basin Base Slab Construction.**

[Back to Progress Photos page](#)

## Washington Suburban Sanitary Commission Environmental Advisory Committee

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### **Mission Statement**

The Washington Suburban Sanitary Commission Environmental Advisory Committee (WSSC EAC), established in July 1993, is a committee of residents of Prince George's and Montgomery Counties. Its mission is to:

- Advise the Commission on local community and environmental issues associated with proposed projects.
  - Sensitize the Commission, during the planning of projects, concerning community and environmental impacts.
  - Enable the Commission to better plan and design projects that avoid or minimize community and environmental impacts.
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### **Administrative Details**

- Details about the WSSC EAC, including membership criteria and procedures, as set out in a memorandum from WSSC.
- General by-laws for the WSSC EAC.
- Resolutions passed by the WSSC EAC.
- Links to other sites that provide information on hydrology, water quality, environmental organizations, and government resources.

### **WSSC EAC Meeting Minutes**

- July 12, 1995
- September 6, 1995
- October 11, 1995
- November 1, 1995
- December 6, 1995
- January 3, 1996
- February 7, 1996 meeting cancelled due to inclement weather.
- March 6, 1996
- The April meeting will be on April 10, not April 3, due to Passover.

### **WSSC EAC Annual Reports**

- 1994 Annual Report.
- 1995 Annual Report.

### **Getting in touch with the WSSC EAC**

If you want to get in touch with the WSSC EAC, call William J. Kennedy at (301) 206-8081, or write:

Irene Grunberger, WSSC Environmental Advisory Committee Chair

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### **III. INTER-AGENCY COOPERATION**

The Interagency Technology Policy and Coordination Committee (ITPCC) was established to coordinate plans and policies among the agencies for technology projects. The ITPCC authorized a number of subcommittees to assist with coordinating the various County and bi-County agencies efforts for a number of projects. The ITPCC's Internet Coordination Subcommittee, comprised of representatives from each of the agencies, shares experiences and knowledge to develop procedures and coordinate the agencies' technical efforts in connecting employees to the Internet and establishing and maintaining the agency Web sites.

The Public Information Officers in the various agencies are also contributing their expertise to creating, maintaining, and coordinating the agencies' home pages. These staff coordinate with departments and offices in their agencies and with their counterparts in the other agencies through the Interagency Public Information Officers Working Group.

#### **A. Opportunities for Sharing Information and Resources**

There are numerous opportunities for sharing information and resources among the agencies. While there will inevitably be differences among the agencies in their approaches to determining what information to display on their pages, there are many technical and policy areas that may be coordinated.

##### **1. Policies and Procedures**

The ITPCC is dealing with the policies and procedures for connecting employees and providing instruction on proper uses of the Internet. The Internet Coordination Subcommittee meets regularly to share technical experiences and knowledge and to discuss procedures to ensure data security. Members of the Subcommittee will continue to use this forum for exchanging technical information and sharing ideas. The members of this Subcommittee intend to coordinate with each other and arrange for sharing of resources whenever practical. The Subcommittee will develop procedures on how an agency should notify other agencies of something new and how to go about sharing it.

##### **2. Acquired Knowledge and Experience**

The Internet Coordination Subcommittee will continue to meet periodically to share knowledge and experience on virus protection, data and site security, software improvements and updates, and other technical issues. Members believe all the agencies benefit from these interactions. This sharing of information and experiences will be extremely valuable as the agencies continue to expand their Internet offerings to both employees and the public. The Subcommittee will establish procedures for members to keep each other informed on current issues between meetings.

##### **3. Training Opportunities and Materials**

The Subcommittee has identified opportunities for the agencies to share information and resources for training employees on using the Internet to assist with their work and on coding pages for presentation on the agencies' Web sites. The agencies can establish procedures that use e-mail and fax facilities to notify other

agencies of their training programs and openings. Copies of training materials could also be forwarded for review and possible sharing.

#### **4. Legal and Copyright Issues**

Coordination on legal and copyright issues is best handled by the agencies' legal staff. E-mail, bulletin boards, and fax capabilities could be used by inter-agency staff to notify one another and discuss legal and copyright issues that arise from time to time. Agency legal staff can also inform and advise the appropriate personnel in their agency's departments and offices via e-mail or memorandum.

### **B. Coordinating Information Provided to the Public**

The Interagency Public Information Officers Working Group (IPIWG) coordinates home page design and reviews page content to maintain an appropriate and consistent overall look and feel for the agency Web sites. This group also works together to coordinate the individual agency Web sites and ensure there are appropriate links that connect pages on related topics in the various agencies. In most agencies, the individual departments and offices determine the final content in consultation with the agency's information officer.

#### **1. Connecting Pages**

IPIWG members coordinate links to related topics within their organizations and among the various agencies on issues related to connecting the agencies' Web pages. The group also coordinates the appearance and content of the various Web sites.

Agency departments and offices are encouraged to add links to related pages of other departments and offices within their organizations and among the other County and bi-County agencies. Links to similar State and Federal organizations might also be appropriate on certain pages. Such links might include the State and Federal offices and departments of natural resources, transportation, environmental protection, health, education, planning, and budget.

#### **2. Joint Ventures**

To date, the M-NCPPC is the only agency that has actively participated in an Internet joint venture. Staff of the Montgomery County half of the Commission worked jointly with the Prince George's County half to design, create, and launch the initial version of the agency's home page. Montgomery County and Prince George's County staff worked together on technical issues, coding, and style for the pages put up on the Web site to ensure similar content and presentation for the two counties.

The Internet Coordination Subcommittee has identified a number of opportunities for the agencies to cooperate and conduct joint ventures. For example, the agencies might cooperate to examine the feasibility and develop methods for jointly acquiring goods and services via the Internet. Departments and offices in each agency that are responsible for scheduling and registering classes may also benefit from a joint venture. Other areas that lend themselves to joint examination and development include the numerous permitting and licensing services offered by the various agencies.

All of the agencies have benefited from their ability to bridge each other's contracts, which is especially important for technology acquisitions. Subcommittee members will keep each other informed of their agencies' pending requests for proposals and any resulting contracts.

### **C. Electronic Commerce**

Many businesses believe the Internet will be an important marketplace for selling their goods and services. Thousands of private businesses already advertise their goods and services and accept orders via the Internet. Security concerns among Internet users are the primary reasons for refusing to complete their transactions on-line. To address these concerns, some companies offer customers the capability to place their orders on-line then call or fax credit card information.

A few organizations have recognized the uneasiness of potential customers and offer their services to act as a go-between for on-line transactions. Banks and software developers are also working on advanced encryption techniques to ensure privacy and secure transactions via the Internet. Market analysts predict that once the public becomes confident of the security for transacting on-line business, they will take advantage of their ability to shop from home at any time and will conduct an extremely high level of business.

The agencies have an opportunity to begin positioning themselves now for using electronic information technologies to improve business relationships with vendors and the public. First steps include advertising for products and services over the Internet and posting application forms that can be printed out and mailed in with payments. After security issues have been resolved to the public's satisfaction, applicants for County services should be able to transmit their application forms and payments electronically. At the Subcommittee level, the agencies will continue to share information on electronic commerce developments and explore areas that may be appropriate for doing business over the Internet.

### **D. E-mail and Researching Capabilities**

The most widely used Internet service is e-mail capability because people all over the world can economically communicate via e-mail. Four of the five agencies are providing e-mail capabilities to most of their employees and WSSC is planning to add e-mail capability in the near future. Internet Coordination Subcommittee members are benefiting from sharing information on their experiences with internal e-mail packages and on connecting their e-mail systems to the Internet. The agencies may want to consider establishing e-mail user groups to share information on legal issues, security, software updates, HTML coding, forms development, training, and other issues.

From time to time, administrators in all of the agencies express concern over employee use of the Internet for research purposes. While being connected to the Internet exposes employees to almost instant access to a wealth of information, employees sometimes have problems in locating the appropriate information quickly. A partial solution is for the agencies to distribute information on Internet search tools and coordinate their efforts to develop employee training in advanced research techniques.

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#### **IV. SUMMARY OF FUTURE PLANS AND DIRECTIONS**

The potential for public access to information through a common network is almost unlimited. The Internet already provides access to retail merchants, information services (such as newspapers and on-line magazines), commercial databases, and public information (such as library holdings, government documents, and pending legislation).

Eventually, connections to the Internet will be as common as telephone connections are today. Wide scale access will continue to facilitate the concepts of telecommuting (using the network to access information from home, conduct video conferences, etc.) and teleschooling (having students attend classes remotely, participate in two-way live video conferences and seminars, retrieve class assignments, and submit their homework electronically). Many organizations are already distributing marketing materials and product updates on-line and taking customer complaints and inquiries by e-mail. In time, many financial transactions could take place on-line.

The five County and bi-County agencies reporting in this document are at different stages of Internet access and use. The agencies' Web presence ranges from WSSC's one page description of the organization to the more than 40 departments and curriculum areas and approximately 100 schools that are currently publishing electronic pages for the world to read. Internet access for employees also varies substantially among the agencies, with about a dozen employees at WSSC either connected and having e-mail access to about 1,000 employees and faculty at the College with Internet or e-mail access. Agency plans for the future also vary widely, and are highly dependent on what the stage an agency is at in developing its Internet presence and connecting employees. All the agencies are beginning to examine future uses of technology to communicate more effectively both inside and outside the organizations.

**Montgomery College (MC)** recognizes a need to meet or exceed the use of technology in the public school systems and provide a bridge for students attending state or university systems. While MC is providing many employees and faculty with Internet access, the College's Web presence is static at this time. MC is currently investing minimal effort to provide passive information on the Internet, but anticipates a need to increase its investment in personnel, hardware, software, support, and training. This additional investment will be necessary if employees are to conduct business over the Internet and services are to be offered so the public and students can interact and conduct commerce with the College.

In the future, **Montgomery County Public Schools (MCPS)** would like to put all its policies on-line, add more school and department Web sites, increase the number of interactive databases that provide public information, and work with ongoing advisory groups to receive advice on content and services expected by the public and other visitors to the Web site. MCPS also recognizes potential to interact with vendors via the Internet.

**Montgomery County Government (MCG)** is in the evaluation-of-pilot stage of its Internet connection project. MCG hired an outside evaluator to interview Internet users and examine all facets of the program. The agency expects the consultant to provide management with a report on recommended changes prior to government-wide implementation.

MCG anticipates there is potential to economically provide services to citizens via its Web site. The possibilities range from putting up searchable databases of information that will be available 24 hours to electronically accepting applications for licenses, permits, employment, use of space, and other government services. The investment in Internet enabling technology can also be utilized internally to provide information and interact with employees efficiently and effectively.

The **Maryland-National Capital Park & Planning Commission (M-NCPPC)** expects that the Internet will be an indispensable method of doing business in the future, and is committed to an Internet presence in some form. Any public information that is currently being printed and mailed is a candidate for electronic distribution. The agency is especially interested in providing citizens with information about the planning process. M-NCPPC expects to someday provide a searchable database that citizens can use to locate parks, libraries, police and fire stations, and other government facilities near their homes and workplaces.

Management at the **Washington Suburban Sanitary Commission (WSSC)** has identified many future benefits of having a Web presence and providing employees with access to the Internet. These benefits include opportunities for WSSC to communicate with customers and contractors via a Web site and with employees via internal use of Internet communications capabilities on what is called an Intranet. Opportunities range from posting of requests for proposals by Procurement to collaborative communication with contractors on capital projects to the processing of Human Resources benefits requests.

#### **A. Providing Information and Interacting with the Public**

Near future plans for the College include posting the summer 1997 class schedule to attract four-year College students home with their families in Montgomery County for the summer. These students would be interested in taking classes at MC for the summer and transferring credits back to their four-year schools.

The next level of capability would allow a prospective student not only to look up a class, but also to register and pay for the class. In the future, students could apply for financial aid, check on grades and graduation status, and get advice from counselors about curriculum options and financial assistance. Companies could learn about and sign up for noncredit, continuing education courses for their staff, saving hours of employees' time standing in line. Information on room assignments, instructors, College events, and other day-to-day information could be made instantly available.

There is much information and many possible services that County government could someday provide over the Internet. Some areas with potential include: procurement and bid information and applications for vendors; permit information and application services for builders; tax and real estate information for citizens and others; employment opportunities and aggressive recruitment of "hard to fill" positions (such as police officers, firefighters, and computer programmers); and downloading of forms and applications for a myriad of County services.

The Montgomery County Council intends to maintain an archive of County Council actions and voting records on-line and is exploring database and search options to facilitate citizen use. After the shakedown period for their Web site, the Council intends to market the Internet option to those who are now on the weekly agenda mailing list and to the press. The Council plans a continuous evaluation process by soliciting user feedback. Plans for expanded offerings will be made in light of the level of actual usage, as well as user requests.

MCPS already provides public information and searchable databases on-line and expects to continue adding information from departments, offices, and schools.

M-NCPPC would like to offer the complete Planning Board packets on-line each week. Given adequate funding, within five years a relational database will be developed to allow Internet users to key-in the name of a particular area of the County, such as Silver Spring, and find out about any development plans, special exceptions, master plan updates, etc. under way in their neighborhood. In addition, residents could enter their street address and obtain a list the political districts associated with the address and the nearest public facilities (parks, libraries, police stations, etc.).

WSSC is in the process of planning its Web presence, including an examination of what information and services it should provide via the Internet.

All the agencies recognize that the Internet provides a tremendous potential for government to post public information and interact with citizens, vendors, and others in new ways. The agencies are taking a cautious approach to providing information and services via the Internet because they are aware that different levels of resources must be committed depending on the kind of information or service that is offered.

Posting information on the agency Web sites and interacting with the public, vendors and others requires different levels of commitment.

1. Static information rarely needs to be updated after the initial effort of posting the information (histories, reports, adopted resolutions, enacted legislation, printable application forms).
2. Semi-static information requires new postings or updates annually or as conditions change (phone books, budgets, home pages for elected and appointed officials).
3. Current information requires daily, weekly, monthly, or quarterly postings to remove or replace outdated information and add new items (employment announcements, requests for proposals, news releases, official agendas, action minutes, pending legislation).
4. Soliciting citizen input and comments on-line requires agency employees to acknowledge e-mail transmissions, respond appropriately, and compile data that is gathered (citizen surveys, comments on budgets, pending legislation, master plans, and other issues before the agency board, County Executive or Council).

5. Transacting business by accepting on-line registrations and applications for permits, licenses, and services requires a significant commitment of resources unless the agencies can re-engineer their processes to take advantage of the on-line medium (applications for employment, various permits, licenses, and agency services, registering for classes, requesting use of space, submitting proposals to provide products and services, and accepting payments).

## **B. Access and Use by Employees and Others**

Montgomery College plans to connect eight classrooms, three training centers for faculty and staff, and place 11 workstations in libraries at the various campuses to provide Internet access for student development resources and for researching transfer colleges.

MCPS will continue to add users and will need to provide increased capacity as more computers are added to the network. MCPS also anticipates a future need to develop an Intranet for internal use.

In the near future MCG expects to go beyond the pilot stage and increase employee access to between 1,500-2,000 users. Access to the Internet will continue to be made available to all employees with a business need, subject to department director approval and operating budget funding.

For fiscal and other management reasons, M-NCPPC employee access to the Internet will increase slowly and be limited to those with a valid business need for access.

WSSC is examining the issue of connecting employees to the Internet and will develop a policy to guide offices and departments in determining employee need for access. The agency anticipates that as employees are connected and become comfortable with the medium, they will suggest ways to use the technology to help them complete their work more efficiently, which will ultimately benefit the agency.

After making the commitment to connect employees to the Internet and establish a Web presence, many government agencies realize there are opportunities to use the same infrastructure to communicate and provide services internally. Establishing an Intranet allows management to disseminate information electronically to employees quickly and efficiently, and often reduces the need for printed materials and individual instruction. Some Intranet applications might include:

1. Posting of agency/department/division/office policy statements and standard operating procedures.
2. Providing government-wide internal phone and fax numbers.
3. Posting bulletins on benefits change seasons and other employee issues.
4. Posting descriptions of the various medical plans, retirement plans, and other benefits packages.
5. Providing printable forms to apply for employment, benefits, and changes to benefits.
6. Training materials (private companies already offer interactive training packages).
7. Orientation for new employees.

## **C. Acquiring or Providing Services via the Internet (Electronic Commerce)**

A recent article entitled "Invest in Electronic Commerce" appeared in *Government Technology* (April 1997). According to the article, "EC [Electronic Commerce] is credited with streamlining government forms processing, improving payments and collections, and reducing paperwork and its necessary storage. In fact, electronic commerce can also improve employee productivity, increase inter- and intra- agency communication, facilitate service to the citizen, and ultimately improve customer service. Strategic investment in truly electronic government will ultimately pay off, whether it is by saving taxpayers money, improving customer service, or promoting economic development.

The article encourages governments to start pilot projects today and to begin working with the technology as a strategic investment for the future. While the five County and bi-County agencies are interested in conducting electronic commerce, they are approaching the prospect cautiously.

### **1. Acquiring Products and Services**

#### **(a) Soliciting for Needed Services**

Some of the agencies post employment opportunities and requests for proposals on their Web sites, but do not currently accept applications or proposals electronically. All of the agencies are interested in investigating the possibilities of soliciting for needed services over the Internet, but would only consider additional options if secure transactions can be guaranteed. As electronic commerce over the Internet continues to develop and vendors offer more products and services through the medium, the benefits of using the Internet should outweigh the costs.

#### **(b) Ordering Products via the Internet**

All of the agencies believe there is potential benefit to ordering products via the Internet provided secure transactions can be guaranteed by the vendors. Each agency will need to examine its current product acquisition processes to determine whether any modifications would be necessary.

### **2. Providing Services**

As citizens become more acclimated to doing business on-line with private companies, they will invariably request that more and more government services be offered electronically. Governments tend to offer services at specified locations a certain number of days per week during established business hours. Services offered on-line are available at locations and hours convenient to the people seeking the services. The agencies are planning some expansion of services in the near future.

#### **(a) Applications for Permits and Licenses**

Two of the agencies are interested in using the Internet to accept applications for licenses and permits. In the near future, MCG will examine the feasibility, costs, and benefits of providing permit and licensing services over the Internet. If future funding allows, the M-NCPPC plans eventually to offer on-line park permitting for picnic shelters, recreation centers, etc.

### **(b) Registrations for Classes and Recreational Activities**

All of the agencies have registrations that could be taken over the Internet, and wish to consider the costs and benefits of such options provided security can be guaranteed. Admissions and registration to the College and applications for financial aid could be done via the Internet. MCPS anticipates that the public will someday expect to be able to register and pay for adult education classes on-line.

MCG recognizes a potential for providing registrations for classes and recreational activities via the Internet. In addition, M-NCPPC expects to offer nature center class registrations sometime in the future.

### **(c) Teaching Over the Internet**

Many College faculty are interested in teaching courses over the Internet. Ultimately, the Internet can improve quality and access to education by providing the means to deliver courses to students 24 hours a day anywhere they need to be. With some training and planning, faculty could deliver interactive seminars, provide lessons and test materials, and chat with students in on-line classrooms. Students with disabilities could attend classes from home, working students could attend classes during their lunch breaks from their desktop computers, and mothers with small children could get a degree without ever leaving the house.

MCPS currently has a few classes where teachers deliver instructional material over the Internet, and anticipates additional similar projects in the future. In the near future, MCPS also expects to set up a low-cost video-conferencing reflector for instructional use.

## **D. Inter-Agency Coordination**

The Internet Coordinating Subcommittee intends to continue meeting regularly to share information, knowledge, and ideas. As the various agencies experiment with offering additional services on-line, they can share their experiences and brainstorm solutions.

## **E. Evaluating Costs and Benefits**

At this point in the development of the Internet, establishing valid quantitative measures for cost/benefit analyses is problematic at best. Computer-based culture and the governmental and commercial infrastructure spawned by the Internet are in their infancy, and the ways in which traditional methods of operating will change are not readily predictable. The situation is analogous to the ways in which electrical utilities and railroads grew from local curiosities to standardized endeavors that transformed society. While the costs of providing information on the County's Web sites and connecting employees to the Internet can be measured in dollars, the benefits are less easily measured.

It is clear, however, that use of the Internet already provides substantial benefits to local governments that can best be categorized as cost avoidance and increased customer service. For example, the ability for employees to conduct on-line research and communicate with experts via e-mail may often prevent expensive mistakes being made.

Similarly, the ability to provide a mechanism for citizens to research government data bases and easily communicate concerns to elected officials and to government employees via e-mail may greatly improve the perceived responsiveness of government. These benefits are not readily measurable in dollars.

As the Internet becomes a universal means for transacting business, citizens will expect Montgomery County to electronically offer services and payment options similar to those offered by other government entities and private corporations. There may not always be an offsetting cost savings to be realized.

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## V. FINDINGS AND RECOMMENDATIONS

The Internet Coordination Subcommittee of the ITPCC met on numerous occasions and held discussions among and between the members to share knowledge and information. As a result of these meetings and member interactions, the Subcommittee makes the following findings and recommendations on the County's Internet efforts:

### A. Findings

#### *Web Presence and Providing Public Services*

1. There are external demands on each agency to have a Web presence and conduct business over the Internet. For instance, citizens and special interest groups want to access government planning documents and budget information, students want to access government sites for research projects, potential adult education and college students would like to register for classes and apply for financial aid, and community groups could reserve space in government buildings via the Internet.
2. To date, the various agencies have made different levels of commitment to establishing a Web presence and implementing Internet services. This has been due partly to different levels of resource commitment based on the agencies' internal priorities and partly to the availability of funding.
3. Each agency has unique needs that determine the configuration of their Internet services. Although the College and MCPS each provide educational services for students, each agency must also address special constituencies, such as faculty, community groups, and parents. WSSC and M-NCPPC both deal with environmental issues, but each agency also has diverse community stakeholders that follow information during master plan development and at the water project level. County Government has many of the same stakeholders as the other agencies, but must offer a myriad of information and services to meet citizen needs in additional areas, such as: public safety, health services, emergency services, local legislation, and other general government activities.
4. Internet activity is widely perceived in the County as a good investment in a technology with many potential benefits (e.g., efficient on-line service to high-volume, low-mobility, or physically remote customers). A majority of staff and consultants retained to advise or assist the agencies believe that the Internet investments are preparing the agencies for redesigning future business processes.
5. The various agencies are maintaining their Web presence with existing staff as part of their other duties, but will eventually need dedicated personnel resources to properly maintain their Web sites if additional services are to be offered to the public.

### **Internal Uses of the Internet**

6. All the agencies are either providing internal users with the industry standard Web browser that is provided gratis by the vendor to government and educational organizations or one that is an integral part of a standard software suite.
7. Intranet service could be an important addition to each agency's on-line offerings for internal users. Intranets would allow the agencies to post training materials with 24 hour availability, so employees and faculty can study at their own pace and at the most convenient times. Procedures manuals, benefits handbooks, phone directories, and other information could also be posted internally. Employees could access the desired information pages and perform searches to locate specific data, which should lessen the agencies' need to provide printed documents.
8. Internet (and Intranet) connectivity is in great demand by County agencies and staff. Providing these services represents costs incurred, such as staff time, computer hardware and software, and contracted services (e.g., professional services and Internet connection services). Costs are likely to continue to grow as services are expanded. However, there should be some offsetting resource economies as processes are redefined to take advantage of the on-line medium.

### **Policies and Procedures**

9. Most of the agencies have not produced written documents on all their policies and procedures for connecting employees and others to the Internet, uses of the Internet, legal and copyright issues, training, and security.
10. None of the agencies have developed procedures for reporting costs and personnel efforts expended in maintaining pages on the Web sites.

### **Agency Coordination**

11. The County's current policy of sharing information on bids and allowing the agencies to purchase under each other's contracts will assist the agencies to find and obtain the best Internet products and services at the most economical prices.
12. Sharing of knowledge among the agencies is less than formal and needs to be better coordinated. Formal procedures for sharing knowledge and information would ensure that technical knowledge and expertise resident in the various agencies will be shared.
13. As the agencies expand their use of the Internet, there will be opportunities to conduct joint training sessions and to develop and share training materials.

14. Information technology managers in all the agencies have major concerns for the security of the agencies' data assets. There are opportunities for the managers to share knowledge and experiences as these concerns are being addressed by each of the agencies.

## **B. Recommendations**

### **Web Presence and Providing Public Services**

1. The agencies should require their departments and offices to submit justification that includes a cost-benefits analysis as part of any request to place major new services on the agency's Web site.
2. The agencies should jointly develop criteria that will provide a common approach for departments and offices to follow in preparing their cost-benefits analyses. The criteria should recognize that some costs and benefits cannot be stated in dollars, but may be expressed in some other form of measurement. In addition, benefits may not always lend themselves to traditional forms of measurement. For instance,
  - Time spent (or saved) by assigning a task to current employees could be expressed in workyears per week, month, quarter, or year. (This time does not cost the agency additional dollars, but costs (or saves) the agency in terms of employee time that would have been spent on something else.)
  - Up-front costs to offer a service or product on the Internet could be linked to a dollar or time savings at some later date, or to an increase in customer satisfaction, or to a later cost avoidance. This is often the case when re-engineering efforts are a part of providing a new service (e.g., designing and establishing a common database that can be updated once and used to efficiently track information in-house and would not require special queries or conversions to put out on the Internet so visitors can initiate their own searches retrieve information).
  - Doing something now may have a lower cost than doing it in the future because of a current opportunity.
3. Each agency should develop procedures for their program managers to report costs and personnel efforts expended in developing services offered via their Web site and for maintaining their Web pages.
4. A process for reporting on Internet-related budget requests to the Council should be considered as part of the IT Decision Structures project.

5. The ITPCC should consider establishing a pilot program as a first step toward conducting commerce over the Internet. An agency might begin by accepting applications and reservations on-line. Some kinds of processes that might be adapted to this use include the following.

- Registrations for College, adult education, or recreation classes;
- Applications for various permits and licenses;
- Reservations for community use of ballfields, picnic areas, recreational buildings, or other government facilities; and
- Employment applications and resumes.

#### **Internal Uses of the Internet**

6. The agencies should consider training some employees in advanced research methods for obtaining information from the Internet.
7. The ITPCC should consider selecting one of the agencies to examine the costs and benefits of establishing an Intranet. The exercise should include an agency-wide survey to identify information and services that could be provided via the Intranet.

#### **Policies and Procedures**

8. The ITPCC should agree on guidelines that: (1) establish broad policy on connecting employees and others to the Internet, (2) define acceptable use of the Internet, and (3) address security measures. These broad guidelines would include statements similar to the following examples.
  - Agencies that operate Internet-based services on existing servers must ensure that critical information is not compromised.
  - Agencies must monitor information made available on their Web sites to ensure that it is appropriate and meets the County and agency standards for quality.
  - Use of the Internet, electronic mail, and on-line services should be viewed no differently than the use of other County equipment, e.g., telephone, fax, or copier, and agencies must ensure that all personnel who have access to these services are made aware of their responsibilities.
  - The Internet, electronic mail, and on-line services are intended to be used for business purposes only. Uses that interfere with normal business activities, involve solicitation, are associated with any for-profit business activities, or could potentially embarrass the County, must be strictly forbidden, and all agency employees should be advised to remove themselves from any newsgroups not dealing with work-related topics.

- Agency employees must not use the Internet, electronic mail, or on-line services for operating a business for personal gain, sending chain letters, or soliciting money for religious and political causes.
9. Each agency that does not currently have written policies on connecting employees and others, acceptable use of the Internet, and security measures should adopt and disseminate policies.
  10. The agencies should require that all employees receive training or detailed instructions on proper/improper uses of the Internet, security requirements, and protecting the enterprise, including directions on how to avoid viruses and how and when to run anti-virus software.

### Agency Coordination

11. The agencies should continue to explore opportunities to combine or coordinate Internet-related purchases of goods and services to achieve economies of scale. In addition, procedures should be established for the agencies to notify each other of pending RFP efforts.
12. The agencies should continue to use interdisciplinary groups to contribute expertise in the following areas: legal and copyright issues; security; training; creating and maintaining Web pages; technical aspects of accessing the Internet and connecting employees; and technical aspects of providing services over the Internet. Interdisciplinary members can provide valuable input for:
  - formalizing the agency's policies and procedures in written documents;
  - developing methods to disseminate policies and procedures to employees;
  - periodically reviewing and updating policies and procedures as necessary; and
  - participating with other agency groups to share information and expertise.
13. Internet Coordination Subcommittee members should continue to meet quarterly or consult via some other communication medium to discuss and share information. In addition, the group should draw from areas of expertise on the interdisciplinary teams in the various agencies to hold discussions on:
  - security issues and technological improvements;
  - additional Internet uses;
  - legal and copyright issues;
  - plans to add information or services to the various Web sites; and
  - new opportunities for inter-agency cooperation.

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## INTERNET DEVELOPMENT/GROWTH AND USER DEMOGRAPHICS

When the Internet first came into existence in the early 1980s, there were only 213 registered hosts (computers that provided services) connected to the network. By February of 1986, there were 2,308 hosts. Today, the Internet is undergoing tremendous growth, with several million hosts connected world-wide.

### Development of the Internet

One of the main goals of the early network (called ARPANET) was to allow researchers to exchange information in a much more timely and convenient manner. Through the file-exchange facilities, reports and data could be easily transferred from one researcher to another within a matter of hours, if not minutes. Programs that were developed at one site could be shared with others who were doing similar work. The resources of a powerful computer could be made available to labs that were too small to be able to afford to purchase such a machine for themselves. All of this has become a reality on the Internet, but the Internet has become something much more than this.

When researchers first began to explore the concept of a large-scale network, few envisioned the uses to which the network would be put or the eventual size of the network. The initial designers imagined that the network would facilitate cooperation between researchers by giving them access to easy information exchange and remote processing. Most of those initial network developers were surprised when one of the most used services turned out to be electronic mail.

In the early days of the ARPANET (even as late as 1981), the Internet community was so small that people knew almost everyone on the network. Most of the sites were either government or university research centers. If a researcher received a request for information from a colleague at another site, he or she generally would know the colleague (or know of him), and would spend a few hours of time answering the request.

With the growth of the Internet, this type of personal response has become more difficult. There are so many people on the Internet now that it is difficult to know all the people in one's own organization if it is large, let alone others on the network. Perhaps people know a few-dozen others who participate in a discussion newsgroup, or other researchers they have met at conferences or whose papers they have read in journals.

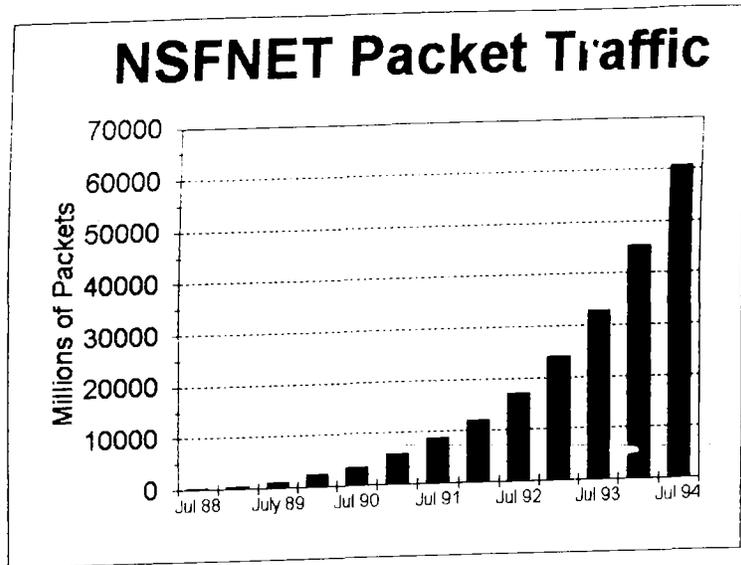
Even though this smallness has been lost, there is still a community of sorts on the Internet. In July 1994, access to the Internet was still relatively restricted. Compared to the hundreds of millions of people in the United States, the approximately ten million or so that had Internet access was still a small number.

### Growth of the Internet

The number of machines connected and the amount of traffic carried over the Internet has grown tremendously, and the type of organizations connected has changed over time.

As shown below in Figure 1.1, the number of data packets that flowed through the NSFNET went from 152 million in July of 1988 to 60,587 million packets in July of 1994.

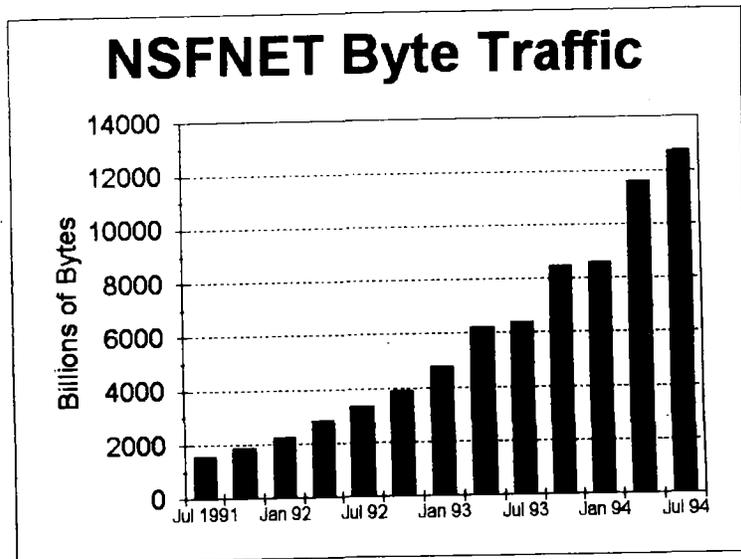
Figure 1.1  
Growth of  
NSFNET Packet Traffic  
from July 1988  
to July 1994.



Source: Special Edition - Using the Internet,  
Second Edition, Mary Ann Pike, Que Corporation, 1995.

The byte traffic increased from 1,594 billion bytes of data in July of 1991 to around 12,764 billion bytes in July of 1994 (see Figure 1.2).

Figure 1.2  
Growth of  
NSFNET Byte Traffic  
from July 1991  
through July 1994.

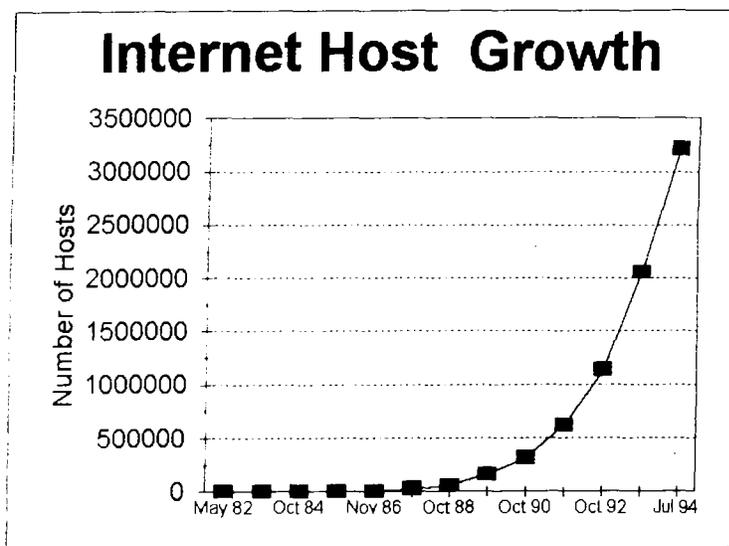


Source: Special Edition - Using the Internet,  
Second Edition, Mary Ann Pike, Que Corporation, 1995.

Approximately 35 percent of the network traffic in 1994 involved file exchange (FTP activity). Approximately 15 percent involved e-mail and UseNet traffic, although this dropped considerably from a high of almost 30 percent four years before. The interactive traffic (including tenet) remained almost constant, averaging about six percent of the traffic. Gopher traffic ran about four percent of the total, and the World Wide Web traffic was at six percent and growing rapidly. (Appendix I contains a glossary of terms.)

The number of hosts on the Internet grew significantly from 235 in May of 1982 to approximately 3.2 million hosts by July of 1994 (see Figure 1.3 below). The edu domain, which is for educational and research organizations, originally had the most hosts (about 850,000), but by 1994, the commercial domain had almost as many hosts (about 775,000).

Internet Host  
Growth from May 1982  
to July 1994.



Source: Special Edition - Using the Internet,  
Second Edition, Mary Ann Pike, Que Corporation, 1995.

From July 1994 to July 1995, the number of Internet hosts more than doubled from 3.2 million to 6.6 million, representing a 107 percent increase. During the one year period from July 1995 to July 1996 the Internet experienced another 94 percent increase in the number of hosts, for a total of 12.9 million hosts. The table below shows this history:

Date	Number of Hosts	6-month Growth	Annual Growth
July 1996	12,880,699	36%	94%
January 1996	9,472,224	43%	95%
July 1995	6,642,000	37%	107%
January 1995	4,852,000	51%	119%
July 1994	3,212,000	45%	81%

Source: Cyber Atlas & Network Wizards ([cyberatlas.com](http://cyberatlas.com) Web site)

There is some disagreement over the size of the Internet user population. Various surveys performed during the last quarter of calendar year 1996 resulted in a range in estimates of 27.0 million to 35.0 million Internet users in the United States. The forecast below (extracted from *cyberatlas.com*) shows that researchers are predicting the number of Internet/Web users will exceed 150.0 million by the year 2000.

IDC predicts that the total number of Internet users by the end of the decade will reach 163 million. Morgan Stanley's forecast is as follows:

(Millions)	1995	1996	1997	1998	1999	2000
Users of PCs	144	167	184	203	217	225
E-Mail	35	60	80	130	180	200
Net/Web	9	23	46	81	122	152
Online/hybrid	8	13	18	23	27	30

Sources: International Data Corp., Filed: Oct-96 and Morgan Stanley, Filed: Feb-96

### Market Forecast and User Demographics

Additional information obtained from the *cyberatlas.com* Web site shows the following market forecast and demographic estimates based on various Internet user surveys:

Market Forecast: The global Internet market is expected to soar to \$23 billion, as shown below:

Forecast by market segment	1995 (million)	2000 (million)
Network Services (ISPs)	300	5,000
Hardware (routers, modems, computer hardware)	500	2,500
Software (server, applications)	300	4,000
Enabling services (electronic commerce, directory services, web tracking)	20	1,000
Expertise (system integrators, business consultants)	50	700
Content and activity (online entertainment, information, shopping)	500	10,000
<b>Total Market</b>	<b>1,170</b>	<b>23,200</b>

Sources: Hambrecht & Quist, Filed: Dec-95

**User Demographics**

(based on various surveys and published on the *cyberatlas.com* Web site.)

**Age**

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The average age of computer users is 39, while the average Internet user's age is 32. About one in 10 Internet users (more than 3 million) is a child under 18 who uses the Internet from home or school.

**Filed: 26-Aug-96**

**Source: CyberAtlas Survey Consensus**

**Education**

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According to Nielsen Media Research, 64 percent have at least a college degree, which reflects the influence of academia on the Internet.

**Conducted: Aug/Sep-95**

**Source: Nielsen Media Research**

**Occupation**

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Internet users are most likely to be employed in either computer or education-related industries.

**Conducted: Apr/May-96**

**Source: GVU**

**Marital Status**

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Forty-one percent of Internet users are married and 41 percent are single.

**Conducted: Apr/May-96**

**Source: GVU**

**Gender**

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A consensus of various studies indicates that 32 percent of Internet users are female.

**Filed: 26-Aug-96**

**Source: CyberAtlas**

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**Income**

Nielsen reports a median household income of \$60,000.  
GVU says the average household income is \$59,000.

**Conducted: Apr/May-96**

**Source: GVU**

**Conducted: Aug/Sep-95**

**Source: Nielson Media Research**

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**Politics**

The largest group of Web users (30 percent) classify themselves as "moderate." Among U.S. respondents, 25 percent identify themselves as Democrats and 21 percent as Republicans.

**Conducted: Apr/May-96**

**Source: GVU**

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**Psychographics**

Studies that delve into the motivational behavior of Web users show that 70 percent of the Internet population is made up of "actualizers" and "experiencers." These groups lead social change and gravitate toward parts of society associated with innovation -- universities, trendy city neighborhoods, fashionable occupations, etc.

**Conducted: Feb/Oct-95**

**Source: SRI**

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**Race**

GVU5 reports that 87 percent of respondents are white. FIND/SVP says that 5 percent of Internet users are African-American, 3 percent Hispanic and 3 percent Asian.

**Conducted: Nov/Dec-95**

**Source: FIND/SVP**

**Conducted: Apr/May-96**

**Source: GVU**

## DESCRIPTIONS OF INTERNET SERVICES

**1. File Transfer Protocol (FTP):** The FTP service allows users to move files from one place to another. Users can connect to a computer on the Internet using an FTP program on a local machine, browse through the list of files that are available on the remote computer, and retrieve specific files. FTP allows for transferring any type of files, including programs, text, pictures, sound, or any other file format. FTP also allows users to upload files to a remote host, as long as the user has been given authority to write to that host. Many anonymous FTP sites provide an incoming directory to allow users to contribute to the collection of files on the server. FTP is an example of a *client/server system*. To connect to a computer system using an FTP program, the remote system must have an FTP server running on it.

**2. Anonymous FTP:** One of the most widely used Internet services. While FTP allows a user to transfer files from one Internet computer to another, there is one basic restriction: a computer cannot be accessed without proper identification (an account name and password). Anonymous FTP is a facility that lets users connect to a remote host and download files without having to be registered as a user. The system manager sets up a special userID named "anonymous" that anyone, anywhere on the Internet, is allowed to use. When a site sets up a computer to be an Anonymous FTP host, the system manager designates certain directories as being open to public access and the rest of the directories as off limits. There are thousands of Anonymous FTP hosts with files that can be downloaded for free.

**3. Archie:** Archie was the first of the information retrieval systems developed on the Internet. The purpose of Archie is to create a central index of files that are available on anonymous FTP sites around the Internet. Archie servers periodically connect to anonymous FTP sites that participate and download lists of all the files that are on the sites. These lists of files are merged into a database, which can be searched by users. Users can connect to one of the Archie database machines and search the database for a program or file. Because the database only knows the names of the files, the user must know at least part of the file name being sought. The Archie server will provide the machine name and location of files that match the search criteria entered by the user. The FTP program can then be used to connect to the machine and download the file to a local computer. The main limitation of Archie is that a user must know at least something about the name of the file to search for it. If the user has no idea what the file is called, several searches may have to be tried using different name strings before finding something that looks useful.

Another limitation of Archie is that not all Internet sites that have anonymous FTP servers participate in the Archie database. If there is a file that fits a user's specifications at a non-participating site, Archie will not be able to find it because it. Despite these limitations, however, Archie is a very useful tool for locating files to download through FTP.

**4. Gopher:** Gopher is another information distribution service within the Internet. Sites on the Internet that distribute information through the Gopher system set up and run Gopher servers to enable people with Gopher clients to display and download files and directories.

Gopher provides a menu-based interface to the resources available from the Gopher server, eliminating the need to enter cryptic commands to move between directories and retrieve files. The functionality of Gopher is similar to FTP, but the Gopher can connect to other Internet services in addition to displaying and retrieving directories and files. Displaying or downloading a file is as easy as selecting an item from a menu. This ease-of-use, plus the ability to put descriptive titles on the menu items, makes Gopher a much easier method of browsing files than simply using FTP.

One of the big advantages of the Gopher system is that providers can include menu items on a server that will move the user to other Gopher servers on the Internet. This ability to link Gopher sites together makes it easy to examine files available at one site and then move to other interesting Gopher sites. All Gopher servers are at some point inter-connected (the network of Gopher servers is known as Gopherspace). When a new Gopher site becomes available on the Internet, the administrators send an E-mail message to the maintainers of the Gopher software to have their site included in the master list of all Gopher sites worldwide. Many organizations run Gopher servers; universities and colleges, private companies, and government agencies all have information available through Gopher. The Gopher maintainers run a Gopher server (located at the address `gopher.tc.umn.edu`) that lists all the known Gopher servers and allows for connecting to them

**5. Veronica and Jughead:** Veronica searches menu items on Gopher servers. To use Veronica, a user must connect to a Gopher server that grants access to a Veronica server. The Veronica database is built by scanning the Gopher menus on servers around the world. Jughead does the same thing for a specific group of Gopher menus. When Veronica or Jughead has finished searching Gopherspace, it builds a Gopher menu that contains all of the items it has found to match the search. A user can then examine the items by selecting them.

Because Gopher menu items can be descriptive phrases (more than just file names), it can be easier to find information of interest through Veronica or Jughead than it is through Archie. The entries in a Gopher menu can say something relevant about the contents of a file or directory ("Topographical Maps" for example), rather than just listing the exact name of a file or directory. Veronica may find a file at an FTP site that Archie wouldn't because Veronica can be used to search for information on topics (maps, for example), rather than just searching for file names.

**6. Wide Area Information Server (WAIS):** The WAIS is a system that searches for a subject through documents on servers all over the world. WAIS searches a set of databases that has been indexed with keywords and returns addresses where documents can be located. The heart of the WAIS system is the use of client software running on the user's local computer that allows for inquiries in simple, English-like language. The client takes the question and sends it off to the selected WAIS.

The server takes the question and searches all the documents it knows about for the information wanted. If it finds documents that match the question, it returns indexes to the documents, which can be used to download the documents and display them on a local computer.

One of the key features of the WAIS system is the ability of a WAIS server to have indexes that actually point to other WAIS servers. A central site on the Internet maintains indexes to all known WAIS servers on the Internet, and the central site can be used as a starting point for searches.

**7. Telnet:** A telnet program is used to connect a local computer to a remote Internet host. Just as a host can run an FTP server that allows a user to transfer files, a computer on the Internet can be set up to run any program automatically when a connection to that computer is established. There are a wide variety of hosts providing these types of services (also called *host resources*) on the Internet, with information about everything from agriculture to space research. Some of these host resources are similar to bulletin board systems. But instead of dialing into one of these systems using a telephone line and modem, a user can connect over the Internet using a telnet program. Other host resources are programs that run automatically when telnet connects to the host. For example, some host resources let a user get weather forecasts, find out team schedules for different sports, or play a game of chess.

Just as a local FTP program is used to connect to an FTP server on another machine on the Internet, a telnet program is used on a local machine to talk to the telnet server on another machine anywhere on the Internet. The main difference between FTP and telnet is that the FTP server only lets users do things related to transferring files. When connecting to a machine using telnet, what is seen really depends on what the host resource provides. The host may present a bulletin board menu system or a simple command line interface, or it may send some output without the user typing anything.

**8. World Wide Web (WWW):** The World Wide Web is one of the newest client-server based Internet services. Developed in the early 90s, the service allows anyone to easily access and display documents that are stored on a server anywhere on the Internet. This is accomplished through use of a standard format for the documents that enables them to be easily displayed by any type of display device, and allows links to other documents to be placed within documents. The WWW documents that may contain text, graphics, animation, audio, and links to related documents. These documents are generally referred to as hypermedia.

**9. Users' Network (UseNet):** A large collection of discussion groups involving millions of people from all over the world. UseNet is made up of all the machines that receive network newsgroups, which are computer discussion groups or forums. The network news (*netnews*) is the mechanism that sends the individual messages (called *articles*) from a local computer to all the computers that participate in UseNet. The basic idea with UseNet is that when an article is posted on a local computer, the article is stored on the computer's disk, and then the article is sent to other computers that have agreed to exchange netnews articles. These machines then send the article to other machines, that send it to others; this continues until the article has reached every computer that participates in UseNet. Because each machine can send articles to many other machines, an article can reach the majority of UseNet computers within a few hours.

**10. Internet Newsgroups:** Information carried by UseNet is divided into *newsgroups*. The newsgroups are on-line discussions (via posted messages) on thousands of different topics. Each newsgroup is devoted to a particular topic. Newsgroups are organized into two broad categories: the world newsgroups, which are automatically distributed to all Usenet sites, and the alternative newsgroups, which are distributed only to sites that request them. There is a newsgroup for almost every topic imaginable. Many large UseNet sites carry well over 5,000 newsgroups.

**11. Electronic Mail (E-mail):** E-mail involves sending a message from one computer account to another and enables people to quickly communicate across vast distances. E-mail can be used to send important information about projects or products or to send files directly to someone. E-mail can be exchanged between the Internet and all of the commercial on-line services, including America On-line, CompuServe, and Prodigy. E-mail is becoming a popular way to conduct business over long distances. People can use E-mail to report problems or request information about products and services. The Internet does provides one of the fastest ways to communicate with someone half-way around the world.

**12. Mailing Lists:** One of the most popular Internet services is based on E-mail. The *mailing list* is a way for a group of people with a common interest to have discussions. One way of running a mailing list is to have each person of the group keep a list of all the members of the mailing list. Then, when someone wants to submit a message for discussion, that person just sends the message to everyone on the list. The disadvantage to this method is that everyone on the list has to remember to add and delete people from the list as the membership changes. There are thousands of mailing lists that an Internet user can subscribe to. Some of them discuss topics that are also found in the UseNet discussion groups, because not everyone who has an E-mail address has access to UseNet.

Most mailing lists consist of people who have agreed to discuss a particular topic, so there is no need to restrict the distribution of messages, and every message sent to the list is simply re-sent to every member of the list. Some mailing lists that discuss controversial topics (such as religion or politics) are *moderated*. In a moderated mailing list, a person reads every message that is sent to the list to make sure the contents of the messages are within the agreed-upon guidelines for that list. If a message is within the guidelines, it is sent on to the members. If not, it is deleted.

**13. List Server (Listserv):** There are now several programs that automate the administration of mailing lists. The most common mailing list administration system is called listserv. The members of a list can number in the hundreds or thousands, but the master list of E-mail addresses can be kept on the host that runs the mailing list program. All requests for information or to *subscribe* (participate) or *unsubscribe* (drop out) are automatically handled by the mailing-list software. All messages to the participants are sent to the central host, where the mailing-list software distributes them to the members on the list.

**14. Electronic Magazines:** The Internet is host to many magazines, journals, and newsletters that are published electronically. Some electronic magazines are distributed via a mailing list, while others are available for retrieval from well-known FTP sites. Two advantages of electronic magazines are the ease of distribution and absence of advertisements.

**15. Bulletin Board System (BBS):** A repository for messages and files, often devoted to a particular topic. A host system into which callers may dial with their modems to read and send electronic mail, upload and download files, and chat online with other callers. The Internet has many BBSs that can be reached by telnet.

**16. Talk Facility:** The Talk facility establishes a connection between a local computer and someone else's, and the connection can then be used to type messages back and forth. The Internet talk facility makes it possible to hold a conversation with someone no matter how far away they are. The other person sees what is typed as it is input, and both parties can type at the same time without the messages getting mixed up.

**17. Internet Relay Chat (IRC):** Internet Relay Chat is a Talk facility that enables multiple people to communicate simultaneously by typing messages. Like many other Internet services, IRC is a client/server application. People who want to talk with each other must be running an IRC client, and they must connect to an IRC server. Once on the server, they select the *channel* on which they want to talk (channels often are named for the topic they discuss, if they restrict themselves to a particular topic). Users connected to an IRC channel can type messages to the other participants and see messages that are typed by others on the channel. This is an interesting way of having a real-time conference, but the speed of communication is rather slow, since typing something is much slower than speaking. It does, however, allow everyone to participate equally, preventing any one person from taking over the conversation by "shouting" or "talking" continuously.

**18. Finger:** A client program that can be used to request information about a particular user. Finger systems on the remote host will respond by identifying the person behind a userID. Some finger systems will also give additional details, such as the person's phone number, office address, and other information. A computer can also be fingered, and will respond by showing a summary of all the userIDs currently logged in. Some computers use a finger facility to support public requests for certain information. For example, a particular userID and computer at the University of Washington at Seattle can be fingered to display information about recent earthquakes. The specific output of a finger command depends on the finger server at the remote host.

**19. White Pages Directories:** Within the often overwhelming world of the Internet, nothing is more important than a person's electronic address. Once you know someone's address, you can send mail, have a Talk conversation, or find out more about the person by using Finger. The White Pages Directories are special-purpose servers that can be searched through by name to find out a userID.

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## GLOSSARY OF INTERNET TERMS

1. **Network:** The term *network* refers to two or more computers that are connected together. This networking allows for communication and sharing of resources. A Local Area Network (LAN) is a network in which the computers are directly connected, usually by some type of cable. A Wide Area Network (WAN) is a grouping of computers or local area networks that are interconnected via telephone lines, fiber cables, satellite links, or some other form of technology. The wide area connections for most Internet travel is via the telephone systems.
2. **Internet:** The *Internet* is not really a network, but a way of hooking networks together so that they can exchange data, even if they are physically dissimilar. This is accomplished through standard protocols that any computer can translate.
3. **Data:** Any type of binary or text information stored or processed by a computer. Text information contains characters: letters, numbers, spaces, tabs, and some forms of punctuation. Any data that is not simple text is referred to as binary data. For example, a binary file may contain a picture, graph, or sound recording. Because of special formatting codes, most word processing and spreadsheet programs store their files as binary data.
4. **Client/Server:** Programs that ask for and provide services. All of the Internet services make use of a client/server relationship. A client program resides on the user's PC and is used to connect to another computer and ask for the help of a server program. When a user enters the proper commands, the client program connects to the appropriate server and makes sure the commands are carried out correctly. Each type of Internet client program has its own commands and conventions, but most provide built-in help for operating the program.
5. **Protocol:** A *protocol* is a set of technical rules that describe how something should be done. Protocols have been established to ensure that different types of computers can work together on the Internet, and programmers write their programs using the standard protocols. For example, there is a protocol that describes exactly what format should be used for a mail message, and all Internet mail programs follow the protocol when preparing a message for delivery.
6. **Transmission Control Protocol/Internet Protocol (TCP/IP):** The common name for a collection of over 100 protocols that are used to connect computers and networks. At a sending computer, the TCP divides a message into small packets and assigns a sequence number to each packet. The TCP also marks each packet with the address of the recipient and inserts error control information.

The IP transports the packets from host to host over the network and delivers the packets to the proper destinations. At a receiving computer, the TCP receives the packets, checks for errors, and reconstructs the original message based on the sequence numbers assigned to the packets. If the TCP detects an error, it can request that a particular packet be resent.

**7. Serial Line Interface Protocol (SLIP):** This is one of the older Internet protocols. SLIP outlines the procedure that sends Internet packets through the telephone lines to an from a PC modem connection. SLIP tricks the Internet into thinking that the PC is a workstation connected to a local area network that is directly connected to the Internet and has a valid IP or host address. The address is actually one of the many that belongs to the terminal server to which the PC is connected. The terminal server assigns a unique IP address to each incoming SLIP line it handles.

**8. Point to Point Protocol (PPP):** A more recent Internet standard governing the transfer of Internet packets via modems and telephone lines. Like SLIP, PPP fools the Internet into thinking a PC has a real IP address, allowing it to exchange packets with other Internet computers. PPP offers data compression, data negotiation, and error correction to make the connection work more smoothly.

**9. Simple Mail Transfer Protocol (SMTP):** The protocol that describes the format of a text mail message to be sent via the Internet, and how mail messages are handled as they are delivered. Every Internet computer runs a mail program that works behind the scenes to ensure that messages are addressed and transported in an orderly fashion. This program (referred to as the transport agent) follows the SMTP protocol to send and receive mail as a background operation.

**10. Multipurpose Internet Mail Extensions (MIME):** A mail protocol that can handle binary data along with regular mail messages. The binary data that is stored in a file is combined with a regular text message before sending. This process is generally referred to as "attaching" the binary file to the e-mail message.

**11. Universal Resource Locator (URL):** A statement, written according to strict rules of syntax, that specifies where a Web resource can be found. The URL indicates to the client application which protocol to use (HTTP, Gopher, FTP, WAIS, or Telnet), the name of a particular computer on the Internet that is to be accessed, and the exact location and name of the resource file to be called up or invoked from the located computer.

**12. Hyper Text Transport Protocol (HTTP):** Web-related communication is governed by this protocol. The HTTP defines the format for URLs.

**13. Address:** Internet *addresses* are the key to using the Internet. *Host addresses* (or *host names*) are used to retrieve files and connect to hosts that provide Internet services. *Mail addresses* are used to send messages to other Internet users. All Internet mail addresses follow the same format: the person's userid, followed by an @ character, followed by the domain name of a computer (userid@domain).

**14. Domain Name:** All Internet sites are identified by a unique *domain name* (such as erols.com). The domain name is made up of several pieces that identify the organization and the domain hierarchy to which it belongs.

**15. Host Name:** A host name contains the domain name in addition to a name identifying the particular host and any sub-domain it may be associated with at its Internet site. Host names are found in e-mail addresses and are also used when connecting to Internet hosts to use Internet services or retrieve files. A host name is made up of several words separated by periods. The rightmost word specifies the *domain* of the machine. Some common organizational domains are “edu” for educational institutions, “mil” for military sites, and “com” for commercial sites. Each country that is connected to the Internet has a geographical domain assigned to it. For example “fr” is the geographical domain name for France and “us” is the name for the United States. With host names, the leftmost word is always the name of a machine. The host name is really just a convenient way for people to refer to hosts, and the name is translated into an IP address (or host address), which is used by Internet software to get information to or from the host.

**16. Host or IP Address:** An *IP address* is a numerical address required of every computer directly connected to the Internet. Each IP address is a unique number assigned to identify the host. This address is usually represented as four numbers between 1 and 254 separated by periods, such as 192.58.107.230. Most software translates automatically between the host name and the IP address so it is generally not necessary to remember which numbers represent which machines.

**17. Domain Name System (DNS):** A TCP/IP service that is called upon to translate domain names to and from IP addresses. The DNS is the part of the Internet that keeps track of host addresses. Either the “host” or “nslookup” command followed by the host name can be entered on the browser address line to obtain the IP address of a host computer.

**18. Gateway (or IP router):** A portal from a network into a larger information resource such as a large packet-switched network or mainframe computer. The connection is usually accomplished through a dedicated computer connected to a dedicated telephone line capable of high-speed transfers. The gateway computer monitors all the messages passing along the gateway and, based on the IP address, either transfers the messages to the local network or routes them to the next gateway. Messages pass from gateway to gateway along the high-speed lines until they reach their destinations.

**19. Firewall:** A *firewall* is a computer running software designed to filter incoming and outgoing network traffic for unauthorized access to the system. The firewall is designed to stop intruders from getting into the local network to keep unauthorized material from getting out.

**20. Browser:** A client program used to access a Wide World Web server. Browser programs provide a means to search for and display information and to follow hypertext links to other information. A number of different client applications (browsers) have been developed to read and display WWW documents.

There are terminal-based browser clients (such as Lynx), and there are browser programs that have a graphical user interface and can display pictures (such as Mosaic, Netscape, and Internet Explorer). Some browser clients can also display multimedia files (such as movies and sounds) through multimedia player programs that are installed on the local computer. Many of the browsers provide for using the same interface to access other Internet services, such as FTP and Gopher.

**21. HyperText Markup Language (HTML):** WWW documents are text files that contain HTML coding. HTML commands are used to tag passages of text, which allows each WWW client to format the text in a way that is appropriate for screen display. The markup language provides for effective use of text formatting, such as creating larger text for headings, bold or italic text for emphasis, etc. HTML also enables providers to include pictures in documents that can be displayed by the graphical WWW clients (browsers).

One of the main features of HTML is its ability to insert hypertext links into a document. The hypertext links enable the user to load another WWW document by clicking a link area on the screen. A document may contain links to many other related documents, and the related documents may be located on the same computer as the first document or on a computer at another location. A link area may be a word, a group of words, or a picture.