

EXECUTIVE SUMMARY

New York City's huge and complex infrastructure is part of what makes New York the world's capital city. However, our infrastructure needs are enormous and growing. Subway stations need rehabilitation, roadways need to be repaved, schools need to be replaced, and police and fire facilities need to be modernized.

The purpose of this study is to describe and review the current condition of our major physical assets and the capital expenditures required to bring them to a state of good repair. Our investigation indicates the existence of serious deterioration in much of our physical plant. We estimate that it would take a minimum of \$91.83 billion to bring our infrastructure to a systematic state of good repair and address new capital needs over the next decade. The City's current Ten Year Capital Strategy for FY'98 - 2007 totals \$45 billion. This \$45 billion is not a precisely accurate number for comparison purposes, however, since the Capital Strategy does not specify the significant funding some agencies receive from other than City sources and other necessary modifications. Therefore, our calculation of current long-term funding projections totals \$52.08 billion. As can be seen in Table 1 on page ES-8, when compared with our estimated need of \$91.83 billion, the City is facing a \$39.75 billion shortfall.

These huge needs and numbers reflect a tremendous dilemma faced by the City's people and government. While the need is enormous, the City's ability to meet all capital obligations is limited both by law and by an insufficient funding capacity. Thus, this report provides not only a systematic accounting but also suggests the great challenge that confronts us.

The City funds its capital program through the issuance of debt. The amount of general obligation (GO) debt the City can incur for capital work is limited by State Law to 10 percent of the average full value of taxable real estate in the City for the most recent five years. The general obligation debt limit for FY'98 was \$30.95 billion. Because the City had reached its GO debt limit in 1997, the State legislature created the Transitional Finance Authority (TFA), which provided for an additional \$7.5 billion in borrowing. It was only this additional borrowing capacity that permitted the City to maintain its capital program spending levels.

On the other side of the ledger however, is the troubling fact that debt-service costs are growing at a faster rate than tax revenues, leaving fewer resources available for the operating budget and delivery of services. Debt-service is currently at 16 percent of our operating budget and is projected to grow to roughly 20 percent of tax revenues by the year 2001 and beyond.

Ability to finance capital improvements is not the only problem however. Equally important is the insufficient amount of operating funds available for full maintenance of our assets. The

City's external auditors (KPMG-Peat Marwick) have established that maintenance spending is currently at about 40 percent of recommended levels. If our capital investments are not fully maintained, they deteriorate faster, leading to more costly repair/replacements later. Clearly this pattern cannot continue without serious consequences to both the operating and capital programs. A discussion of funding alternatives is presented in the last section of our report.

The dilemma we face for the new millennium is how best to set priorities and to manage our limited resources so that our investments yield the greatest return. Decisions must be based on accurate information, with a long-term perspective.

Occasionally, short term decisions end up costing the City more in the long run. For example, in 1988, the Williamsburg Bridge reconstruction was originally estimated to cost \$400 million and take 6 - 7 years to complete. A new bridge was estimated at \$800+ million and 10 - 12 years to complete. Ten years later, the Williamsburg Bridge reconstruction has already cost more than \$500 million, and we project that an additional \$425 million is necessary for completion, which is now projected for the year 2005.

Thus, there is a potential that the short-term remedy could take longer and cost more than the long-term solution.

BACKGROUND

The size of New York City's infrastructure is enormous. There are over 6,000 miles of water mains, more than 600 miles of subway track, 5,700 linear miles of streets and over 1,000 school buildings. Our watershed stretches over 100 miles north and west of the City in an area the size of the state of Rhode Island, and delivers more than one billion gallons of water to the City daily.

There are 78 police precincts, 223 firehouses, six community colleges, and 23 health facilities serving the needs of the people of this City.

The City's infrastructure is old, with many assets approaching or surpassing the 100 year mark. Maintenance of our infrastructure has often been deferred as an operational necessity especially during the fiscal crisis of the seventies. This lack of consistent upkeep has resulted in a significant deterioration of many of our assets. We are frequently faced with school closures, water main breaks, and bridge and roadway disruptions.

In 1979 a study by the Comptroller's Office reported that ". . . due to deferred capital maintenance and rehabilitation, portions of the City's physical infrastructure demand massive funding infusions to assure continued operation." Despite significant expenditures in recent years to upgrade and maintain systems, many continue to deteriorate at an alarming rate. The burden on future governments and taxpayers will be worse. We need to plan correctly and immediately to reduce this burden and ameliorate the problem. Accordingly, we offer this study and

analysis, pursuant to the Comptroller's authority under Chapter 10, Section 225c of the New York City Charter.

METHODOLOGY

State of good repair (SOGR) is defined, for purposes of this report, as the physical conditions that enable a structure or facility to be fully operational for its intended use, while providing a safe, reliable, and accessible working environment for employees and the public. Comptroller's Office engineers conducted field visits to over 200 City facilities (capital assets) at 18 agencies, to independently ascertain their overall physical condition and capital needs. Major systems and components were evaluated in all buildings using a standard checklist developed by our engineers. They included mechanical, electrical, and roofing systems, windows, fire alarm systems, plumbing and heating systems and compliance with the Americans with Disabilities Act (ADA). Interior conditions - lighting, flooring, walls and doors - were also reviewed. For agencies that own and operate unique types of assets, (e.g., Transit Authority subways, Department of Environmental Protection reservoirs, Parks Department playgrounds), the assets were evaluated on the basis of their age and useful life. For all agencies, discussions were held with central agency and local facility personnel; budgets and maintenance records were examined, the City's Integrated Financial Management System (IFMS) and Asset Inventory Management System (AIMS) documents were

reviewed; and relevant professional and civic organization reports were studied. The estimates used throughout this report are based on recent actual costs incurred by agencies for repair or replacement of individual items, or on industry standard costs. Projections reflect the conditions found at the sample of assets visited or observed, extrapolated across the universe of assets. They also reflect information about assets recently rehabilitated or "landmarked". These figures represent "order of magnitude" estimates only and should not be interpreted as precise dollar values. Specific methodologies are described in each section.

FINDINGS

A study done by this office two decades ago found that no comprehensive, accurate inventory of the City's capital plant then existed. This is still a problem, though to a lesser extent. We find in our current study that agency knowledge varies dramatically. Few agencies had actual comprehensive condition reports of their assets, even if they had good inventory records.

The AIMS system, which was developed in response to a City Charter mandate, is limited to assets valued at over \$10 million. Most capital assets do not meet this threshold. The AIMS survey also does not include major systems like traffic signal systems, street lighting and the East River Bridges. Assets leased to the Transit Authority, New York City Water Finance Authority and certain other

Public Benefit Corporations are also excluded. These facilities are included in our report.

The City needs to develop within its accounting system a standard process of inventory identification and agencies need to undertake periodic, professional condition surveys which are linked to inventory. Some agencies, such as the Transit Authority, Corrections, Dormitory Authority of the State of New York/City University of New York, Board of Education and Fire Department, already have, or are in the process of developing, such systems.

Capital projects should be developed, prioritized and tracked in conjunction with inventory condition systems. Appropriate terminology for asset description, identification and categorization needs to be developed and consistently utilized by all agencies.

Table 1 on page ES-8 offers a summary by agency of capital expenditures necessary to achieve a state of good repair, along with current adjusted long-term funding allocations. Most of these figures are based on the Ten Year Capital Strategy. It should be remembered that the Ten Year Capital Strategy is a long term outline of what the City would like to do in its capital program.

Fiscal and programmatic realities often intrude on this outline, making the projected allocations speculative. While we recognize

Table 1
Infrastructure Costs

Agency	Long Term Funding Plan (billions) *	Comptroller's Estimate (billions)	Difference (Shortfall)	Funding as a % of Need (Comptroller's Estimate)
Board of Education	\$12.55	\$28.43	\$15.88	44%
Transit Authority	\$10.24	\$21.54	\$11.30	48%
Department of Environmental Protection	\$7.93	\$12.43	\$4.50	64%
Department of Transportation	\$8.12	\$12.16	\$4.04	67%
Department of Sanitation	\$2.86	\$3.03	\$0.17	94%
Department of Parks and Recreation	\$0.96	\$2.75	\$1.79	35%
Housing Authority / Department of Housing Preservation and Development	\$2.12	\$2.55	\$0.43	83%
Courts	\$2.36	\$2.37	\$0.01	100%
City University of New York	\$1.29	\$1.66	\$0.37	78%
Department of Citywide Administrative Services	\$0.81	\$1.13	\$0.32	72%
Health and Hospitals Corporation	\$0.66	\$1.06	\$0.40	62%
Fire Department	\$0.55	\$0.66	\$0.11	83%
Department of Correction	\$0.49	\$0.54	\$0.05	91%
Police Department	\$0.53	\$0.54	\$0.01	98%
Department of Cultural Affairs	\$0.17	\$0.32	\$0.15	53%
Human Resources Administration	\$0.24	\$0.25	\$0.01	96%
Department of Homeless Services	\$0.11	\$0.22	\$0.11	50%
New York Public Library / Brooklyn Public Library / Queens Public Library	\$0.09	\$0.19	\$0.10	47%
TOTAL =	\$52.08 billion	\$91.83 billion	\$39.75 billion	57%

* Long term funding amounts are generally taken from the City's Ten Year Capital Strategy for FY 1998 - 2007. For some agencies (i.e., DEP, DOT, FD) funding amounts include allocations from the FY 1999 - 2002 executive budget, where these allocations exceed the amounts in the Ten Year Capital Strategy. In addition, long term funding amounts for certain agencies (i.e., TA, CUNY, HHC) are based on internal agency plans. The long term funding amount for the Department of Correction is from the City's FY 1998 - 2001 Four Year Plan.

that not all findings are applicable at every site or facility, we do believe they are representative of current conditions throughout the systems.

Our engineers found evidence of serious deterioration in many of our capital assets. Typical conditions encountered include: cracked and peeling roofs; broken or inoperable windows; interior damage to ceilings, walls and floors caused by leaking; heating, ventilation and air conditioning (HVAC) systems in need of repair or replacement; significant masonry damage; elevators needing repair or replacement and electrical wiring in need of upgrading.

Due to the age and condition of our water and sewer systems, replacement needs are substantial. Buildings need to be made watertight and code compliant.

Our 1979 report estimated that approximately \$40 billion needed to be spent during the 1980s. The City of New York has actually spent some \$47.1 billion on its capital program since 1980 (through FY'97). The current Ten Year Capital Strategy projects that an additional \$45 billion of City funds will be spent through 2007, maintaining the approximately 50 percent ratio between capital needs and funding availability. Adjusting for available non-City funds and other modifications raises the total to \$52 billion).

Our study also found that while some agencies appear to be fully funded, others fall far short of requirements. This is partly due to the fact that there is an inconsistent knowledge base

of inventory and conditions; partly because of the enormity of some projects (ex. replacing sewer mains); and partly because the nature of government is such that priorities shift periodically.

Additionally, funding shortfalls force agencies to make difficult choices in setting capital priorities. Unmaintained assets deteriorate, often until they are shifted from the operating budget (for repair) to the dramatically more expensive capital budget (for rehabilitation/replacement).

According to the KPMG-Peat Marwick's (New York City's lead auditor) comments on the City's FY'97 Financial Statement audit, the City's commitment to maintenance, while improving slightly, is still only at 40 percent of recommended spending, up from 33 percent in 1996.

The City has made much progress over the last two decades in the development and management of our capital program. However, we are still faced with enormous challenges in the face of inadequate funding, increasing needs and technological change. Our projections estimate a nearly \$40 billion difference between what we need to fund and what our financial resources allow us to accommodate. Should the City suffer another economic reversal, this difference is likely to increase.

Below are our findings for some select agencies:

Board of Education

The condition of our school buildings has been well documented. Falling plaster, peeling paint, leaking roofs and broken windows are commonplace. Our children are squeezed into auditoriums, hallways and yards and expected to learn without the physical resources necessary to accomplish the task. At the same time the Board is being required to offer new programs, such as Universal Pre-K, and to limit K - 3 class size. These new demands will require additional classroom space. To provide the facilities and programs necessary to adequately educate our children requires a total investment of \$28.43 billion. The Ten Year Capital Strategy calls for total expenditures of \$12.55 billion.

We estimate that the Board of Education needs to spend approximately \$10.3 billion on rehabilitation and modernization of our schools. The Ten Year Strategy allocates \$7.2 billion to this function. System expansion to deal with the overcrowding and recent legislative mandates in our schools requires approximately \$13.6 billion. The Ten Year Strategy recommends \$3.7 billion. Nearly 82,000 children are still without appropriate classroom space and the recent State legislation limiting K - 3 class size to 20 will require an additional 2,400 to 3,600 new classes. Universal Pre-K instruction also requires an additional 2,177 classes (assuming a half day program) at an estimated cost of \$501 million. Technology and program enhancements require \$3.38

billion; and miscellaneous improvements (safety, security, ancillary) require \$1.08 billion.

The Board of Education has expended approximately \$1 billion annually since 1993 on its capital program. Slightly less than half of this is spent on capital improvements, with the remainder allocated to system expansion. Yet, our schools continue to crumble. This is due, in large part, to a gross under funding of maintenance and regular capital improvements. Industry standards dictate that two to three percent of total asset value be spent annually on infrastructure maintenance. The Board of Education currently spends slightly more than \$100 million annually from it's operating budget on this function, or one tenth of the approximately \$1 billion that should be spent. Capital improvements that are made are showing little effect in the overall condition of our schools, since they are, in essence, largely making up for the maintenance deficit. The large sums of money expended for school rehabilitation and construction over the next four years, will have minimal beneficial effect if we do not also provide a concomitant increase in maintenance and repair. One alternative to ease the space crisis is Year-Round Education (YRE).

The YRE calendar programs the school year on tracks, with each track requiring students to attend school and take vacation at different times. The number of school and vacation days do not change but schools are utilized for a full 12 months. Capital costs of such a program are limited to air-conditioning classrooms,

which we estimate to be between \$10,000 and \$12,000 per room, with energy costs averaging between \$97 and \$177 per year/per class. We cannot afford to delay implementing this alternative any longer.

Transit Authority

The Transit Authority (TA) provides subway and bus service to over four million riders daily. New fare initiatives will result in an additional 100 million riders annually, according to the New York City Transit Riders Council. The TA has made strong efforts to upgrade its assets over the last 20 years. However, we estimate that \$21.54 billion is still necessary for the TA to achieve and maintain a state of good repair system-wide. The Transit Authority estimates spending \$10.24 billion between 1997 and 2002. The Ten Year Capital Strategy states that New York City will contribute \$1.26 billion to the TA over the next ten years.

Based on a sample of field visits, we accepted current TA conditions assessments (state of good repair percentages) and used them in projecting our cost estimates to assess overall asset conditions. In certain cases, such as subway car and bus inventory, we used our own assumptions and estimates to calculate capital needs. (Our specific methodology is discussed in detail in Section III.) These costs are summarized in Table 2 on page ES-14.

Station rehabilitation, signals and communications, line structures, and subway car and bus purchases account for most of the expense. We estimate that the TA will need to purchase and additional 225 subway cars and 164 buses, over and above current

anticipated purchases, in order to handle the additional expected passenger load.

Table 2

Comptroller's Estimated Capital Costs to Achieve and Maintain a 100 Percent State of Good Repair through 2001 (1998 Dollars)

Category	Comptroller's Office Totals
Subway Cars and Overhauls	\$3,172,845,475
Mainline Track and Switches	\$749,054,625
Line Structures	\$2,136,322,794
Power	\$414,909,750
Signals	\$2,606,330,025
Subway Yards	\$224,916,980
Line Equipment	\$2,613,192,400
Subway Car Maintenance Shops	\$430,165,338
Stations and Communications	\$6,850,022,725
Emergency/Misceellaneous/Police Facilities	\$783,577,650
Staten Island Rapid Transit Operating Authority (SIRTOA)	\$133,024,500
Service Vehicles	\$46,664,150
Buses	\$795,085,325
Bus Depots and Maintenance Shops	\$530,725,525
Added Capacity	\$59,122,000
Grand Total	\$21,545,959,262

Department of Transportation

Creation of a safe and usable transportation infrastructure system is vital to our City's economy. The Department of Transportation (DOT) has under its purview 5,700 linear miles of streets, 842 bridges, five tunnels, eight ferry boats, two passenger terminals, 58 parking facilities, and over 10,000 traffic signals. Because of a lack of maintenance during prior decades, the City's roadways, bridges and other assets have suffered. Although investment in transportation infrastructure has recently been increased, the City has not been able to stop the continuing cycle of deterioration. We estimate that the Department of Transportation will need to spend approximately \$12.2 billion over the next ten years in order to achieve a state of good repair for its bridges, roadways, ferries and other capital assets. The Ten Year Capital Strategy for DOT has a funding level of \$8.12 billion for these assets.

The capital investment required for bridges alone totals nearly \$5.3 billion. According to the New York State Department of Transportation's rating system only 26.6 percent of New York City's bridges are rated good or very good. Federal and State law require that bridges be inspected a minimum of every two years. New York State performs the actual bridge inspections and assigns a numerical rating. The New York City Department of Transportation then translates those ratings to the verbal designations of very good, good, fair or poor. \$1.1 billion of the \$5.3 billion is to

be used for the ongoing reconstruction of the Brooklyn, Manhattan, Williamsburg and Queensboro Bridges. The reconstruction of these four East River Bridges will total \$2.6 billion at current estimates. \$3.5 billion is necessary for the reconstruction of 453 poor and fair rated bridges; \$266 million will be necessary to account for future deterioration of 147 bridges; \$398 million will be required for bridge painting and \$18 million for ancillary bridge facilities.

The capital investment required for roadways over the next ten years totals approximately \$5.9 billion. The Ten Year Capital Strategy includes approximately \$2.9 billion for this asset category. According to the NYC DOT 1996 Street Assessment Survey, 79 percent of the City's roadways are in "good" condition. The street assessment survey is a "windshield" inspection of roadway surface conditions done by DOT personnel, i.e., inspectors observe road surface conditions from their cars as they ride along the streets. Approximately 50 percent of roadways are inspected annually, with a report being issued every two years. Street repair has three levels: reconstruction (completely new street base and surface); engineering resurfacing (selective repair of street base along with normal resurfacing); or resurfacing (placing a new layer of asphalt over the current layer to smooth the street surface). We found that DOT's complete reconstruction/engineering resurfacing cycle of approximately 150 years is more than three times the normal replacement cycle of 30 to 40 years. Its

resurfacing cycle is at the upper limit (18.5 years) of the normal industry 20 year replacement cycle, including resurfacing due to sewer and roadway reconstruction. (Calculations based on the Ten Year Capital Strategy.) Pedestrian sidewalk ramps required by the Americans with Disabilities Act (ADA) are approximately 50 percent complete. We estimate it would take \$258 million to construct the remaining 80,000 ramps; the Ten Year Capital Strategy is funded at \$100 million or 39 percent of this need. In addition, approximately \$500 million will be needed to install traffic signals and streetlights, rehabilitate City-owned parking facilities, and to replace DOT's vehicle fleet. An additional \$300 million will be needed for upgrading the City's ferry boats and their facilities.

Department of Environmental Protection

The New York City Department of Environmental Protection (DEP) is responsible for the City's water collection, transmission, and distribution systems, and for its wastewater collection, treatment and disposal systems. Although overall, these systems are in adequate condition, many system components are approaching or have surpassed their 100 year life spans, a generally accepted industry benchmark that we have used as a basis for our analysis.

Consequently, many system components--such as water mains, sewers, and reservoir dams--will need rehabilitation or replacement over

the coming decade. In addition, the City will need to undertake programmatic improvements such as completion of a Third Water Tunnel, construction of a filtration facility for the Croton water system, and wastewater treatment projects required by the Federal Clean Water Act.

The City's Ten Year Capital Strategy allocates \$7.93 billion over 10 years for achieving a state of good repair and for undertaking programmatic improvements. Our estimate over the same ten year period is \$12.43 billion. Of this amount, \$2.50 billion is for the City's water supply and transmission from three upstate water systems; \$2.26 billion is for the water distribution system; \$3.08 billion is for the sewer collection system; \$4.52 billion is for wastewater treatment; and approximately \$70 million is for vehicles. These programmatic improvements are complex undertakings requiring the involvement of many city agencies and regulatory bodies. Even if monies were available, the operational impacts would prevent some of these projects from being completed in any 10 year period. Our estimate of need for the water distribution system, over \$2 billion, is approximately 4.5 times DEP's \$0.43 billion. Similarly, a technical system for biological nutrient removal from our wastewater has not yet been established and we believe this project will go well beyond our 10 year time frame.

The recent settlement of litigation brought by the United States Department of Justice against the City, on behalf of the U.S. Environmental Protection Agency, makes it clear that absent

some new evidence supporting the belief that the water quality of the Croton system can be improved to meet coming federal standards, a filtration plant will need to be constructed. The present Ten Year Capital Strategy allocates more than \$800 million for this project but costs will most likely rise above that level.

The construction of the Third Water Tunnel continues. When it was originally planned in the 1960s, Stages I and II were to be completed at a combined cost of \$752 million. As of this date, over \$1.5 billion has been spent on these two stages, and it will require another \$1 billion to complete Stage II. Construction of Stages III and IV is not scheduled and funding (\$3.3 billion) has not been provided in the Ten Year Capital Strategy.

Additionally, DEP's underground infrastructure, its water mains and sewers, will age significantly over the coming decades.

We estimate that approximately \$5.3 billion will be needed to bring these facilities, as well as the recently acquired Jamaica Water Supply system, to a state of good repair in the next ten years.

Health and Hospitals Corporation

We believe the Health and Hospitals Corporation needs to spend at least \$1.06 billion to bring its current facilities to a state of good repair and to attain the Corporation's strategic objectives. \$260 million of this is for the reconstruction of Kings County Hospital, Phases II - IV, with the \$90 million

required for Phase I of this project currently budgeted in the Corporation's FY 99 - 2002 plan. \$735 million is needed for the rehabilitation/replacement of current infrastructure, including \$151 million for the reconstruction of the Queens Hospital Center, and \$62 million is needed to complete the reconfiguration of patient wards. HHC normally does its own financing, i.e., debt incurred by HHC is not counted against the City's debt limit. The Kings County and Queens Hospital Center projects are being done in conjunction with the Dormitory Authority of the State of New York (DASNY).

Much of HHCs capital program is still focused on in-patient acute care, even though in-patient beds have been reduced, and the number of neighborhood-based primary care clinics will increase. Today, the focus of practitioners is on preventive and primary care, usually in out-patient settings. Major changes in the Medicaid/Medicare systems, the emergence of HMOs and rapidly evolving medical technologies force HHC to compete with most private hospitals for patient population. Statistics show that the Corporation is losing. Between July 1995 and February 1998 HHC in-patients declined by 9,000, while private hospitals saw an increase of 19,000 in-patients in that same time frame. Out-patient clients at HHC facilities dropped 33,381 between FY 95 and FY 97, from 432,042 to 398,661. Results through February 1998 show an increase of 22,308 to 420,969, yielding an 11,000 decrease overall. Out-patient clients served at private institutions increased by 195,546

during this same period.

Additionally, the percentage of uninsured in the non-elderly population in New York City increased from 22 percent to 28 percent between 1991 and 1996, according to an article in the Greater New York Hospital Association newsletter. HHC's client base is increasingly made up of the uninsured population, fully 25 percent in 1998.

Too often HHC is forced into a "catch-up" mode, as illustrated by the following. Magnetic Resonance Imaging (MRI) has been a widely used technique since the late 1980s. Bellevue Hospital just recently acquired MRI capability and it is the first City facility to have it. Harlem Hospital currently has plans to acquire an MRI. HHC still has nearly 500,000 square feet of in-patient bed area remaining to be converted from large, open wards to semi-private two or four bed rooms. We are not suggesting that every HHC facility requires every service or every technology. On the contrary, a well coordinated and managed plan for the provision of services to the people of NYC is required. But HHC must be able to provide the types of services and facilities that medical practice in the 21st Century demands.

FUNDING

New York City's infrastructure requires an investment of nearly \$92 billion to achieve a state of good repair and to meet the needs of the next decade. That number could be higher, since our estimates generally reflect a conservative approach and are "order of magnitude" only. However, undertaking the amount of work required would have a serious operational impact on the City. Therefore, of necessity, some of the work will go beyond the ten year period, reducing the amount of funding necessary. The City can only budget and plan to fund about one-half of its capital needs, or about \$45 billion; (adjusting for available non-city funds and other modifications brings the total to \$52 billion). Even at that level, our ability to finance our debt is stretched to the limit, both because of the constitutional debt limit and our already high projected debt service. It should be noted that certain organizations such as the Health and Hospitals Corporation, the Transit Authority, and the Water Authority, issue their own debt and their borrowings are not counted against the City's debt limit.

As previously noted, debt-service accounts for 16 percent of tax revenues, and is projected to stabilize at about 20 percent in the year 2001. As debt-service increases, there is less operating revenue for the delivery of necessary services. If we do not continue to invest in our capital assets, they will continue to deteriorate. Further deterioration will require even larger sums of

money to repair and replace. The cycle must be broken. Should New York's economy decline again, the impact on all services and programs will be severe. There is no easy solution to the problems we face. We must continually strive to take a disciplined, creative approach to managing government. Some potential alternatives to capital financing are outlined below. A more detailed discussion of these issues can be found in the Funding section of this report.

City/State/Private Coordination - - New York City is not alone in this infrastructure dilemma. Many of our older, larger urban areas are experiencing the same problems. It is the cities that are the economic engines of the country, and the infrastructure that makes the cities what they are. The federal government must make the commitment to maintain these systems through the creation of an urban infrastructure program. Cities and states should coordinate information on infrastructure needs and press for greater federal participation. Private sector involvement, where appropriate, should be sought, particularly regarding the use of new technologies. The recently passed federal funding (TEA-21) for transportation improvements is an important step toward this goal.

Other initiatives, like the State Revolving Loan Fund and State Infrastructure Banks, should be expanded and coordinated.

Pay-As-You-Go -- A modest \$200 million per year pay-as-you-go capital program would reduce outstanding debt by \$1.8 billion by the end of FY07. Annual debt-service savings over the life of the

debt would be \$3.93 billion, while adding approximately \$2 billion in capital improvements.

Retirement of Debt -- Currently, most of the City's budget surplus is used to prepay debt-service due only in the subsequent fiscal year. If, instead, a portion of the budget surplus was used to retire bonds coming due in several future fiscal years, debt would be immediately retired and annual budget savings would be achieved in the form of eliminated interest costs.

Use of "One-Shots" -- The City could establish an Infrastructure Improvement Fund with "One-Shot" revenues, such as the sale of the Coliseum. One-shot revenues generated from the sale of assets, mortgage liens on in-rem housing, the sale of tax arrears and the leasing of City property could be used for this purpose. Funds would be earmarked for capital improvements, beyond what is already in the capital plan.

Amenity Packages -- Developers seeking variances, development rights or bonuses, should be required, in certain cases, to contribute to infrastructure improvements benefiting the public, particularly for increased capital costs resulting from new development.

Expansion of the State Revolving Loan Fund (SRF) Program -- Currently used only for drinking water or clean water projects, it appears that in the near future, the SRF will be extended to solid waste projects. Since loans are made at low interest rates, an

expanded use of this program could result in overall lower debt for environmental infrastructure projects.

Reform of the Wicks Law -- The Wicks Law requires that all construction contracts on public buildings, over \$50,000 in value, must include separate contracts for electrical, HVAC, and plumbing services. Such restrictions make construction management and contract enforcement difficult, potentially costing the City hundreds of millions of dollars in delays, defaults and litigation.

We would like to acknowledge the cooperation that we received from the many agencies we reviewed. We also thank agency staff for their comments about our professionalism and work product. We hope that this report will be used to focus attention on the critical issues and problems that are raised and that this study will serve to set an agenda for discussion, debate and decision-making.