Municipal Government Online:
How NYC Can Become the Internet City

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Executive Summary

New York City – a locus of creative minds and a robust public sector -- should be a world leader in using the Internet to encourage citizen involvement in government, improve the productivity of City agencies, and make public events more accessible to citizens. This report compares the use of the Internet and World Wide Web by New York City with those of ten large cities in the United States, as well as other urban governments that have made an exceptional effort to offer public information and services on the World Wide Web. Based upon this comparison, New York City has much to gain by building upon the experiences of other cities. The report also includes the results of a survey of local community boards in New York City to determine the extent to which such boards use e-mail and the Internet in their activities.

NYC LINK, the official web site of the City of New York has received national recognition and earned a "Best of the Web" award in 1997. Our municipal government provides a substantial amount of information on its web site and the site is fairly easy to navigate. However, the web site could be significantly improved in three broad ways – providing public data, documents and government reports, as well as the minutes of government meetings on the World Wide Web, making it more accessible all New Yorkers, and linking it to other organizations that provide essential public services.

The findings in this report indicate that less than ten percent of the community boards in the City of New York have their own web site, and less than 20% have e-mail systems that allow residents to directly communicate with the local board. Yet, more than half of the community boards without a web site expressed an interest in creating one. The most commonly cited barriers were funding, training, getting information about how to start a web site, and locating skilled personnel and necessary equipment. The City's web site should provide links to community boards that have sites.

To improve NYC LINK and communication with the residents and businesses of New York City, the report also recommends the following enhancements:

- **Public Safety.** The New York City Police Department should look to San Antonio and San Diego for models of how to present precinct or neighborhood crime data on the web. San Antonio and San Diego frequently post neighborhood by neighborhood crime statistics. San Antonio even provides electronic pin maps showing exactly

where violent crimes, burglaries and vehicle thefts occurred. The City should also allow residents to file complaints about non-emergency services via the Internet.

- **City Contracts.** The authors suggest that information about all public contracts and vendors be electronically accessible and that "Requests for Proposals" be made available on the Internet.

- **Real Property Data.** In Houston, the Harris County Appraisal District offers an on-line database of home values to aid property buyers, sellers and insurers. Visitors to the web site can search the database in various ways, including by property owner's name, property address. New York should create a similar database of real property.

- **Online store.** Chicago sells Windy City souvenirs on the web. There's no reason why the Big Apple shouldn't, too. To see Chicago's offerings, go to www.chicagostore.com.

- **Let the Sunshine In.** The Charter of the City of New York is essentially New York's constitution. This important document should be posted on the web, as Houston's is. And the City Council, Mayoral agencies and other government bodies should post the minutes or recordings of public meetings, hearings and other public proceedings.

- **Education.** The Board of Education provides lots of detailed information from annual report cards about public elementary and secondary schools in New York City on its web site. However, the link to this information is very difficult to find on NYC LINK. In addition, the City should work with the Board of Education to post other publications that parents need to make smart choices about schools for their children.

- **Online payments.** New York could build upon its experience with the kiosk program to allow New Yorkers to pay parking tickets, city taxes, licensing fees and fines with a credit card via NYC LINK. Currently New Yorkers can do so through information kiosks in 37 locations. But they must go to the kiosks rather than the kiosks coming to them via personal computer or public computers. Houston could serve as model: builders, plumbers, and contractors there can submit permit applications via the Internet and can also check on the status of those applications.

- **Online Community Boards.** New York City should provide managerial and financial incentives to encourage community boards to develop their own web sites and to make greater use of electronic communications.

- **Government Cooperation.** To encourage interaction among and between city government, other governmental entities and residents, NYC LINK should include more extensive links to other governmental and quasi-governmental bodies, such as the New York State Department of Education, Community Boards, Rent Guidelines Board, and the Hudson River Trust.

- **Public Internet Access.** Finally, the report calls for a system of public Internet terminals throughout the city -- at community centers, libraries, beacon schools, settlement houses, and public buildings -- so that all residents can gain access to municipal services through the Internet.

If New York City became Net York City, the cost of government could fall even as its availability to citizens grew. As we enter a new century of unimaginable new technology, it's time that more New Yorkers accessed their government online rather than merely waiting on lines.

Introduction

The rapid development of the Internet poses an enormous challenge and opportunity for the City of New York. The use of the Internet as an integral element of municipal government offers the potential to improve the delivery of public services, to provide information quickly and directly to citizens, and to enhance the productivity of public agencies. Commercial uses of the Internet, such as electronic commerce and online publishing, receive widespread attention, but, to date, far less attention has been given to municipal government initiatives to foster public uses of the Internet.

This report both describes the web-based components of New York City's public information technology efforts and compares NYC's progress on delivering services and information on the web with other large urban municipalities. The report first identifies specific areas in which the City can make improvements. Second, selected examples from the public, private, and nonprofit sectors are described in order to suggest future directions for municipal use of the Internet. Third, we suggest how the City's local community boards can better utilize the Internet to perform their functions – and what they need to do this. Finally, the report identifies policy initiatives for the Internet and discusses the vital role of the Department of Information Technology and Telecommunications (DoITT) in developing a long-term technology strategy for the City of New York.

I.   Analysis of New York City's Web Site

Public Information and Service Delivery

New York City's web site, NYC LINK (http://www.ci.nyc.ny.us), is one of the most important elements of its public information strategy.[1] It was launched in October 1995, re-designed and then re-launched in August 1996, and re-designed once more in September 1998.

The mission of NYC LINK, prominently featured on the home page, "is to provide the public with quick and easy access to information about New York City agencies, programs and services. The City's home page also provides, through links to external sites, information about cultural, educational, and recreational activities in New York City." In keeping with this mission, the City's web site offers a vast array of information, including e-mail addresses and phone numbers for most agencies, detailed listings of City services, and several interactive forms. The site has received national recognition and won a "Best of the Web" award in 1997 sponsored by, among others, the U.S. Conference of Mayors, *Government Technology* magazine and Public Technologies, Inc.

Given the scale of public sector activities in New York City and emerging telecommunications technology, there are numerous untapped opportunities to enhance New York City's web site. To help think through new approaches here, we examined the web sites of the top ten most populous cities in the United States, using 38 different services delivered via the web. For each service we note whether or not the city provides the service through its web site, and if so, whether or not the level of implementation was exemplary in comparison with the other cities. Detailed information for many of the services (including URLs) is provided in

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[1] In a meeting of the New York City Commission on Public Information and Communication, former Commissioner Ralph Balzano mentioned two technologies that "give [city residents] the capability of dealing directly with the government without ever leaving your workplace or your home or

footnotes to the tables in the following sections. These benchmarks provide "best practice" models in order to make improvements.

It is important to note that New York City collects an enormous amount of information about its residents and the firms that do business in the City, such as income tax data and other financial information. In our opinion, and given the experience of the Social Security Administration[2] and the Internal Revenue Service[3], the government should not, at least as of now, be engaged in collecting personal information and making it public. There are serious privacy and security concerns that are currently being addressed in the public and private sectors. Until the web is judged to be virtually foolproof in protecting data from prying eyes, this is one area that warrants special caution by the public sector.

Still, there are numerous services and much useful information that *can* be delivered safely via the web, but few cities take full advantage of the medium's potential. In our analysis, we found that most cities excelled in just one or two areas and lagged in most others. But because different cities analyzed had distinct strengths, each city provides a useful example that can be applied to particular municipal services.

We deliberately do not compare New York City with smaller cities such as Palo Alto or Seattle. Such comparisons, though often made, are unfair. Palo Alto has a much smaller population and the scale of services it delivers isn't even in the same league as New York City.

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even your local neighborhood." The first technology mentioned was information kiosks; the other was the city's web page. As per transcript of the May 16, 1997 meeting.

[2] In April, 1997, the Social Security Administration shut down a web site offering personal benefit information via the Internet. The service had been available for just a month when privacy concerns were raised. The agency feared that since social security numbers are used in commercial databases, private information could be obtained by people not entitled to it.

[3] The Internal Revenue Service withdrew its electronic tax-filing program (called Cyberfile) in 1996 after the General Accounting Office detected security flaws in the program.

Seattle, with a population of approximately 500,000, is less than one-third the size of Manhattan alone. Instead, we analyze the web sites of the ten most populous cities[4] in the United States.

The comparison of municipal web sites is presented in the following series of charts, organized by type of service. In the following charts, a blank implies that the service was not offered, a ✔ means the service was offered, and ✔ ✔ indicates exemplary implementation.[5]

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[4] This list may be unfamiliar to most people because comparisons of population usually list the most populous metropolitan areas. For the purpose of this report metropolitan areas are useless, since they are comprised of several different local governments—and hence have different web sites.
[5] Data were collected in November 1998 and spot checked in April 1999.

General Services

As shown in Table 1, New York City performs quite well in the provision of basic services on the web. Like many other cities, it provides two gateways for City services -- by department and by service name. Each is easily readable and has a comprehensive index with links to appropriate services. Furthermore, the City lists e-mail addresses for most departments. The City's web site is also searchable—a useful feature that a surprising number of large cities have failed to implement.

Unlike the web sites for Chicago and Phoenix, one cannot make online purchases through New York City's web site. However, there is a New York City Store web page that provides the information and forms for purchasing New York City gifts and clothing but not directly through the web. Many other cities use secure servers for selling municipal souvenirs and gifts, an option that New York City should consider.

New York City's site is one of few sites that does not allow access to texts of municipal codes or the City charter. A good model that does include city codes is Houston. Although provided by a private vendor, viewing the codes is free to the public.

Overall, New York and San Diego tied for the most number of general services offered— with seven of nine examined being accessible through the web. However, New York City's implementation was exemplary in three respects, the highest of any city.

Table 1: General Services

	Services by Subject	Services by Department	Department E-mail Addresses[6]	Requests for minor City Services[7]	Text of Municipal Code and/or City Charter	E-Commerce (selling City products)	Campaign contributions	Availability of City Budget	Searchable
New York	✔ ✔	✔ ✔	✔ ✔	✔[8]			✔	✔	✔
Los Angeles	✔	✔		✔[9]	✔[10]		✔[11]	✔	
Chicago	✔	✔	✔	✔	✔[12]	✔ ✔[13]			✔
Houston	✔[14]	✔		✔[15]	✔ ✔[16]			✔	✔
Philadelphia	✔	✔			✔			✔	
San Diego	✔	✔	✔	✔	✔			✔	✔
Phoenix	✔	✔				✔		✔	
Dallas	✔[17]	✔						✔	
San Antonio	✔	✔	✔	✔ ✔[18]	✔ ✔[19]				
San Jose	✔	✔[20]	✔		✔ ✔[21]			✔[22]	

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[6] Apart from general "feedback" buttons. The following departments of each city were tested: Health, Parks/Recreation, Police, Fire, Social Services, Mayor's Office, Tax/Revenue. If a majority of these departments did not have an e-mail address, the city did not qualify for a ✔ .

[7] Such as reporting problems with sanitation (missed pick up), reporting illegal dumping, etc.

[8] Over and above the many e-mail addresses, one can request street light repair from the web page: http://www.ci.nyc.ny.us/html/dot/html/ssss/literepr.html

[9] Such as fallen trees, etc.

[10] Through link to a commercial web site

[11] LA provides data through downloadable files. See: http://www.ci.la.ca.us/dept/ETH/index.htm. The files then have to be imported into spreadsheet—not easy but at least the data are available

[12] Major Excerpts, e.g. http://www.ci.chi.il.us/WorksMart/Buildings/BuildingCode/

[13] Mostly souvenirs as can be seen at http://www.chicagostore.com/

[14] Simple, straightforward and to the point: http://www.ci.houston.tx.us/citygovt/muni_dir/index.html

[15] Through liaison officers … see footnote above.

[16] Especially well done and can be seen at http://www.municode.com/CGI-BIN/om_isapi.dll?infobase=10123.NFO&softpage=Browse_Frame_Pg42

[17] Good Execution http://www.ci.dallas.tx.us/html/service_and_programs.html

[18] Good execution: http://www.ci.sat.tx.us/svcreq/index.htm

[19] The municipal code, like Houston, is available through Infobase, a commercial vendor. The city charter is available at http://www.ci.sat.tx.us/clerk/charter.htm

[20] Clear, excellent web page of departments and e-mails: http://www.ci.san-jose.ca.us/table2.shtml

[21] Through Infobase, like San Antonio and Houston

[22] San Jose provides the budget in a nice, user friendly format, along with a summary: http://www.ci.san-jose.ca.us/budget/BudgetinBrief.html#anchor16709227

Permits and City Contracts

Municipalities require permits for a wide range of activities, from regulating the use of public property to helping maintain public safety. For example, permits are usually required for special events in parks and building alterations in most cities. Application forms are required for each permit and need to be filed and submitted for approval to city government. Transferring this process online has the potential to save much time and money—not just for the requesters of the permit but also for government, which has to mail the forms and process the applications. As can be seen in Table 2 below, some cities have already recognized this potential and implemented web-based permit procedures.

While New York City makes numerous permits and application forms available on its web site, contractors in New York are not able to use electronic communications to the same extent as in some other cities, such as Chicago, Illinois or Houston, Texas. In Houston, the application requesting that the contractor be allowed to engage in construction activity can be completed and submitted on the Internet without any specialized software other than a web browser. Houston's online permitting web site, (http://houston.onlinepermits.com/) assigns a unique user identification number and password to each licensed contractor. The contractor can then return to the web site, fill out the form online, and submit it via the web. Furthermore, the contractor can also check on the status of the application and search through a database of approved permits, all using his or her Internet connection. New York City's Department of Buildings accepts filing of a select variety of permits via personal computers; however, it requires downloading of special software in a file that is as large as 5 megabytes. This is a serious barrier to using the system, particularly

when Houston and other cities have demonstrated that online filing of permit applications can work very well.

New York City's fledgling web-based efforts[23] at making public its contractors can be seen at gopher://nycdoitt.ci.nyc.ny.us/11/contract/, where visitors will find little more than they can read in *The City Record*. To make full use of the Internet's capabilities, New York should be doing a lot more to make it easier for vendors to bid on projects and to inform the public about the fitness of winning bidders.

While notices of bid opportunities are available on NYC LINK, contractors in Houston can download actual bid documents and specifications. None of the ten cities surveyed allow for electronic bidding, but this is clearly an area where New York City should be a leader.

To further open and make accessible government, New York City could also use the Internet to make public the names of the vast array of contractors it hires, as Chicago has done. Chicago's web site provides detailed information on the bids received for provision of City services and the bidders. Through the Chicago Department of Purchasing's web site (http://www.ci.chi.il.us/WorksMart/Purchasing/), anyone can access an up-to-date list of bid openings, lists of pre-conference attendees, and bid tabulation worksheets. Because Chicago makes this information available via the Internet, anyone can learn about the status of the City's contracts through his or her personal computer.

New York City already has Vendex, an extensive database available to all City contracting officers and to the public via a public access terminal at the Mayor's Office of Contracts, but none of Vendex's valuable information is on the web. Vendex contains information about the business,

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[23] New York has VENDEX, which unfortunately is not accessible via the web. The efforts reviewed here are the ones available through the gopher site: gopher://nycdoitt.ci.nyc.ny.us/11/contract/

its principals and its "affiliates" (e.g., firms that have the same principals), and past problems with law enforcement or regulatory agencies from questionnaires filled out by vendors when they enter into a contract with the City of New York. These disclosures are designed to help contracting officers weed out problem contractors. Vendex also includes "cautions" that City agencies can place into the database regarding agency investigations, indictments, debarments, non-responsibility determinations, and other potentially derogatory information. Perhaps most important, Vendex includes information about all work that a contractor has performed for the City or has a contract to perform for the City, as well as evaluations of the contractor's performance on past projects.

There is no reason this telling information shouldn't be available on the web. What would public access accomplish? Take the following example. The City already provides information about who wins contracts on NYC LINK. Say X Corp. wins a contract to do repair and reconstruction work at a playground. Parents who regularly take their kids to that playground should be able to look up X Corp. to measure its performance on previous City projects. Have they had legal or other problems that might impede their ability to complete the playground repair project on a timely basis? Have they performed well on prior contracts? Have they done playground work around the City? Do they have OSHA violations that may put kids in the playground at risk? If X Corp. turns out to do substandard work, yet still got the job, parents could protest to the City or at least demand that the overseeing City agency take appropriate precautions.

Overall, Chicago provides five of eight services offered, as compared to four in New York. By opening up their databases to the public via the web, San Antonio and San Diego demonstrate how New York City can gain from the experiences of other cities.

Table 2: Licenses, Permits and City Contracts

	Permits or License forms available online?[24][25]	Permit Submission Capability	License exam requirements & books	Database of City Contractors	RFP and Bids	Bids accepted electronically?	Updated City Job Listing
New York	✔			✔ [26]	✔ [27]		✔
Los Angeles					✔		✔
Chicago	✔		✔	✔	✔ [28]		✔
Houston	✔	✔ ✔ [29]			✔ [30]		✔ [31]
Philadelphia	✔ [32]						
San Diego	✔ ✔ [33]				✔		
Phoenix	✔						✔
Dallas							✔
San Antonio				✔ [34]	✔ [35]		✔
San Jose	✔ [36]	✔			✔		✔ [37]

[24] For instance to dig the street or to do construction

[25] Licenses could be for operating vending carts as in Philadelphia

[26] Available partially online (poor execution) at gopher://nycdoitt.ci.nyc.ny.us/11/contract/pbbs/pbbsawar. Available completely through Vendex system at Public Access Center (See: http://www.ci.nyc.ny.us/html/moc/html/pac.html).

[27] Limited information available via NYC DO-ITT gopher: gopher://nycdoitt.ci.nyc.ny.us/11/contract/pbbs/pbbssol

[28] http://www.ci.chi.il.us/WorksMart/Purchasing/

[29] Excellent system, seems to have been done by a for-profit corporation from the URL. However, web page has seal of the City of Houston. http://houston.onlinepermits.com/

[30] http://www.ci.houston.tx.us/~fa_mmd/bids/

[31] Houston only lists the jobs that are "historically difficult to staff." http://www.ci.houston.tx.us/departme/person/jobs/. However, the web page classifies the positions and is well done.

[32] http://www.phila.gov/departments/license/

[33] San Diego keeps many forms online: http://www.sannet.gov/development-services/industry/forms.html

[34] Mediocre execution; lists capital construction contractors only by project (no searchable database). http://www.ci.sat.tx.us/capi/hilion4.htm; also see http://www.ci.sat.tx.us/pubwrks/constru1.htm

[35] San Antonio provides the current bid; does not provide the actual application. http://www.ci.sat.tx.us/pgs/BID_OPPT.htm

[36] Permit applications for renovation work, roof rebuilding, etc. are available from the San Jose Buildings Division web site at http://www.ci.san-jose.ca.us/building/

[37] http://www.ci.san-jose.ca.us/hum_res/jobs/jobs2.htm

Culture, Recreation and Resident Services

This cluster of services, designed for individuals and households who live in New York City, is an outstanding example of providing information over the Internet, as indicated in Table 3. A searchable calendar of events at the New York Convention and Visitors Bureau web site (http://www.nycvisit.com/) lists every imaginable leisure activity in the City. The calendar can be updated by smaller non-profit groups that don't have their own web sites by faxing the information to the New York City Convention and Visitors Bureau.

The City also uses the Internet to facilitate citizen involvement in specific municipal services. For example, the Department of Consumer Affairs accepts complaints against businesses directly from its web site (http://www.ci.nyc.ny.us/html/dca/html/dcacompl.html)—another operation that few other cities have transferred to the web.

However, the Internet is also a means to encourage citizens to become engaged and active in the City's political and cultural, life. The web site of the New York City Council (http://www.council.nyc.ny.us/) lists the agendas of forthcoming meetings, but Mayoral agencies and other governmental bodies, such as the New York City Water Board, the City Planning Commission, and the Board of Standards and Appeals, should also post their agendas and schedules on the Internet. Agencies and the Council should also make available transcripts or audio recordings of public testimony and minutes of public meetings online. For example, audio transcripts of Florida State Cabinet and Cabinet Aides Meetings in full are available at http://www.dos.state.fl.us/cabinet/recordings.html. These clips are kept up-to-date and are posted within a few days of meetings. Live broadcasts of some Florida Cabinet meetings are also available, along with agendas and transcripts.

Furthermore, the web sites of state organizations that are responsible for public areas or services in New York City, such as the Port Authority of New York and New Jersey, the Battery Park City Authority, the Empire State Development Corporation, and the Hudson River Trust, should be linked to the City's web site. Cities such as Los Angeles, Houston and Phoenix demonstrate how urban governments can and do use the web to strengthen citizen participation in government. These jurisdictions publish detailed minutes of meetings, allowing newcomers to be able to gather vital information and background on any issue virtually instantly.

New York City offers a paucity real estate and property data and assistance on the web. Such information typically consists of assessed values for property and is useful for residents seeking either to buy or sell real estate or those who want to challenge their assessment. In addition, individuals considering the purchase of a home can get a sense of property values from past sales, thereby allowing them to make informed offers. In view of these advantages, several counties in the United States publish their databases of property values and assessment data on the web. Houston, for example, has an easy-to-use database of property at the Harris County Appraisal District web site (http://207.80.106.4/), where you can find out the value of a specific home or piece of property. Enter an owner's name or an address in a search form and up pops a list of property and its value. Counties encompassing the cities of San Diego and San Antonio also make this data available. Given the scale and complexity of the housing market in New York City, there should be mechanisms for the public and private sectors to use the web to convey information about the real estate sales, housing costs, and the type and availability of housing across the city's five boroughs.

Table 3: Culture, Parks and Recreation, Consumer & Resident services

	Up-To-Date Events Calendar	Parks & Rec facilities descriptions by neighborhood	Traffic Bulletins or listings of known trouble spots?	Consumer Complaints	Property Appraisal Data (useful for tax appeals)	Minutes of official meetings (council, committees, hearings, etc.)
New York	✔ ✔	✔	✔	✔ ✔ [38]		
Los Angeles		✔				✔
Chicago		✔	✔			
Houston			✔ [39]	✔ [40]	✔ ✔ [41]	✔ ✔ [42]
Philadelphia		✔		✔ [43]		
San Diego	✔ ✔	✔			✔ ✔ [44]	✔
Phoenix	✔	✔				✔
Dallas						✔
San Antonio	✔ [45]	✔	✔		✔ [46]	✔
San Jose	✔		✔			✔

[38] Excellent implementation: http://www.ci.nyc.ny.us/html/dca/html/dcacompl.html

[39] Maintained for the State of Texas Department of Transportation by Texas Transportation Institute and the Texas A&M University System. Available at http://traffic.tamu.edu/traffic.html

[40] Via community liaison officers, who have e-mails listed at http://www.ci.houston.tx.us/citygovt/mayor/mcao/

[41] Through the excellent, award-winning Harris County Appraisal District web site: http://207.80.106.4/

[42] Houston keeps agendas and minutes of city council meetings up-to-date. http://www.ci.houston.tx.us/council/. These are very important for those who miss meetings, etc. In the future, the televised meetings should also be archived for those who need to do searches.

[43] For City services, handled by the Inspector General: http://www.libertynet.org/citycont/fraud.html

[44] Through the County of San Diego: http://www.co.san-diego.ca.us/cnty/cntydepts/general/assessor/sales_properties/sales.html

[45] Available through the San Antonio Convention & Visitors' Bureau at http://www.sanantoniocvb.com/events/99event.htm

[46] Through the Bexar County Appraisal office: http://www.bcad.org/property.htm

Public Safety

Information technology has been a vital factor in New York's successful efforts to combat crime. The City uses a graphical crime-mapping system called COMPSTAT to identify and target areas of crime outbreaks and keep precinct commanders accountable. Although the New York Police Department has been a leader in using new information technology to fight crime, much remains to be done to use the web to convey information about public safety to the citizens of New York City. The highly acclaimed COMPSTAT maps and data are not available on the web.

Information about the spatial distribution of criminal activity could be used by community groups, local businesses, and residents, for example, to alert individuals to avoid street corners that are known hot-spots for criminal activity or to make decisions about where to move or locate a business.

The NYPD's web site (http://www.ci.nyc.ny.us/nypd/) is notable for the lack of detailed information and data about public safety. This is particularly ironic, given the success story that detailed crime statistics tell about New York City in the last five years. Moreover, the NYPD web site does not provide a way for citizens to file complaints or report non-emergency crimes electronically.

Although individual precinct pages are easy to find in NYC LINK, they do not provide systematic data about public safety in the precinct. The precinct pages only include information on location of precinct, precinct phone numbers, name and picture of commanding officer, a brief description of precinct programs, and a brief newsletter with little information on the precinct.

Given New York's success at fighting crime, it surprising that the New York City Police Department does not provide crime data organized by neighborhood, precinct, block or zip code

on the web. Simply put, the NYPD web site does not do justice to the reduction in crime during the Giuliani Administration and to the City's national ranking as the safest large city in the United States.

Contrast this with web innovators like the city of San Diego (http://www.sannet.gov/police/crime-facts/crimanal.html) and the city of San Antonio (http://www.ci.sat.tx.us/sapd/). Both post on the web detailed crime statistics by neighborhood -- San Diego updates their crime statistics monthly, and San Antonio bi-weekly. San Antonio provides pin maps showing where various crimes were concentrated and details like the street corner on which the crime occurred and whether or not a gun was involved. This level of detail would certainly also be valuable to New Yorkers.

Table 4: Crime Statistics and Public Safety

	Ability to take non-emergency complaints via Web?	Crime Statistics by neighborhood/zip code, district, etc.?	Ability to report problems (e.g. drug activity) anonymously via web?
New York			
LA			
Chicago		✔	✔
Houston			
Philadelphia			
San Diego	✔	✔ ✔ [47]	✔
Phoenix			
Dallas	✔	✔	✔
San Antonio	✔	✔ ✔ [48]	✔
San Jose			

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[47] They update this monthly … a good model for NYC to follow. http://www.sannet.gov/police/crime-facts/crimanal.html
[48] Excellent implementation: http://www.ci.sat.tx.us/sapd/mapdata/ArNdata060198.htm

Land Use and Economic Development

Like other municipalities, New York collects a vast amount of data on land use. The data include lot size, ownership, land use, zoning, assessment, market value and age of structure. Most of this data is a matter of public record and is useful to a wide variety of interests such as planners, banks, realtors, mortgage lenders, corporations looking to expand or relocate to New York, insurance companies, real estate developers, attorneys, and civic organizations.[49] This data is indispensable for communities looking to plan development, or for small- and medium-sized businesses looking to expand or locate in the City.

In New York City, gaining access to this public data is a laborious task. For example, the Department of Finance releases citywide data in a tape file format that most users will find to be of limited value because it is so difficult to view and manipulate. No web-based, easily accessible database of land use that integrates data across different public agencies exists in New York City.

The limited access to data has significant consequences for economic and community-based development. A community-based group concerned with neighborhood preservation must often purchase public data from a private vendor.[50] This affects the capacity of a local group to develop their own plan or analyze the impact of any proposed development. Only a few cities provide land use data in an exemplary way through the World Wide Web. San Jose, California provides a data-rich planning page (http://www.ci.san-jose.ca.us/planning/sjplan/) that is superior to most other cities. Not only does San Jose make available the general plan of the city but it also provides maps of tracts of vacant land.[51]

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[49] Jack Eichenbaum and Fran Pearl-Schloss, "Digitized Data: Raw Resource in the Municipal Jungle," Journal of Urban Technology, Summer, 1995.
[50] Community groups in Brooklyn Heights recently complained about this problem at a meeting of GIS users.
[51] New York has made a push in this area by providing base maps by community district. However, it does not provide a database of city-owned land. For that, a prospective business would have to contact the New York City Economic Development Corporation. The EDC then responds by mail.

In New York City, the data needed to make truly useful maps is dispersed among several agencies, e.g., Department of City Planning, Finance, Environmental Protection (among others). These agencies have a unique opportunity to utilize the Internet to make available this public data in a user-friendly format. The first step in this effort must be an open discussion with the users who are expected to benefit from the data to develop policies with regard to the public availability and format of the data. While the City has established a steering committee for the development of Geographic Information Systems under the auspices of the Department of Environmental Protection, this committee would gain from input from community groups and small businesses that could utilize such data.

New York City should consider ways to use the World Wide Web to facilitate development and community involvement in land use planning. For example, a citizen should be able to enter an address and obtain information about its zoning status as well as any development regulations and financial incentives that apply to the specific parcel or immediate area.

Table 5: Economic Development and Zoning Information

	Zoning Map	Demographic Information and Statistics	Web-based Database of City owned land
New York	✔	✔	
Los Angeles		✔	
Chicago		✔	
Houston			
Philadelphia			
San Diego		✔ [52]	✔ [53]
Phoenix		✔	
Dallas		✔ [54]	
San Antonio		✔	
San Jose[55]	✔ [56]	✔ ✔	✔ ✔

[52] Through the San Diego Economic Development Corporation (EDC): http://www.sandiegobusiness.org/

[53] Through the San Diego County Treasurer Tax Collector's Office: http://www.co.san-diego.ca.us/cnty/cntydepts/general/treastax/taxsale/taxsalePRODfm.hts

[54] Dallas puts up a minimal effort at http://www.ci.dallas.tx.us/html/statistical_profile.html

[55] San Jose has a data-rich planning site: http://www.ci.san-jose.ca.us/planning/sjplan/

[56] Potentially excellent execution foiled by broken links to critical maps: http://www.ci.san-jose.ca.us/planning/sjplan/datzone.htm. However, had the links worked, they would have a produced PDF maps such as http://www.ci.san-jose.ca.us/planning/images/gp129.pdf

Other Evaluation Criteria

Counting just the sheer *number* of services offered, New York City ties with Chicago in leading other large cities in the United States. However, it is also important to consider several broader issues relating to the overall web site user experience. These issues fall into three general categories: design, accessibility, and maintenance.

Design

Web site design involves graphic design and information management issues. Some important graphic design considerations for cities include creating a "professional" and "civic" look and feel, connecting elements of the real city to its web site by evoking an image of the city, and providing consistent design elements that tie individual pages of the web site together. The recent redesign of the front page of NYC LINK demonstrates a substantial improvement in the level of professionalism. However, individual agency pages do not have the same professional quality as the front page of the web site, and the only design element consistent from page to page is a menu bar at the top. The New York City Office of New Media has produced a well-written, easy-to-understand style guide instructing departments on how to produce their own web pages (http://www.ci.nyc.ny.us/html/style/home.html). However, their web page templates are in need of updating. The current templates contain several elements of what are known as "first-generation" web sites: tables with visible borders, clip art, horizontal rules, and tacky bullets.[57] Agency autonomy with regard to maintenance and design is commendable, but should not come at the sacrifice of professionalism in production.

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[57] see http://www.ci.nyc.ny.us/html/umbrella/html/services.html and http://www.ci.nyc.ny.us/html/serdir/html/xumb01.html

Although the Office of New Media's style guide and templates would have been considered innovative only a few years ago, web design standards change very quickly. In order to keep up with new technical developments in web design and user expectations, redesign must be an ongoing process. In addition, every city agency should have at least one experienced web designer on staff.

NYC LINK does a good job of information management. Despite the large amount of information available on the site, it is still fairly easy to navigate. The drop-down menu on the front page allows users to quickly jump to any agency or to pick a service. In addition, the search feature is easy to reach from most pages. The "City News Flash" section on the front page keeps visitors informed about current events, and presents an impression of a dynamic, frequently updated web site. The only feature missing that could improve navigability is a site map (also known as a site index). Site maps are common on large web sites with a lot of information. They provide a schematic of how the site is arranged and allow users to jump quickly to most information available on the site.

The City of Pittsburgh web site (http://www.city.pittsburgh.pa.us/) provides an example of exceptional site navigation tools. While Pittsburgh's front page shares many design elements with NYC LINK, Pittsburgh's site provides far more support to people who have trouble finding information. Pittsburgh has a page devoted to explaining how to navigate their web site (http://www.city.pittsburgh.pa.us/main/html/navigation.html). Pittsburgh's site index is similar to a book index—it provides an alphabetical listing of information available and direct links to those pages. Finally, every page on Pittsburgh's site contains a link to what they call the "site map and outline." This link causes a second browser window to open. The new window contains an outline of all of the information available within that subsection of the site. Another notable

example of information management and organization is the Austin City Directory (http://www.ci.austin.tx.us/help/directory.htm), which contains links to city department web pages, e-mail addresses, and phone numbers. In addition, the Austin City Directory has a link to the City Customer Service page where people can send questions about where to find specific information.

Accessibility

Although the scope of this report is not broad enough to fully consider the issue of accessibility, access to computers and the Internet should be examined. It is important to consider that many people do not have access to the Internet either at home or at work. Therefore, as part of its web development strategy, the City must consider strategies to provide public Internet access. Some public library branches, community organizations, senior centers, and schools already help to provide this access, but there is still a long way to go.

Over the last decade as new technology has rapidly developed, policymakers and advocates for the poor have grown increasingly concerned about what is called the "technology gap" or the "digital divide."   As daily activities and access to information depend more and more on the Internet and telecommunications services that provide access to the Internet, those who do not have access to these technologies will suffer. Larry Irving, Assistant Secretary of Commerce for Communications and Information, estimates that by 2000, 60 percent of jobs will require technology skills, including Internet use.[58] At the same time, there is a growing wage gap between jobs requiring technology skills and jobs not requiring technology skills. However, jobs are not the only consideration; the Office of Management and Budget estimates that in the future,

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[58] Benton Foundation, "Losing Ground Bit By Bit: Low-Income Communities in the Information Age" (Washington D.C.: Benton Foundation, 1998)

75 percent of transfers between government and citizens will occur electronically, including food stamps, social security, and Medicaid information.[59]

Part of the problem of the digital divide can be attributed to issues of access. Although the majority of Americans do not have computers at home, they do have computer or Internet access at work, school, or in public libraries. However, low-income Americans are less likely to own personal computers or have Internet access at home, more likely to attend schools with no or insufficient computer facilities, more likely to live in neighborhoods without public library branches, and they are less likely to find jobs that give them exposure to the Internet.

When the issue of access to technology and telecommunications for low-income people arises, many turn to universal service for a solution. The most common justification for universal telephone service is that it provides a mechanism for emergency communication. While universal telephone service is very important, computers and the Internet are quite different from telephones. The most important roles of computer and Internet policy are to make sure that as many people as possible have access to the wealth of information available online, and to make sure people know how to use this technology so that they have equal access to employment and are able to function in modern society. Therefore, we need to focus on access to computers, access to the Internet, and computer and Internet training. This approach has become known as "universal access," as opposed to universal service.[60]

Universal Internet access and computer literacy are essential for the future. Computers and the Internet are becoming mandatory tools for educational and career success. In addition, as the technological revolution accelerates, knowing how to use a computer and having Internet

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[59] Benton Foundation, "Losing Ground" 4.
[60] Moschella, David and Robert D. Atkinson, "The Internet and Society: Universal Access, Not Universal Service" (Progressive Policy Institute, September 1998).

access will become more important for access to public information and services.

To fill the void left by insufficient Internet access in low-income neighborhoods, schools, libraries, and not-for-profit community groups have begun to provide public computer labs and other innovative technology programs.[61] United Neighborhood Houses of New York has received national recognition for its efforts to provide computer and Internet access and training in low-income neighborhoods. However, as more services move online and access to the Internet becomes a more crucial part of everyday life, government must become more involved in combating what is known as the "digital divide."

Maintenance

Our earlier discussion compared online services offered by the ten most populous cities. Yet it is also important to consider how well these services are managed and maintained. It is one thing to provide a link to e-mail addresses for public officials or City departments, but the more important issue is whether citizens get responses to their messages. Other issues to consider are whether online forms are processed as quickly as hard-copy forms, how quickly new information is posted, how often data are updated, and how accurate they are.

For example, the City of Oakland, California has created a "Dynamic City Map" which breaks the entire city down into highly detailed parcel maps (accessible from http://www.oaklandnet.com/government/ceda/ceda.html). From the Dynamic City Map, users can access zoning information, land-use information, and search for land with specific characteristics. The map is clearly geared towards economic development and quickly steers businesses to available land that meets their criteria. For instance, a business owner can chose to

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[61] See Schon, Donald A., Bish Sanyal, and William J. Mitchell, eds. High Technology and Low-Income Communities: Prospects for the Positive Use of Advanced Information Technology, (Cambridge: MIT Press, 1998).

search Oakland's database for land that is "0.5 miles from mass transportation and zoned for manufacturing" and be provided with just such a tract. The Dynamic City Map ostensibly sets Oakland apart from other cities in the area of web development. However, the information linked to these maps is badly in need of updating. As of late 1998, zoning changes made two years prior still had not been updated in the map database. This not only makes portions of the map virtually useless, it also distributes incorrect information to organizations and individuals. This example illustrates the importance of developing a maintenance and information management system in conjunction with the development of new applications.

II.   Models for Future Internet Development

The private sector has led the way in Internet development thus far. Most applications developed in the private sector are have been designed with the ultimate goal of making a profit. Although the public and nonprofit sectors have very different objectives, pioneers in these sectors have begun to adapt advanced technologies developed in the private sector for use in delivering public services and information. Even a cursory examination of government, nonprofit, and private World Wide Web sites reveals that it is possible to move almost any service, or at least a part of the service, online. Successful implementation of a new online project requires creativity, cooperation, coordination, an understanding of users' needs, and long-term vision. This section presents some examples of innovative uses of the Internet in the public and nonprofit sectors.

Indianapolis/Marion County Online

Mayor Steven Goldsmith has set an ambitious technology agenda for the City of Indianapolis and Marion County. He has challenged city and county agencies to put two new services online every week. Although Indianapolis and Marion County have not met this goal, the

result is an impressive array of online services. From the Indianapolis/Marion County web site (http://www.IndyGov.com/), users can find out who their elected officials are, locate their polling place, pay parking tickets, search for and get information about low-income housing, search for volunteer opportunities, apply for and research permits, or take a stab at balancing the City of Indianapolis/Marion County budget. For a fee, users can search marriage licenses and court records. This is only a sampling of the services currently available to the people of Indianapolis and Marion County. Best of all, the web page is organized by service rather than city department so that visitors know right away which services are available to them online.

The volunteer opportunities search (see http://www.IndyGov.org/volunteer/) is an excellent example of how a city can take advantage of existing online services to enhance its own web site. Volunteer Match (http://www.volunteermatch.org/) is a national database of volunteer opportunities, started and maintained by a nonprofit organization. By providing a link to this service from the Indianapolis/Marion County web site, the city and county present the impression of providing another online service, and Volunteer Match benefits from an extended user base. Linking Volunteer Match to the city/county web site requires very little effort, but provides a service to potential volunteers and organizations seeking volunteers.

Education Services

The New York City Board of Education web site (http://www.nycenet.edu/) provides very detailed annual report cards about every public elementary and secondary schools in the City.. Unfortunately, a visitor to NYC LINK would have a very difficult time finding the Board of Education, let alone locating the report cards. There's no link to the Board of Education web site

from the front page of NYC LINK. To get there, users must choose the "Other Agencies" option and then find the Board of Education in a long list.

New York City could increase the value of its web site by making Board of Education information more accessible to users. In addition, New York City and the Board of Education could work together to improve and increase school information online. The City and Board of Education could post on the web the Division of School Facilities' annual "Enrollment Capacity Utilization Report" to help parents identify schools with openings, or a list of the contacts in each community school district to whom questions about schools in that district should be addressed. Two more very valuable tools for parents choosing schools for their children, which are much easier to use than the report cards, could be posted and searchable on the web: "Ranking of Elementary and Middle Schools by Reading Achievement" and "Four-Year Longitudinal Report and 1997-1998 Even Dropout Rates." In addition, New York City should learn from the experience of many colleges and universities by enabling students to complete the high school application process and check the status of their applications online.

Social Services Online

The Internet, and the World Wide Web in particular, provides a potential opportunity to move social service information online. However, there are serious constraints that must be considered in using the World Wide Web to deliver social services. In many low-income communities in New York City, as many as one-fifth of the households do not have their own telephone line. For those households with telephone service, the cost of a computer and access to an online service poses a further barrier to use of the Internet. As a result, it is essential to recognize the importance of neighborhood-based institutions, such as libraries, Beacon schools,

settlement houses, and recreational centers, in providing electronic information about social services.

New York City could certainly learn from other governmental units in the United States about the potential ways to provide social services and information about such services through the World Wide Web. The Arkansas Department of Human Services Division of Child Care and Early Childhood Education provides a nicely designed, easy-to-use web site with information about childcare in Arkansas (http://www.state.ar.us/childcare/). This site provides information for parents and for childcare providers. It includes a searchable database of licensed childcare providers that contains each provider's contact information, business hours, rates, and ages of children accepted. In the San Francisco East Bay Area, Alameda County, the cities of Richmond and Oakland, several Private Industry Councils and many local nonprofit social service providers have collaborated to produce a web site called Eastbay Works (http://www.eastbayworks.org/) where low-income job seekers can create and post a resume online and search for jobs targeted at low-skilled individuals with little or no work experience. It also provides a searchable database of social service providers, employment-related events, and an education and training directory. While the site is still under development, it promises to be a valuable resource and is noteworthy because it is one of only a few online job search sites targeting people seeking entry-level jobs.

New York City's TRAIN database offers resources similar to these programs in Arkansas and the San Francisco East Bay. TRAIN includes information about job preparation and training programs, childcare, and alcohol and substance abuse treatment. The major difference between TRAIN and these other programs is that due to a lack of funding, TRAIN, which was originally a free program accessible to anyone on the Internet, has moved over to a fee-based subscription service. The Corporation for Supportive Housing, one of TRAIN's major subscribers, provides

TRAIN free of charge to its clients, but those not connected with the Corporation for Supportive Housing or other subscribers cannot access the service. Before pursuing a strategy to move social services online, it is important that New York City recognize that TRAIN has already gone through a six-year development and testing period, and that it would be relatively easy to expand and make public the TRAIN database. TRAIN is already available on the Internet and warrants additional support and funding from the City.

Weather and Transportation Information

In the Seattle/King County area, the Seattle, King County, and Washington State Transportation Departments have teamed up to create a web site where residents can access weather and traffic information traditionally provided by television and radio news. From their web site, entitled "Taking Winter by Storm" (http://www.metrokc.gov/govlink/), one can access up-to-the-minute information about road conditions and closures, transit information, weather, and emergencies, as well as information about how to prepare for winter storms. Anyone can subscribe to the free King County Alert! e-mail service, which sends out updates on weather and road conditions during periods of bad weather. Furthermore, King County is developing a GIS containing road closure and emergency route information. Internet users will be able to view maps showing road closure locations and aerial photos of damaged roads.

Issues for the Future

Online government services will increasingly depend on the use of searchable databases, GIS, and online financial transactions. Many cities are moving to a system where previously internal information systems are available to the public and City fees and taxes can be paid online.

New York City has invested public funds in developing 37 information kiosks throughout the city where citizens can pay parking tickets and property taxes with a credit card or an ATM card, view building inspection records, and print out many different types of City forms. These kiosks perform some of the same functions that the Internet could perform but are not fully compatible with the World Wide Web. Users must visit one of these kiosks rather than accessing this information from a PC at home, work, a community center, or the public library. The City should build upon its experience with these kiosks by developing more interactive features on NYC LINK. While pursuing more interactive, customer-service-oriented functions for NYC LINK, it is important to look to the private and nonprofit sectors for ideas and innovative techniques.

The establishment of a City of New York Technology Steering Committee reporting to the Deputy Mayor for Operations that will provide overall direction for New York City concerning the use of technology and related infrastructure is a major step forward for the City. Established through an Executive Order, this Committee, chaired by the Commissioner of DoITT, the City's Chief Information Officer, will review and approve the annual technology plans of all mayoral agencies, sponsor and monitor citywide technology initiatives, thereby filling a vital function for the future of New York City.

The executive order was issued on October 9, 1998 and on March 1, 1999 the City of New York issued their "Information Technology Strategy" prepared by the Technology Steering Committee. Objective A1 of this report is to "expand public access to government services through the use of electronic media." The findings presented in this report are designed to strengthen and reinforce the City of New York's information technology strategy.

III.   Local Community Boards and the Internet

Objectives

There are 59 community boards in the City of New York that serve as a vital link between citizens and local government. Community boards have an important role in identifying and dealing with land use and zoning issues, the City budget, municipal service delivery, and many other matters relating to community welfare. The use of electronic technology has become an important tool in today's mode of communication. More and more, governments rely on the Internet and e-mail to communicate with public citizens. Consequently, we conducted a survey of the 59 community boards in New York City to determine whether they used electronic communications and the Internet to carry out their responsibilities and to communicate with residents of the local community.

Methods

A telephone interview was conducted with representatives of 45 of the 59 community boards in New York City in a two-day period in November 1998. Questions regarding access to e-mail, obtaining a web site, and barriers to technology were asked.

Results

1. Internet Web Site

Less than 10% of the community boards surveyed have their own web site. The four community boards with a site report that having one helps inform the public of board activities. Even though only one site includes minutes from committees and board meetings, all sites include a schedule or agenda for upcoming meetings as well as an e-mail address for the public to voice

complaints. Some sites also include links to other resources that may help resolve issues without

needing to contact the board. The four community boards with a web sites include:

Brooklyn CB13:   http://www.communityboard13.org/

Manhattan CB4:   http://www.hellskitchen.net/comm/cb4/

Manhattan CB5:   http://ourworld.compuserve.com/homepages/cb5manhattan/

Manhattan CB8:   http://www.decny.com/cb8/

Of these web sites, Manhattan's community boards 4 and 8 have the most comprehensive

information on their sites. Both sites provide updated meeting times, a listing of members by

committee and minutes from prior meetings. CB4 also includes a list of members who have access

to e-mail if residents have any questions. Both sites also have a page that provides additional

resources, from detailed daycare descriptions to transportation services.

Although CitySearch hosts web sites for 12 Manhattan community boards, these sites do

not provide adequate information. Even though CitySearch sites are uniform in design and

provides some basic information such as the name of the district manager and phone number of

the community board, none of these sites include updated meeting dates and times or any minutes

from past board meetings. In fact, many of these sites do not have any information under the

"current issues" button, which should serve to update residents on the current status of issues in

the community. The Taub Urban Research Center provides a listing of all community boards and

their respective web addresses: http://urban.nyu.edu/resources/ced/communityboards.htm

Finding community board sites through the use of a web search engine like Yahoo or

Lycos is possible, but not through the City's web site. Although the City's site includes phone

numbers for each board, there are no links to the site of available community boards on the web.

This linkage is crucial to provide residents of New York yet another avenue for connecting with the community.

While one-third of the community boards surveyed in Manhattan have their own web site, only one of the community boards in Brooklyn has a site, while none in the Bronx or Queens do. While the Queens Borough web site indicates that community boards do have individual web sites, none were up and running. This signals the demand for, or at least interest in, developing community board web sites in Queens.

In fact, boards in all five boroughs stated a strong interest in becoming linked to the Internet. More than 60% of the boards without a web site in New York City expressed an interest in creating a web site, but only 33% of those boards have actually tried to get a web site. The most commonly cited barriers to obtaining a web site were funding, City payment systems, training, getting information on how to start a web site, locating skilled people and obtaining necessary equipment. A few representatives from the community boards surveyed complained about obtaining basic technology, such as getting the computer to work. "Without proper technological equipment or skilled help in getting set up, there is very little hope in getting Internet access, despite the need for e-mail and a web site," stated one district manager.

Table 6: New York City Community Boards Survey

Questions to Community Boards	Yes		No	
Does the public have e-mail access to board members (Does the Board have an e-mail account)?	9	19%	39	81%
Does the Board have e-mail access for board members?	14	29%	34	71%
Does the board have web site?	4	9%	43	91%
If no, does the board plan on having one in the future?	26	63%	15	37%
Has the board tried to get a web site?	13	33%	27	68%

2. E-mail

The survey also explored the use of e-mail by community boards. Only 19% of the community boards surveyed have an e-mail account that the public can use to e-mail complaints and comments to the board. Again, Manhattan leads the rest of the boroughs with 44% of their community boards having an e-mail account. In stark contrast, only 8% of the community boards in Queens have access to e-mail. Using e-mail to respond to the public can cut down on phone time spent writing down complaints.

Many community board members do have their own e-mail accounts (29%) that are used by board members to communicate with each other about board issues. While 67% of the members in Manhattan have individual e-mail accounts, the Bronx reports only 11%. Some board members even give out their e-mail accounts to the public to provide yet another way for the community to voice their concerns. Manhattan's Community Board 5 has released 19 of 50 board member's e-mail addresses on their web site.

A community board district manager who does have e-mail noted that it has allowed the board to save money on paper and postage by sending information electronically to local residents. Several respondents indicated that it was difficult to purchase e-mail using the City's bureaucratic method of payment. Getting the City to allow credit card payments for purchase of Internet service would encourage and allow more boards to purchase e-mail systems. Furthermore, many district managers do not feel that obtaining an e-mail system is high on the city's priority list because of all the barriers to getting a system set up.

New York City should actively encourage and offer financial assistance to community boards to establish web sites and to use e-mail. As public agencies increasingly use e-mail and the Internet for their day to day activities, there is a serious possibility that community boards will be

out of the "electronic loop."   Actions should be taken to support the community's needs to stay informed and in contact with the municipal agencies that provide essential public services. Since each community board has an average of just two people, they especially could benefit from the efficiencies of being online.

Table 7: Community Boards Survey by Borough

Does the board have an e-mail account?

Borough	Yes		No	
Brooklyn	2	13%	13	87%
Bronx	1	11%	8	89%
Manhattan	4	44%	5	56%
Queens	1	8%	11	92%
Staten Island	1	33%	2	67%
Total	9		39	

Does the board have e-mail access for board members?

Borough	Yes		No	
Brooklyn	3	20%	12	80%
Bronx	1	11%	8	89%
Manhattan	6	67%	3	33%
Queens	3	25%	9	75%
Staten Island	1	33%	2	67%
Total	14		34	

Does the board have a web site?

Borough	Yes		No	
Brooklyn	1	7%	14	93%
Bronx	0	0%	8	100%
Manhattan	3	33%	6	67%
Queens	0	0%	12	100%
Staten Island	0	0%	3	100%
Total	4		43	

If no, does the board plan on having one in the future?

Boroughs	Yes		No	
Brooklyn	9	64%	5	36%
Bronx	4	57%	3	43%
Manhattan	3	50%	3	50%
Queens	8	73%	3	27%
Staten Island	2	67%	1	33%
Total	26		15	

Has the board tried to get a web site?

Boroughs	Yes		No	
Brooklyn	5	36%	9	64%
Bronx	2	33%	4	67%
Manhattan	2	33%	4	67%
Queens	3	27%	8	73%
Staten Island	1	33%	2	67%
Total	13		27	

IV. Information Strategies for New York City Government

New York City can learn much from the experience of other municipal governments in using the Internet to strengthen local communities, to provide public services, and to improve the productivity of municipal agencies. The City of San Francisco worked closely with the San Francisco Planning and Urban Research Association to produce a report on the telecommunications issues facing the city.[62] The resulting document was a snapshot of the state of telecommunications in the Bay Area in 1997 and produced a blueprint for the future development of telecommunications services. It sent a clear signal to residents and businesses that the city regarded the development of telecommunications as key to its future.

In addition to using other cities' innovations as models for enhancing NYC LINK , we propose that the City of New York consider the following initiatives:

- Establish a citywide task force with representatives from business, civic groups, educational institutions, and government to formulate priorities for using the Internet to provide public services to the citizens of New York City.

- Strengthen civic involvement in government in New York City by publicizing all public hearings and formal government meetings through the Internet and through the dissemination of all minutes of public hearings and meetings through the World Wide Web.

- Provide financial and technical support for community boards to use the Internet in organizing and conducting their activities and meetings. At present, less than ten per cent of the City's 59 local community boards have their own web site and less than one-fifth of the community boards have an e-mail account that the public can use to send comments electronically to the board.

- Establish a priority to train public managers to deliver municipal services through the Internet. For example, information on public safety within each police precinct should be available on New York City's web page. Moreover, the City of New York should allow citizens to register complaints about non-emergency services to the New York Police Department through the Internet.

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[62] The report was published in July 1997 and is called Uncrossing the Wires: Telecommunications Issues Facing San Francisco.

- Provide funding and support for community boards to develop web sites and purchase e-mail service.

- Deploy more public Internet terminals throughout the five boroughs in community centers, settlement houses libraries, and municipal buildings so that citizens without access to the Internet at home can gain access at public and neighborhood-based institutions.

- Provide financial support to expand, maintain, and restore public access to the TRAIN database of social services.

The Mayor's Executive Order establishing a New York City Technology Steering Committee creates the basis for the City's Department of Information and Telecommunications to be a significant force in developing public uses of the Internet in New York City. This report has highlighted the ways in which New York City could build upon the experiences of other cities in providing services over the Internet and the need for New York City to formulate a public strategy to make New York City the world leader in municipal uses of the World Wide Web.

A city that wants to attract more new media firms, and keep those that are already here, in order to entrench Silicon Alley as the premier municipal home for Internet companies should not merely do as well as most cities when it comes to electronic government. The *home* of new media should excel at *using* new media. Then, we'll truly be the nation's "Internet City."