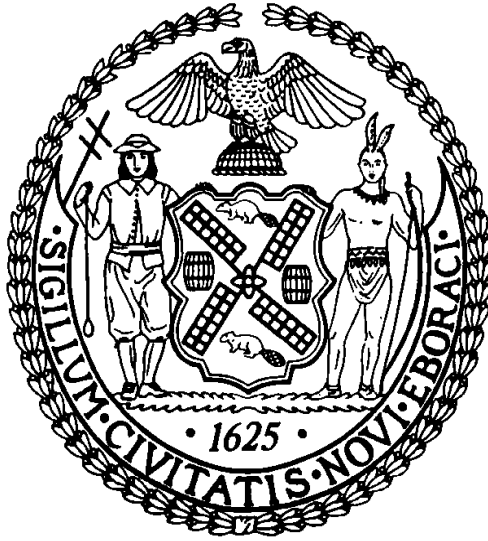


Preliminary Estimate

THE IMPACT OF THE SEPTEMBER 11 WTC ATTACK ON NYC'S ECONOMY AND CITY REVENUES



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EXECUTIVE SUMMARY

The purpose of this report is to propose a framework for assessing the impact of the World Trade Center (WTC) attack on New York City (NYC) economy and revenues. Dollar values are estimated for what the local economy (private and public sectors) has lost and what it still can lose under alternative scenarios, and how these numbers affect the budget. The numbers are preliminary; as more information becomes available, the estimates will be revised. Considering only the current and next fiscal years (FYs 02 and 03), the range of the impact is \$90-\$105 billion, depending on how the nation and the City respond to the disaster.

Economic Impact. The NYC Comptroller’s Office preliminary estimate of the economic impact is composed of two parts: (1) the total capital loss to the NYC economy of \$45 billion, and (2) a \$45-\$60 billion ongoing economic loss in FYs 02 and 03. The capital loss is the sum of an estimate \$34 billion for the destruction of NYC property and an estimate of \$11 billion for the loss of human capital. (See Table A, last column.)

Table A. *Summary, Preliminary Estimate of the Economic Impact on NYC of the Destruction of the WTC, Insured and Non-Insured, by Nature and Timing of Impact, \$ billion*

Nature and Timing of Impact	Insured \$ billion	Non-Insured \$ billion	TOTAL \$ billion
TOTAL IMPACT = I + II	\$37-\$39	\$53-\$66	\$90-\$105
I. Capital Loss	\$21	\$24	\$45
A. Property Loss/Damage	17	17	34
B. Human Capital: Lives Lost ^a	4	7	11
II. Continuing Economic Costs: FY 02 + FY 03	\$16-\$18	\$29-\$42	\$45-\$60
A. FY 02	\$15	\$27	\$42
1. Cleanup/Rescue/Security	1	13	14
2. Human Disability/Trauma	1	2	3
3. Business Interruption/Training/Unemployment	11	10	21
4. Lost Rents from Jobs Relocated Out of NYC	0	1	1
5. Lost Wages from Jobs Relocated Out of NYC	2	1	3
B. FY 03	\$1-\$3	\$2-\$15	\$3-\$18
1. Lost Rents and Wages – Better Scenario	1	2	3
2. Lost Rents and Wages – Worse Scenario	3	15	18

a. The human capital loss is a loss not just to NYC but to the NYC region. It is estimated based on the average income and expected working life of those who perished.

Source: Preliminary estimates by the NYC Comptroller’s Office. FY = Fiscal Year (FY 02 ends June 30, 2002). The Office intends to prepare revised estimates as more detail becomes available. Scenarios for FY 03 primarily depend on confidence in the future of NYC, which in turn depends on speedy rebuilding and return to pre-WTC-attack levels of business activity. For sources and details, see Tables 1 and 3.

The continuing private- and public-sector impact during FY 02 is \$42 billion and in FY 03, depending on how the City responds to the disaster, the impact ranges from \$3 billion to \$18 billion.

Job Losses. The estimated loss in jobs through FY 02 resulting from the WTC attack is 115,300. (See Table 6.) Some of these jobs may be replaced by activity relating to cleanup, repair, and reconstruction.

Offsetting Revenues. Balancing the burden on the NYC budget and affected businesses and workers are the following outside resources:

- Life insurance should provide income of \$4 billion to affected families, although this won't necessarily all stay in NYC.
- Property insurance should generate \$19 billion.
- The Federal government has committed \$20 billion to NYC, Washington and Pennsylvania, and probably \$7 billion of this will go to the demolition, disposal, and stabilization of the WTC site.
- Business insurance should cover ongoing business-interruption losses.

Revenue Impact. The overall risk to FY 02-03 revenues is a total of \$1.3 billion for both years. (See Table B.)

Table B. *Estimated NYC Revenue Risk from WTC Attack, FYs 02-03, \$mil.*

	Projected FY 02 Collections^a	Revenue Risk FYs 02-03
Property Tax	\$8,613	\$195
Commercial Rent Tax	\$361	\$83
Business Taxes	\$2,710	\$284
Personal Income Tax	\$5,293	\$162
Sales and Hotel Taxes	\$3,950	\$473
Parking Violations	\$366	\$82
Airport Fees	\$15	\$26
Total	\$21,308	\$1,305

a. Estimated before the September 11 attack.

Source: NYC Comptroller's Office. See Table 11.

THE IMPACT OF THE SEPTEMBER 11 WTC ATTACK ON NYC'S ECONOMY AND REVENUES

INTRODUCTION

The objective of this report is to provide a framework for estimating the impact of the September 11 WTC attack on New York City (NYC) economy and revenues, and to provide some preliminary numbers. This is done in two steps, the first being an estimate of the damage to the NYC economy (public and private).

A. The NYC Economy Before the Attack

In interpreting the private-sector economic impact of an event, the circumstances of the economy immediately prior to the event must be taken into account. The NYC economy out-performed the nation in the first quarter of 2001, with jobs rising and unemployment falling and inflation lower than the national average. This changed in the second quarter, with four of five economic indicators deteriorating. The equity value of NYC-based dot-coms, which was closely negatively related to the demand by dot-coms for office space, in second-quarter 2001 was one-third the value of a year earlier and one-seventh the value of two years earlier. Manhattan commercial office-vacancy rates in second-quarter 2001 were nearly twice the level of a year earlier. Then, in August, NYC private-sector jobs fell by a seasonally adjusted 8,200 jobs, the steepest decline in more than five years (total jobs fell by 10,300). The securities industry shed 1,600 jobs. Unemployment rose sharply to 5.8 percent from 5 percent in July.¹

B. What This Means for Analyzing the Economic Impact of the Attack

The fact that NYC was slowing down sharply prior to the September 11 attack has implications for analyzing its economic impact:

- High unemployment means that a negative economic event puts workers into a job market in which it is harder to get work.
- But high unemployment means it is easier for companies that lose workers or office space to recruit new workers.
- Higher vacancy rates in Manhattan made it more possible for companies that lost space to find temporary replacement space in the borough.
- If the economic consequences of the attack for NYC seem high, one explanation may be that the attack accelerated employment and office-space trends that were already under way.

¹ NYC Comptroller's Office, *Economic Notes*, May and August 2001 and press release on August jobs, September 20, 2001.

C. Evaluating the Economic Impact as the Basis for the City Budget Revenue Impact

The revenue impact of the September 11 attack on the WTC flows from the economic impact. The economic impact was an immediate loss of productive wealth, in the form of property that was destroyed or damaged, and human beings at work whose productive potential was destroyed or (in the case of those injured) damaged. The economic impact may also be measured in a continuing series of losses as the aftermath of the attack shows up in the interruption of commerce and industry.

Economists are ordinarily used to predicting and measuring the impact of marginal changes in activity. They are not so well equipped at measuring large and unexpected changes in the economic environment such as the oil shock in the early 1970s. Among the unknowns are:

- Will the impact of the September 11 accelerate the economic slowdown that was already under way?²
- What effect did the attack have on the economy and how does this effect come back to NYC?
- How much will security needs and practices permanently lower the propensity of U.S. inter-city and intra-metropolitan travel? What appears three weeks after the attack as a temporary inconvenience may become a serious hardening of the City's and nation's business arteries. The challenge to protect public safety will need to be balanced against the cost from delays in commuting created by daily inbound safety checks.
- To what extent will people decide to travel less to work and for pleasure? This in turn will affect locational decisions and these decisions have serious long-term effects on NYC's future.³

The Comptroller's Office has evaluated the impact of previous events, including the 1993 WTC bombing. In accordance with previous practice, the following procedures are used in assessing the economic impact of the 2001 WTC attack:

- The immediate effects of the attack on NYC's physical infrastructure and its human capital are analyzed first; the impact for the first two fiscal years on the NYC economy are analyzed next.
- Based on the above, the impact of the attack on the City's tax revenues is assessed.
- When several methods of valuation are possible, the implications of using each method are discussed before a selection is made among them.
- The report relies for data and news of recent developments on a variety of published reports including web sites and industry newsletters.
- These published reports are supplemented by interviews with individuals who have expertise in special aspects such as insurance, real estate, or law.
- No account is taken of the cost (potentially large legal fees) or timing of insurance claims.⁴

² The difficulty in separating the consequences of the September 11 attack from economic slowdown already under way led to a task force of the Financial Accounting Standards Board's deciding to label the attack an "ordinary" event. "Accountants, in a Reversal, Say Costs from the Attack Aren't 'Extraordinary,'" *Wall Street Journal*, October 1, 2001, p. C1.

³ Not all the impacts are negative for everyone. Within a region, decisions to work closer to home would be helpful for suburban communities that wish to expand their commercial areas. But the impacts, especially on an artificially expedited timetable caused by the massive loss of space and lives, are likely to have negative implications for NYC.

- No attempt is made to estimate what the trajectory of the NYC economy might have been in the absence of the WTC attack. It is known that the nation and City were on a downward trend prior to the attack; in August alone the City lost 8,200 private jobs and 10,300 total jobs.
- No attempt is made to account fully for how Federal and state aid will be spent and how this will affect the NYC economy.

I. PROPERTY AND HUMAN-CAPITAL LOSS - \$45 BILLION

The immediate economic impact of the destruction of the WTC on NYC was the loss of the two buildings and other buildings in the area and the deaths of those who were unable to leave the buildings or were killed in rescue efforts. In addition, the impact includes the destruction of business and personal property left in the buildings, closing down the transportation hub underneath, and the destruction of telephone, electricity and other networks. (See Table 1.)

Table 1. *Infrastructure/Capital Loss from WTC Attack, \$ billion*

Nature of Impact	Insured	Non-Insured	Total
A. Property Loss/Damage	\$17	\$17	\$34
B. Human Capital: Lives Lost ^a	\$4	\$7	\$11
Total	\$21	\$24	\$45

a. No attempt has been made in this preliminary analysis to distinguish the impact on NYC of the loss of life of (1) a worker who is a resident of NYC from that of a non-resident worker or a person who was simply shopping or visiting (for example, a resident of NJ does not pay personal income tax to NYC but does pay sales tax on items purchased in NYC, assuming they are not delivered to a NJ address), or (2) a person whose surviving family stays in NYC in contrast with a surviving family that takes the settlement and moves out of the City or region to start a new life. Source: Preliminary estimates by NYC Comptroller’s Office. The loss-of-life estimate in this report is based on loss-of-life calculations for workers and does not include a separate estimate for non-employee business visitors or tourists. Property loss/damage includes the buildings, business fixtures, business equipment, infrastructure and utilities.

A. Property Loss/Damage - Lost Work Space and Hubs - \$34 billion

The property-loss and damage figures are considered first because they are the most visible of the economic effects and are the easiest to quantify. They directly affect the economy and City taxes. The loss of space creates an immediate scarcity of office space as companies scramble to obtain temporary replacement space and plan for relocation until space in the area is available again.

1. Office Space Trends in Manhattan Prior to the WTC Attack

With the growth of the dot-coms in the second half of the 1990s, space pressures appeared, vacancy rates went down, and rents went up. As rents rose, corporations based in NYC looked for alternatives. New Jersey created programs to lure NYC businesses across the Hudson. One of the most successful programs was New Jersey’s Business Employee Incentive Program (BEIP), which

⁴ Since the amounts to be estimated may be litigated over in coming years, the numbers are conservative in that no account is taken of “friction” in the process of settlement. In October 2001, many of the claims pressed against the Port Authority of NY and NJ after the 1993 WTC bombing are still before the courts. These cases require that attorneys be paid on both sides. The longer the cases drag on, the less the value of a current-dollar settlement to the plaintiff. It is clear from that friction, whether in the form of legal fees or delays in settlement, could be a substantial addition to the total cost of the damage itself or a deduction from the value of the settlement to the survivor.

rewarded companies for bringing jobs to New Jersey by refunding a portion of their state taxes. Jersey City was the major beneficiary of these developments, tripling its Class A office space from 4 to 12 million square feet (sf) in the 1990s and accelerating the pace of growth by adding another 6 million sf in 2000-2003.⁵

Prior to the WTC attack, office-relocation activity in Manhattan was not great. The dot-coms were continuing to contract, raising the availability of vacant or sublettable space. The Manhattan office vacancy rate was 6.7 percent in mid-2001 but rose above 8 percent in the next two months. Companies could expand, if needed, where they were and did not have any need to look for new blocks of space.

2. The Significance of the Destroyed WTC Area Office Space, Nationally and Regionally

Of the five largest blocks of office space in the United States, three are in Manhattan. Midtown Manhattan ranks first, followed by the entire Chicago central business district, then Downtown Manhattan, then Washington, DC and in fifth place Manhattan's Midtown South. The amount of Class A office space totally destroyed in the WTC attack, 12-13 million sf, was equivalent to the entire office-space inventory of Atlanta or Miami.

A total of 13 million sf of Class A office space was lost and another 17 million sf is damaged, for a total of 30 million sf. (See Table 2.) This does not count (1) the Marriott Hotel at 3 WTC, (2) the cost of all the surrounding buildings that were covered with ash, suffered broken windows, and were evacuated to permit work on the damaged buildings. The list also takes account only of the primary or "phase one" damage circle," i.e., the buildings surrounding the WTC complex that have obvious damage. But this could be a seriously incomplete list. A secondary or "phase two" circle needs to be drawn and added. This circle would have suffered tremendous over-pressure stress, for which the damage would not be readily apparent without doing non-destructive testing damage assessment. While the damage to phase two buildings is probably to the non-load-bearing areas such as building facades, this damage may not show up until the City has gone through a major temperature gradient such as can be expected this winter with freezing and thawing cycles. An engineer involved in assessment of the damage recommends that a mathematical model be undertaken to determine the overpressure stresses released when the two WTC towers collapsed and then a phase two circle determined based on the severity of the resulting calculations, with all buildings in this area subjected to facade inspection. The City must plan for substantial contingency funds to ensure that they do find themselves in an adverse risk situation by under-funding this "hidden risk" and any consequence that might endanger the public from falling facades when access to the street level is reopened by the City.

On the other hand, some of the 17 million sf of damaged space may be repaired fairly quickly; Cushman & Wakefield believes that only 8 million of the damaged space requires major repair.⁶

⁵ Cushman & Wakefield, "The Manhattan Office Market after the WTC Tragedy," *MarketBeat Special Report*, September 27, 2001.

⁶ *Ibid.*

Table 2. *Lost and Damaged Office Space, NYC, Thousands of sf, as of September 10, 2001*

		Lost sf '000 ^a	Damaged sf '000	Total sf '000
1 WTC Tower	"WTC Complex" 13,420 sf ^a	4,761		4,761
2 WTC Tower		4,761		4,761
7 WTC		2,000		2,000
5 WTC		784		784
4 WTC		576		576
6 WTC		538		538
2 World Financial Center			2,591	2,591
3 World Financial Center			2,264	2,264
1 Liberty Plaza			2,121	2,121
4 World Financial Center			2,084	2,084
1 World Financial Center			1,462	1,462
1 Bankers Trust Plaza			1,415	1,415
140 West Street			1,172	1,172
90 Church Street			950	950
195 Broadway			875	875
22 Cortlandt Street			668	668
30 West Broadway			381	381
90 West Street			350	350
130 Cedar Street			135	135
114 Liberty Street			69	69
26 Cortlandt Street			25	25
106 Liberty Street			18	18
110 Liberty Street			6	6
Total		13,420	16,586	30,006

a. Preliminary list, not necessarily complete or definitive even as a listing of office space. The Marriott Hotel (WTC 3) was totally destroyed but is not included in the list because it is not office space. An engineer who was involved in collateral damage assessment and has seen the initial list of lost and damaged WTC buildings comments that the list is incomplete in including only the primary or "phase one" damage circle," i.e., the buildings surrounding the WTC complex that have obvious damage. A secondary or "phase two" circle needs to be drawn and added.

Source: *New York Times*, September 23, 2001, p. RE2. sf=square feet. WTC=World Trade Center. The listed buildings outside of the "WTC Complex" are the rest of the "WTC area," 30 million sf in all. Cushman & Wakefield estimates total lost or damaged space to be 26 million, Insignia/ESG estimates it as 25 million sf.

The destroyed space is 3 percent of all Manhattan office space; adding the damaged space brings it to 6-7 percent of Manhattan space. But the destroyed space is 5 percent of Manhattan Class A office space and 21 percent of Downtown Class A space. Including the damaged space, the loss is 11 percent of Manhattan Class A space and 44 percent of Downtown Class A space.⁷

⁷ Ibid.

3. Value of the Destroyed Buildings and Property in Them — \$34 billion

The value of the destroyed WTC buildings may be estimated several ways. The WTC complex includes the twin towers plus four additional buildings. The WTC twin towers (WTC Nos. 1 and 2) were built for about \$1 billion in the early 1970s. This is nearly \$5 billion in 2001 dollars, so that its inflation-adjusted book value, using straight-line-depreciation and 30 percent of its life used up (and a 100-year useful life), would be \$3.5 billion.

But on a replacement-value basis, to rebuild the WTC complex of 13.4 million square feet (sf) would cost no more than \$600 per sf, and more likely less than \$500 per sf.⁸ This comes to \$6.7 billion for the WTC complex.⁹

Other buildings in and around the WTC complex that were destroyed or damaged (using a broad definition of damage) have more than twice (30 vs. 13.4) the square footage of the WTC complex. Some of the damaged buildings will not be expensive to repair, about 5 million sf. The remaining 12 million sf space is seriously damaged.¹⁰ To rebuild or repair the entire 30 million sf is estimated at \$12 billion.¹¹

The Port Authority has estimated \$2.4 billion in losses apart from the WTC itself—damage to the PATH hub and new security requirements.¹² The MTA and Transit Authority may need to spend another \$3 billion to replace lost equipment and facilities and repair the subways underneath the WTC. Another \$2 billion in utility-repair costs are borne by AT&T and Verizon (200,000 phone lines affected and five switching stations) and Con Ed (for which replacement of 33 miles of cable and repair of two WTC substations is so far costing \$0.4 bil.), and the remaining \$2 billion in retail-

⁸ A large block of Class A office space in midtown Manhattan is currently being constructed at a cost of \$600 per square foot (sf) *including* \$180 per sf for the cost of the land. Since the WTC land is leased, this is not part of the capital cost.

⁹ Using a different method, Oliver Wyman & Co. has derived a slightly higher value for the 20 million sf of destroyed available office space. Using an average annual 2001 rental rate of \$75/sf, it estimates the market value of the complex as a rental property as \$1.5 billion per year, and takes the present value of this stream of rental income at 8 percent over a life of 100 years, for a capitalization of \$18.75 billion.

¹⁰ This is 4 million sf more than the previously cited estimate of “serious damage.” The difference is explainable. Cushman & Wakefield estimates 26 million sf permanently or temporarily unoccupied. The reason for the range in the numbers is definitional, i.e., the difference between structural damage and minor damage. Problems range from broken structural columns (30 West Broadway), major glass and façade damage (1 and 2 World Financial Center and 90 West Street), structural damage in one corner (3 World Financial Center, i.e., the American Express building), dangling steel and debris (1 Bankers Trust Plaza), and window damage (22 Cortlandt Street). Minor damage may be repaired in a few weeks. Major damage will take several months or possibly even years. The range of estimates of the square footage damaged will narrow in the coming weeks and months as the damage is fully assessed and some space is reoccupied, but a final assessment of the damage may not be possible until 2002.

¹¹ Table 2 shows that the two WTC towers each had more than 9.5 million sf of office space, and the WTC complex together had 13.4 million sf. This space is a total loss. Table 5 shows 30 million sf unoccupied, but Insignia/ESG estimates that a smaller total, 25 million sf, was seriously affected by the attack, meaning another 12 million sf beyond the WTC complex itself.

¹² “\$2.4 Billion in Losses Are Detailed in Report,” *New York Times*, September 21, 2001, p. B12. The PA estimate also includes lost revenues, which strictly speaking doesn’t belong together with the property loss and new security costs.

space inventory and fixtures. The total additional infrastructure cost is therefore about \$9 billion, for a total replacement cost of \$12 billion + \$9 billion = \$21 billion.

This impact of the attack extends beyond the buildings to the value of the furnishings and fixtures of business tenants, the property of their employees, the cars destroyed in underground parking lots or on the streets surrounding the buildings, inventory in the retail stores, and computers and other equipment in the offices. For securities firms in the WTC complex, the technology losses alone are estimated at \$3.2 billion.¹³ An additional \$12 billion is added to the value of the buildings to account for these values, for a total loss of \$34 billion.¹⁴ (See total of the first row of Table 1.) More than half of the amount lost is likely to be insured by the office building's landlord or tenants or both.¹⁵

B. Human Capital: Lives Lost - \$11 billion

The greatest human cost of a shortened life is to the person denied his or her potential, to the children left behind without a father or mother, to a parent who has lost a child, to the brother or sister or spouse or loved one who must continue alone. Also, a person's contribution to the world goes far beyond the workplace. But economists estimate the value of a worker's life by expected earnings during the person's remaining working life. Assume that the average age of the lost WTC workers was 40 and that they would have retired at 60, and assume that their average income was at least \$100,000 per year.¹⁶ Then the loss of 5,582 workers (363 confirmed dead at the WTC, not counting the 147 who were on the two planes, and 5,219 missing as of October 3) is a loss of productive work capacity of \$11.2 billion.¹⁷ This loss is attributable to NYC, because that is where

¹³ The securities firms involved in the WTC attack will need \$3.2 billion to replace their technology, i.e., the various computer work stations through which they conduct their trades, according to the TowerGroup. "TowerGroup's Estimate on the Impact of the World Trade Center Disaster to the Securities Industry's Technology Infrastructure," September 18, 2001.

¹⁴ This \$13 billion is rounded down from \$13.2 billion, composed of the Tower Group's estimate of \$3.2 billion in computer technology at securities firms, \$0.5 billion in technology at other firms, another \$2.5 billion in business fixtures at \$125/sf (an industry standard), \$3 billion in MTA and PATH train infrastructure, \$2 billion in utility repair costs borne by AT&T and Verizon (200,000 phone lines affected and five switching stations) and Con Ed (for which replacement of 33 miles of cable and repair of two WTC substations is so far costing \$0.4 bil.), and the remaining \$2 billion in retail-space inventory and fixtures.

¹⁵ The towers were valued at \$3.2 billion in a 99-year net lease when transferred fully tenanted and generating \$200 million per year to Silverstein Properties earlier in 2001. But the towers were reportedly valued for insurance purposes at \$5 billion, with a cap on claims for a single event of \$3.3 billion.

¹⁶ The average salary for *all* Manhattan workers in 2000 was \$70,000, but the average salary for workers in the finance, insurance, and real estate (FIRE) sector *in Manhattan* was \$156,000. Assuming that no more than half of the 7,000 missing/dead were in the FIRE sector, an estimated average salary of \$100,000 seems conservative.

¹⁷ That is, 20 times \$100,000 times 5,600 = \$11.2 billion. Companies sometimes value an employee's life as five times annual earnings; but the value to the region is much higher than to the company. Note three minor caveats: (1) A portion (relatively small, based on published reports) of those who died were visiting or shopping, or were tourists; no attempt has been made to allow for the differential economic impact of such a group. (2) A much larger portion of the dead, at least 1,800, or 30 percent of the workers, lived outside of NYC, primarily in New Jersey; prior to September 11, some 70,000 New Jersey residents commuted daily to the WTC on the PATH train. The residence of workers is significant for estimating the NYC budgetary impact of the human loss on taxable earnings, but is not relevant for assessing the first-round economic impact because the NYC economic product is based on the work performed in NYC. (3) Economists sometimes discount a stream of future incomes by an annual rate of interest to obtain the present

the workers were located, but from the broader perspective of the labor pool, it is a loss to the region. Of the lost human productive value, life-insurance payouts are estimated at \$4 billion.¹⁸ The economic value to the City and region of the human capital represented by the workers on this basis is therefore less than three times the average value of their insurance. (See Table 1, row 2.)

II. ONGOING ECONOMIC IMPACT, FYS 02-03 — \$45-\$60 BILLION

Besides the immediate loss of property and life, the NYC economy is suffering and will continue to suffer through a period of ongoing losses to companies, governments, and individuals. This section estimates the cost of the ongoing economic impact for FYS 02 and 03. The various economic effects have implications for NYC taxes, as both businesses and individuals only pay taxes to NYC based on what they earn. If they earn less, they pay less taxes. If they are no longer located in NYC, they may end up paying NYC no taxes at all.

The numbers for FY 03 have a wide range because they depend a great deal on the eventual relocation decisions by corporate executives. These decisions in turn depend on the ability of Federal, State and NYC officials to reconcile the serious and difficult security issues with some return to the pre-attack levels of business activity and a free flow of people and goods.

A. Continuing Impact through FY 02 - \$42 billion

After the immediate impact, the continuing short-term impact on NYC of the destruction of the WTC towers and neighboring buildings in FY 02 is \$42 billion. These losses may be summarized under five headings: property cleanup/rescue/policing, loss of life and disability, business interruption, lost rents, and lost wages. (See Table 3.)

value. However, the average salary here is a starting point and could be assumed to grow with inflation and with larger responsibilities from promotions. This growth would offset the time-value-of-money factor.

¹⁸Two different approaches yield this number. (1) Assume that 10 percent of those who perished had \$1 million policies and 15 percent had \$500,000 policies. Then assume that Workers' Compensation survivor benefits, worth \$400,000 each, are extended somewhat, to an average of \$500,000 per victim. Then add \$5 million "key employee" policies for 100 people. This comes to a total of \$4 billion. (2) The life-insurance industry is projecting a payout range of \$2-\$5 billion (source: American Council of Life Insurers); a reasonable point estimate, given that the industry has no incentive to exaggerate, would be round upward from the average of \$3.5 billion, i.e., to \$4 billion. ("Now, New York Faces \$60B Disaster Tab," *NY Daily News*, October 1, 2000, p. 2.) We know that, at the high end, Cantor Fitzgerald paid premiums for two years' salary, up to \$100,000 and offered employee-paid supplemental insurance up to \$1 million per employee. At the other extreme, a WTC security guard had a union death benefit of \$80,000 and would also be eligible for a Workers' Compensation death benefit if he died while on duty. But workers at Windows on the World had company death-benefit policies paying as little as \$15,000. ("Money for Families of Attack Victims Could Vary Widely," *New York Times*, September 20, 2001, pp. A1, B11.) In addition to life insurance industry payouts, there are Federal and State and local payments, plus charitable contributions. How the Federal paymaster will take into account existing compensation to victims' families is unclear. The families of fire fighters, police officers, and emergency medical workers receive a \$152,000 death benefit provided under Federal law, and the surviving spouse of NYC fire fighters and police officers who died in the aftermath of the WTC attack receive a lifetime tax-free pension equal to the victim's last year's earnings. The Federal government has promised \$1million to each victim's family, but the paymaster is supposed to take into account existing insurance. Giving to those who are well insured may seem to some to be extravagant, but not doing so might fairly be interpreted as penalizing those who prudently paid premiums to purchase insurance.

Table 3. *Continuing Economic Impact on NYC, FY 02, \$ billion*

Nature of Impact	Insured	Non-Insured	Total
1. Property Cleanup, Rescue, Policing ^a	\$1	\$13	\$14
2. Disabilities and Trauma	\$1	\$2	\$3
3. Business Interruption	\$11 ^b	\$10	\$21
4. Lost Rents from Jobs Relocated Out of NYC	\$0	\$1	\$1
5. Lost Wages from Jobs Relocated Out of NYC	\$2 ^c	\$1	\$3
Total	\$15	\$27	\$42

a. Of the \$14 billion, about half is for contracts for demolition/debris removal/stabilization/remediation of the WTC site (“Ground Zero”). See text for details.

b. Companies closing their doors voluntarily, such as sports leagues canceling sports events out of respect for those killed in the WTC attack, would not normally be covered by business-interruption insurance.

c. Includes property/casualty, life, business interruption, medical, Workers’ Compensation and unemployment insurance.

Source: Preliminary estimates by NYC Comptroller’s Office.

1. Property Cleanup, Rescue, Policing - \$14 billion

The City is responsible for policing the area and the most visible portion of the cleanup, nearly half a million tons of steel, concrete and debris. The Comptroller has signed off on four contracts totaling \$1 billion for cleanup, one for each sector. But another \$5 billion may be envisioned of spending on area demolition, debris removal, stabilization, and remediation contracts, especially given concerns for the security of the “tub” in which the WTC complex sits. About \$3.6 billion is for personal services, including police and fire overtime, \$3.6 billion is for other than personal service (OTPS) costs such as replacement of lost police and fire equipment, road reconstruction, aid to affected City schools and CUNY facilities, and burial costs. Finally, another \$1 billion is an estimate of spending by private owners for cleanup and repairs in Lower Manhattan.

These figures average to more than \$300 million/week for 42 weeks (the remainder of FY 02), although the process of rebuilding may take longer.¹⁹

2. Disabilities and Trauma - \$3 billion

Estimating losses and insurance recoveries is especially difficult because of the uncertain impact of the WTC attack on worker productivity and worker absences.

The toll on human life does not end with the initial impact. Beyond the 5,600 dead and missing, some 7,000 people who were in the WTC complex or were involved in rescue efforts have been sly wounded by falling glass or other debris, or by slipping, or were affected by the particles of dust and fine debris in the air.

More widely, the City has advised its employees and others that: “Emotional responses to disasters can appear immediately or sometimes months later. Understanding what you're feeling and taking positive steps can help you cope with disaster. Remember you're having a normal reaction; don't

¹⁹ “Rising from the Rubble: Area Rebuild a Year Away,” *NY Post*, September 27, 2001, p. 42.

label yourself as crazy.”²⁰ The advice continues with a list of symptoms: disbelief and shock; fear and anxiety about the future; confusion, feeling overwhelmed; irritability and anger; sadness and depression; feelings of powerlessness; change in eating habits; poor concentration or memory problems; questioning of spiritual beliefs and practices, anger at God; headaches and stomach problems; difficulty sleeping; increased drinking and drug use.

These symptoms have an economic impact. They affect worker productivity. Fortunately, for most people, the symptoms are temporary. Time heals all wounds, and for most people the healing is a matter of days or weeks. For others, especially the bereaved and those who were close to the scene of the attack, or had a prior condition that made them susceptible to the trauma, the effects of the trauma will linger for months, even with counseling and rest.

Another potential widespread condition is respiratory illness from the particles in the air, which linger in lower Manhattan even after three weeks. These ailments may be especially severe for those with a prior condition,²¹ or for those—including many rescue workers, fire fighters, police officers, medical personnel, and volunteers—who worked close to the WTC site (“Ground Zero”), where the concentration of particles was highest.

The cost of injuries, respiratory illnesses, trauma, and other causes of worker absence is subject to a wider range of estimates than property cleanup or business interruption. Costs are imposed on the medical care system, the victim, the victim’s employer, a member of the victim’s family who serves as caregiver, or the caregiver’s employer. Some of these costs will be funded by business interruption insurance, Workers’ Compensation, disability insurance, and health plans.²²

Widespread trauma, as reflected by fear of flying, is already accounted for in the sharp drop in airline flights. The cost of disabilities would show up in a shortening of the working lives of the average New Yorker and therefore in a reduction in lifetime NYC wages. But the economic impact is ameliorated if the employer replaces the disabled victim and hires someone who was unemployed. NYC’s unemployment rate rose sharply in August, from 5.0 to 5.8 percent. In the same month, of the 8,200 private-sector jobs lost, 1,600 were Wall Street workers. These numbers suggest that skilled unemployed people in NYC are available.

The major categories of losses associated with the reduction in worker productivity are

- Leave from work and associated medical costs resulting from injuries, including ailments created by air-borne articles and emotional stress.²³

²⁰ From nyc.gov homepage link for City employees.

²¹ Asthmatic children and adults have been adversely affected by smoke from the WTC destruction eight miles from the site, some of them being hospitalized. “For Asthmatic Children, An Extra Health Burden,” *New York Times*, September 20, 2001, p. B11.

²² The issue of the incidence of the employee’s medical and leave costs is only one side of the equation. The employer may hire a replacement, but must incur the costs of recruiting and training a new employee. It will also take the new employee time to become as productive as the previous one.

²³ Leave may be taken because of disabilities or aggravated ailments such as asthma or post-traumatic stress disorder. Some disabled workers are not entitled to be paid for staying home from work, but with a doctor’s prescription are allowed to take up to six months off without pay. This cost might be another \$300 million, at 10,000 workers times an

- Leave for bereavement by co-workers and family member(s).
- Medical costs, including the costs associated with individuals suffering from post-traumatic stress who may not have been near the WTC at the time of the attacks, but who are affected because of personal loss or a personal history that makes them more susceptible to emotional impact from the attacks. The estimates allow for these patients being treated in a hospital or privately at any time during the first five weeks after the attacks.
- Pain and suffering – Judgments and Claims. As a starting point, if 2,000 cases are litigated by individuals or their families against a landlord or a government agency, possibly as much as \$800 million might be awarded in settlements. (See Table 4.)

Table 4. *Disabilities, Bereavement, Post-Trauma Stress Disorder*

	Insured	Non-Insured	Total
Leave: Injured 7,000 x \$100,000 ^a	\$0.7	0	\$0.7
Leave: Bereavement 2x.17x5,600x\$100,000 ^b	0	\$0.2	\$0.2
Leave: Aggravated Disabilities 10,000x30,000 ^c	\$0.2	\$0.1	\$0.3
Medical Costs, Injuries and Disabilities ^d	\$0.2	\$0.5	\$0.7
Pain and Suffering ^e	\$0.5	\$0.3	\$0.8
Total	\$1.6	\$1.1	\$2.7

- Injured – as a preliminary estimate, 7,000 people injured by inhaling dust, by falling glass or debris, by heat exposure, by over-exertion (heart or respiratory problems), both from the attacks themselves and from rescue efforts. “Giuliani Reports Sharp Increase in the Number of Those Listed as Missing,” *New York Times*, September 21, 2001, p. B13. The injured are assumed to take an average of one year’s sick leave at \$100,000, a rounded conservative average of the Manhattan income and the Manhattan securities-employee income, as already described.
- Bereavement leave – two workers (one co-worker and one family member) per deceased employee x average 2 months’ leave x \$100,000/year average salary x 5,600 dead or missing.
- Workers taking an average of four months’ sick leave because of (1) their own respiratory (asthma) or other illness aggravated by the dust emitted by the WTC destruction (60 percent), or (2) their need to take care of a child or elderly relative suffering from this disability (40 percent). 10,000 people x .3 x \$100,000 = \$0.3 bil.
- Medical care (in-hospital and private), hospitalization. Assume 1,000 seriously injured people x \$200,000 lifetime average medical expenses for the injury, plus 10,000 disabled workers times \$50,000 average medical expenses. \$0.2 bil.+\$0.5 bil.= \$0.7 bil.
- Pain and suffering = settlements or judgments that add a payment for pain and suffering to the victim.

Source: Estimates by the NYC Comptroller’s Office, based on discussions with industry specialists. No attempt has been made to distinguish whether or not victims are NYC residents, although 30 percent of those working in the WTC reportedly were living in New Jersey.

3. Business Interruption/Training/Liability Losses - \$21 billion

Business interruption has an insurance meaning and an economic meaning. The insurance meaning is more restricted, because it excludes certain kinds of losses as a way of limiting the insurer’s liability. The economic meaning is much broader, i.e., the total amount of business lost because of an event.

As an example, take a restaurant that closes for a month because of a disaster, and previously had been earning total revenues of \$500,000 a month. Assume that the restaurant was paying at a

average of 30 percent of salaries averaging \$100,000 each, as an average of general Manhattan salary and FIRE Manhattan average salary.

monthly rate of \$200,000 in wages, \$150,000 for food, \$50,000 in rent, and \$50,000 in utilities and other expenses, and earned \$50,000 in profit each month. The insurance company and the owner of the restaurant might settle for the \$50,000 profit plus any unavoidable expenses. But the workers may be laid off for one month and would then lose \$200,000, while food suppliers in the area certainly lose their \$150,000 business. These costs together represent 70 percent of the loss, but are not insured. (Local residents also lose the services of the restaurant.) From the point of view of the owner of the business, and for the insurer, the only costs that matter are lost profits and continuing unavoidable expenses matter.

From an *insurance-company* perspective, coverage depends on the particular insurance policy:

- A business that was not directly damaged, but instead suffered from damage or business-interruption occurring elsewhere, for example the airports, is generally not likely to collect. The business generally must have suffered damage to its own facility to have a claim. But large insureds (such as a printer) may have a policy that extends the coverage to include losses caused by damage at, say, an investment house that was a major customer.
- Business-interruption insurance commonly extends only for the 12 months following the incident causing the damage. Losses that occur in the months following that will typically not be covered.
- Unless the business has a business-interruption policy, it is not covered. Unfortunately, many smaller businesses do not buy business interruption insurance.

From an economic point of view, the restaurant's *entire* revenues matter, not just the lost profits and unavoidable expenses, because the economy has shrunk. Workers' wages are avoidable by laying them off, but the impact on the economy continues through the lost wages.

Business activities in NYC for the first week after the September 11 attack were drastically curtailed. The NY Stock Exchange was closed, airports were closed, and theaters were mostly dark. For NYC alone, the Gross City Product (GCP) is an average of \$7 billion per week, or \$1 billion per day year-round, or more accurately an average of \$1.2 billion per business day (\$6 billion for these five days) and \$1 billion for each weekend). The key business-interruption costs were to (1) the airports, LaGuardia and JFK, and the businesses dependent on them, (2) the 50,000 people who worked in the WTC, the 50,000 more who worked in nearby buildings, and the 100,000-plus additional people who ordinarily passed through the PATH hub and subway stations and shopping areas, and (3) the rest of the downtown area below 14th Street, which was closed off to allow free movement of the rescue and demolition workers.

One way to estimate the loss of business activities (using the broad economic definition of business interruption) is as a percentage of total GCP. Three-quarters of the GCP is generated in Manhattan and perhaps one-third of this ($1/3 \times 3/4 = 1/4$ of NYC's GCP) is in lower Manhattan. For the first four days lower Manhattan was virtually shut down, costing \$300 million per day (again, GCP is roughly \$1.2 billion per business day). Working through the first four days to the first four weeks and then to the end of FY 02, the total GCP loss is \$21 billion. (See Table 5.)

Table 5. *Estimated Loss in Gross City Product, FY 02, \$ billion*

Source of Loss	A. Gross Product, \$bil.	B. Percent Loss	C. Loss per Day, Week, or Mo., bil. (AxB)	D. Total Loss, \$bil. ^a
1. First 4 days – Lower Manhattan	\$.3/day	90%	\$0.27	1.08
2. First 4 days – Rest of NYC	\$0.9/day	20%	\$0.18	0.72
3. Next 4 weeks – Lower Manhattan	\$1.7/wk	25%	\$0.43	1.70
4. Next 4 weeks – Rest of NYC	\$5.3/wk	15%	\$0.80	3.18
5. Next 9 mos. – Lower Manhattan	\$7.5/mo.	10%	\$0.75	6.75
6. Next 9 mos. – Rest of NYC	\$15/mo.	5.5%	\$0.82	7.42
Total, FY 02				\$20.85

a. For rows 1-4, this total is column C times 4. For rows 5-6, this total is column C times 9.

Source: Preliminary estimates by NYC Comptroller’s Office. Gross City Product (GCP) calculated by NYC Comptroller’s Office at \$373 billion in current dollars. Downtown Manhattan is estimated to generate one-fourth of NYC’s gross product, with the rest of Manhattan generating one-half. NYC’s GCP is rounded to \$7 billion per week, or \$1.2 per business day and \$1 billion each weekend. So one-fifth of the five weeks’ GCP was snatched from NYC by the WTC attack. The business interruptions include losses to (1) companies located in the WTC complex, (2) companies dependent on them for business, (3) companies losing customers because of loss of communication, (4) companies losing customers because of the creation of “frozen” or “red” areas restricting vehicular and pedestrian traffic to allow rescue workers to move more freely, (5) companies failing to obtain supplies because of long lines of trucks and cars being checked by the police, (6) companies losing productivity or clients from long lines for pedestrians being checked in buildings, (7) companies suffering consequential damage to advertising, Broadway, electricity usage, telephone usage and so forth. Some offsetting benefits to a few sectors of the NYC economy (construction, for example) are occurring, but the major beneficiaries of the dislocation are some suburban locations near NYC that have filled their empty office space.

A major business interruption was in airline travel, because all airports were shut down nationwide immediately after the attack. Only the NYC portion of this impact (including LaGuardia and JFK airports) is included. The national loss of revenues to the airlines has been estimated at about \$10 billion after the first week, which has led to layoff of 118,000 airline employees in about two weeks, many in NYC.

The business interruptions that occurred during the days and weeks following the WTC attack are those resulting from the destruction of the WTC and the shutdown of airports and financial markets. Some of these impacts are permanent; for example, flights postponed may be cancelled forever. Other impacts simply represent a shift to a later time period. For example, securities trades that were to be made from September 11 to 14 were postponed to September 17.

The major initial impact over the first five weeks is on (1) Wall Street firms, (2) tourism, i.e., Broadway theaters, museums, hotels, air travel, automobile travel in NYC, and (3) retail sales. For the remainder of FY 02, the business interruption is estimated equal to the value of the first five weeks.

Table 6. *Estimated Lost Economic Activity and Jobs from WTC Attack, NYC, FY02*

Industry	A. Lost Economic Activity, \$ millions	B. Total Wages, millions ^g	C. Total Employees, thousands	D. Industry Wage Rate, Manhattan D=B/C	E. Number of Jobs Lost 0.445xA/D	F. Lost Wages, in \$ millions DxE
Wall Street ^a	\$7,500	\$37,325	162.6	\$229,499	14,865	3,411
Banking	\$1,500	\$8,112	82.0	\$98,928	6,897	682
Insurance	\$1,300	\$6,430	65.0	\$98,928	5,977	591
Real Estate	\$1,000	\$10,486	106.0	\$98,928	4,598	455
Trade	\$1,700	\$15,232	344.5	\$44,215	17,489	773
Restaurants ^b	\$1,000	\$6,652	120.0	\$55,439	8,205	455
Theater ^c	\$500	\$2,218	40.0	\$55,439	4,102	227
Hotels ^d	\$750	\$1,940	35.0	\$55,439	6,154	341
Legal	\$300	\$4,435	80.0	\$55,439	2,461	136
Other Services ^e	\$3,500	\$34,591	623.9	\$55,439	28,717	1,592
Other ^f	\$2,000	\$42,006	730.0	\$57,543	15,809	910
Total	\$21,050	\$169,429	2,389.0		115,274^h	9,575

- a. *Wall Street.* The loss of many staff members who were working in the WTC, the use of temporary quarters, problems in tracking and completing trades, and loss of backup data mean that many NYC firms were and will be for a while less able to compete aggressively, causing NYC's share of securities revenues to suffer. For purposes of calculating average wages and jobs, all Wall Street jobs are assumed to be in Manhattan. Reportedly Wall Street traders lost \$100 billion per day in trading alone for the first four days based on the closure of the NY Stock Exchange and other financial markets. On the other hand, margins on such trades normally are small and many trades were not lost, merely postponed; also, spreads on trades have the potential of widening with fewer traders, which would compensate somewhat for the loss in volume. Fixed-income and foreign-exchange trading activities, which are conducted in OTC markets, were not formally interrupted and the associated revenue impact is expected to be small. Finally, IPOs and M&A activity were down before the WTC attacks and many did not expect much activity until 2002; now, even less activity is expected in 2001, although live deals are being kept warm. "Attacks Stop IPO Market in Its Tracks," *Wall Street Journal*, October 1, 2001, p. C14. This loss is in addition to destroyed property already counted as a capital loss.
- b. *Restaurants.* Restaurants were losing about four-fifths of their revenue, about \$20 million per day.
- c. *Theaters.* The impact on Broadway and other entertainment was devastating, with five Broadway shows closing within a few days.
- d. *Hotels.* Manhattan hotels the week after the WTC attack were only one-third full and were losing about \$10 million per day.
- e. *Other Services.* Includes 6,000-7,000 jobs lost in the airline industry; within two weeks, the airlines had shed 118,000 jobs nationwide ("Airline Job Cuts Since Sept. 11," *NY Daily News*, September 27, 2001, p. 51). Also, many jobs will be lost in the business services sector.
- f. *Other.* Includes printing and publishing, general merchandise, and airports.
- g. *Total Wages.* Total wages in Manhattan is \$169.8 billion and GCP is \$373.3 billion. Their ratio is 45.5 percent.
- h. *Total Jobs Lost.* An alternative method of estimating job losses would be somewhat higher, i.e., 134,429. This is based on the average salary in Manhattan (\$169.8 billion / 2,389,076), which is \$71,057. Dividing the portion of the GCP lost that is wages (\$21 billion x 45.5%) by \$71,057 results in a total job loss of 134,429.

Source: NYC Comptroller's Office, based on ES202 data for 2000 (col. B) from the NY State Department of Labor.

Likely business-interruption (or "lost income and relocation") claimants are (1) those in the WTC area, plus (2) those affected by "frozen areas" from which pedestrians and vehicles were excluded, and (3) companies elsewhere that served these clients.

4. Net Lost Rents

Lost rents from the destroyed buildings are estimated at \$1 billion and for the damaged buildings \$.75 billion, for a total of \$1.75 billion. Some of these rents, about \$0.7 billion worth, will be recouped elsewhere in NYC. So the net rent lost is \$1.05 billion. (See Table 8.)

Table 7. *WTC Towers, Tenants by Floors and Employees, September 10, 2001*

1 WTC			2 WTC		
	Emp	Floors		Emp	Floors
Sandler O'Neill	177	0.5	Windows on the World	70	2
AON	1100	9	Cantor Fitzgerald	1000	3
Fiduciary Trust	645	4	Marsh & McLennan	3200	8
American Bureau of Shipping	16	0.5	Fred Alger Mgmt.	55	1.5
Washington Group	190	0.5	Carr Futures	141	1.5
Keefe, Bruyette & Woods	171	2	Ohrenstein & Brown	91	1
NYS DOT&F	222	2	Network Plus	46	1
Harris Beach	113	1	Port Authority	2000	23
Euro Brokers/Maxcor	285	1	Dai-Ichi Kangyo Bank	300	3
Fuji Bank	625	4	Lehman Brothers	618	3
Morgan Stanley	3500	17	Kemper Insurance*	234	2
Bridge Info Sys*	284	2	Empire Blue Cross	1914	10
ICAP	500	2	ICAP	250	1
Fireman's Fund	190	2	Bank of America	400	3
Wachovia/First Union	48	1			
Thacher Proffitt & Wood	300	3			
Frankel & Co.*	213	1.5			
Oppenheimer Funds	598	5			
Sun Microsystems	300	2			
Scor-US	120	1.5			
Total	9,597	61.5	Total	10,319	63

*For these companies, the number of employees was estimated based on the average number of employees per floor on the floors for which data are available. There were an average of 156 employees on each floor (9597/61.5) of 1 WTC and 164 employees on each floor (10,319/63) of 2 WTC. If all of the 110 floors were occupied, there were 17,160 people in 1 WTC [156 * (110)] and 18,040 people in 2 WTC [164 * (110)]. There were 4,761,400 sf in each tower, so the number of sf per employee is, for 1WTC, 4761400 / 17160 = 277 sf, and for 2 WTC, 4761400 / 18040 = 264 sf. However, a more conservative figure of 300 sf per employee is assumed. This is also approximately the number in temporarily vacated American Express space in the World Financial Center, where it had 3,000 employees in 1 million sf.

Source: NYC Comptroller's Office estimates from data in "Employees in the Twin Towers," *New York Times*, September 16, 2001, p. 10.

Table 8. *Lost Rent from Lost/Damaged Office Buildings, FY 02*

	Gross '000 sf, Lost	Gross '000 sf, Damaged	Total '000 sf
WTC Towers (Nos. 1 & 2)	9,523	0	9,523
WTC Rest of Complex (Nos. 4, 5, 6, 7)	3,897	0	3,897
Perimeter Office Buildings Damaged	0	16,583	16,583
Nearby Buildings Closed ^a	0	8,500	8,500
Space Lost/Damaged, and No. Employees	13,420	25,083	38,503
FY 02 Share of Rent Lost, Percent	100%	40%	
Average Rent per sf ^b	\$75	\$75	\$75
Lost Rent, \$ bil	\$1.00	\$0.75	\$1.75
Recovered Rents, Leased Space in NYC ^c , \$ bil	.5	.2	0.7
Net Lost Rent, \$ bil	.5	.55	1.05

a. Damage may be limited to ashes and broken windows, but police security made many office and retail building space unusable.

b. This is a slight premium over average Manhattan-wide office-space rentals.

c. Recovered rents are: (1) for the lost buildings, 13 mil. sf @ an average sublease rental of \$50 per sf x 9 months' average (remainder of the fiscal year) = \$490 mil.= \$0.5 bil.; (2) for the damaged buildings: temporary space of 8 mil. sf @ an average of \$50 per sf x 1/2 year average wait until the building is ready to be reoccupied= 8x50x.5=\$300 mil. = \$0.2 bil.

Source: Estimated by the NY Comptroller's Office. See Table 8 for affected companies in WTC 1 and 2.

5. Lost Wages

The loss of space meant that many workers could not work. Whether or not their wages are paid by the employer (who bears the loss) or the employee (who then be the one to bear the loss), lost wages in FY 02 from the destroyed buildings are conservatively estimated at \$9.6 billion. (See Table 6.)

B. Continuing Impact, FY 03 - \$3 to \$18 billion

The long-term costs are speculative at present, but need to be borne in mind early and accounted for in future estimates of the economic impact. Even companies that are positively inclined toward NYC and intend to stay may decide that they will in future avoid concentrating employees in one area.

1. Job Displacement and Long-Term Business-Location Decisions

The WTC complex had 50,000 employees in their 13 million sf of space, more than 250 sf per employee. With more than 30 million sf affected in the area, the total job displacement is in excess of 100,000 employees. At \$100,000 per employee, this is an economic impact of \$10 billion for FY 02. Only about 70 percent of this impact is at risk from a personal income tax perspective, because nonresidents of NYC do not pay this tax.

From the perspective of the NYC economic base, the job displacement is not of concern if the displaced jobs stay in NYC. A move within Manhattan, or a move to Brooklyn or Queens, is not an economic loss to NYC. (See Table 9.)

Table 9. *Temporary Relocation of Firms Affected by WTC Attack, as of September 26, 2001*

	NYC	Out of NYC	Both, No Breakdown	Total	Relocation
Asahi Bank	65			65	101 Park
Fiduciary Trust	650			650	600 Fifth
Frankel & Co.	200			200	380 Lexington Ave.
Keefe, Bruyette & Woods	136			136	Subletting from another law firm
Lehman Brothers	618			618	660 rooms, Sheraton Manhattan
Marsh & McLennan	3200			3200	1166 Ave. of Americas
Scor-US Corp	120			120	199 Water St.
Credit Suisse First Boston	800			800	Park Ave. at 50 th St.
Hartford Financial Services	330			330	2 Park Ave.; temp. in suburbs ^a
American Express	3000			3000	Back to WFC if ready soon ^b
Cantor Fitzgerald	0	320		320	NJ ^c
Citigroup	1100	1400		2500	NJ and CT as well as NYC ^d
Deutsche Bank			5000	5000	NYC and NJ ^e
Dow Jones			640	640	NYC and NJ ^f
Garban-Intercapital			100	100	500 Park and NJ
Instinet			210	210	Times Sq., Third Ave., and NJ
Morgan Stanley			3500	3500	Varick St., Midtown, Brooklyn, NJ
TOTAL	10,219	1,720	9,450	21,389	

- Hartford Financial Services* has both taken space at 2 Park Ave. and has obtained temporary space in six locations in New Jersey, Connecticut, upstate NY and Long Island.
- American Express* has 3,000 employees who occupied 1.1 million sf of 3 World Financial Center, which American Express owns. The company is temporarily displaced while 3 WFC is repaired. It has meanwhile also reportedly (a) set up a temporary headquarters in 170,000 sf of existing space it was using in Jersey City, (b) sublet 317,000 sf from Lucent in Parsippany, NJ, (c) leased another 195,000 sf in Short Hills, NJ, and (d) is planning to lease 175,000 of the 440,000 sf of the former Champion International headquarters in Stamford, CT, for a total of 680,000 sf outside of NYC. The company is seeking to determine whether or not its existing space is structurally sound, as it so far appears to be (damage to the southeast corner of the building is reportedly of concern only to those using that corner). If the space is proved sound, the company says it plans to move employees back.
- Cantor Fitzgerald*, which has 680 employees (two-thirds of its staff) missing since the WTC attack, moved its surviving staff of 320 to Rochelle Park, NJ.
- Citigroup Asset Management* is moving 1,100 employees to Midtown Manhattan, but also to Stamford, CT and Rutherford, NJ. It had 2,500 employees in the WTC complex.
- Deutsche Bank* is moving some of its 5,000 employees to 31 W 52 St. and other Midtown locations but is also taking space in Harborside and Piscataway, NJ. It is buying 60 Wall St. from J.P. Morgan Chase and is seeking to move employees into the building before the sale closes in November.
- Dow Jones* is moving about 640 employees to South Brunswick and Jersey City, NJ, as well as 1155 Avenue of the Americas.

Source: News reports, September 12-26, 2001.

But Manhattan has only 16 million sf of vacant office space available, which is only 60 percent of the affected space, and the space available may not all be suitable for the companies losing space in the WTC attack. Companies could obtain space in the other four boroughs. But so far all but one of the companies that haven't relocated employees within Manhattan have chosen to lease space in New Jersey and Connecticut:

The only move on this list from Manhattan to an outer borough is Morgan Stanley's taking space in Pierpont Plaza in Brooklyn.

Based on recent moves of key companies, the final outcome of the corporate relocation movements is that workers in 5-10 million sf of office space destroyed in the WTC attack might relocate to New Jersey, Connecticut, upstate New York, or Long Island. (See Table 10.)

Table 10. *Millions of Square Feet of Office Space Displaced and Related Jobs and Incomes, FY 02*

	NYC	Outside NYC	Total
Space Displaced, millions of sf	25 msf	0 sf	25 msf
Replacement Space, Temporary, millions of sf	20 msf	5 msf	25 msf
Jobs at Original Ratio of 300 sf Per Worker	70,000	17,000	87,000
Estimated Replacement Space after 9 Mos., msf	15 msf	10 msf	25 msf
Jobs in Replacement Space at 250 sf Per Worker ^a	60,000	40,000	100,000
Wage Equivalent (x\$100,000 average)	\$6 bil.	\$4 bil.	\$10 bil.

a. Average of WTC as a whole is 300 sf per worker. Replacement space in sublet space is assumed to be smaller on average, but that will not always be the case.

Source: NYC Comptroller's Office, based on reports from Insignia/ESG and other sources.

How many companies move some or all of their employees to New Jersey or Connecticut, or to a nearby community in NY State, will depend in part on the assessment by corporations of the relative desirability of keeping all employees in one location, distributing them among more than one location in NYC, or distributing them among a location in NYC and one in a suburban business district. Will it be harder to recruit staff to NYC in 2003, or to a suburb of NYC? Active negotiation with corporate officials responsible for space planning will have to be a significant aspect of the City's agenda during the coming months and years.

2. Impact of Business-Location Decisions on the Budget

The decisions that displaced companies are making about their future locations are also very important for the future of NYC. The good news is that virtually all of these decisions so far have been for the affected companies to stay in the region. The bad news is that NYC doesn't have enough vacant Class A space to accommodate the sudden demand and some companies are leasing space outside of New York City, mostly in New Jersey and Connecticut. Company decisions about where they see their future location will affect NYC's economy and budget in the following ways:

- People tend to shop near where they work. If fewer people work in NYC, fewer people will shop in NYC. This will affect sales taxes.
- If a company moves out of the City, it pays less in business taxes.
- If workers follow a company out of the City, in time they will consider moving nearer where they work. That will mean that the personal income tax (PIT) revenue from the worker will be lost.²⁴
- If a business moves out of NYC to Jersey City, this move will tend to raise the value of property in Jersey City and lower the relative value of property in NYC. Until the WTC complex is rebuilt, the City will therefore take a double hit. It will suffer both from the loss of property taxes on the WTC complex and from the reduced demand for and value of office property.

²⁴ Commuters used to pay a special payroll tax of 0.045 percent, but this was eliminated last year.

3. Security Costs

The overriding benefit of security is to satisfy the essential need for individuals and businesses to go about their daily activities without fear. For this benefit people are willing to pay a great deal. New security precautions taken by police and government regulators will cost the nation billions of dollars in added security personnel. Extra time will be required at airports and other transportation centers. These precautions will discourage air travel for shorter trips where trains and cars are an alternative, at the same time as the costs reduce the profitability of airports and the airlines.

The costs of the tighter security in Lower Manhattan are substantial. They include losses to (1) companies located in the area around the WTC complex, (2) companies dependent on them for business, (4) companies losing customers because of the creation of the “frozen” or “red” areas restricting vehicular and pedestrian traffic to allow rescue workers to move more freely. Recent police checks of trucks impose costs that become cumulatively more severe as companies fail to obtain supplies and materials because of long lines of trucks and cars being checked by the police.

Businesses in the future are likely to pay more attention to having back-up of their computers at a different location. More large business will want, at very least, to have at least one emergency-ready back-up office in a different location from their headquarters. The cost of decentralizing operations could be expensive for a company that has no other reason than security for opening a second office.

III. NEW REVENUES AS OFFSETS TO ECONOMIC LOSSES

The losses are offset by insurance and insurance and intergovernmental aid and other resources.

A. Capital-Loss Offsets

1. Private Insurance on Life and Property – 21 billion

The two main forms of insurance reimbursement are life insurance and property/casualty insurance. Both will be making major payments in the aftermath of the WTC attack.

Life insurance: \$4 billion. The life insurance industry is expecting to pay out between \$2 billion and \$5 billion for claims related to the WTC attack, and rough calculations indicate that a reasonable estimate would be \$4 billion range. However, the extent to which the \$4 billion comes back to the NYC economy depends on whether the recipients (the surviving families in the case of a death) stay in the area. They may take the insurance settlement and move elsewhere to start a new life, in which case the settlement is not an infusion of funds into NYC but into another region.

Property/casualty insurance: \$17 billion. Insurance payouts for property losses will be significant, about \$17 billion for property/casualty insurance. This insurance will help spread the burden outside NYC and even far beyond the borders of the NYC and the nation. However, coverage may not be adequate for many of the businesses being hit. For example, the WTC coverage was limited to total loss of only one of the two towers.

An early indication of the major (more than \$500 million) insurers of the WTC itself are the American firms AIG, Berkshire Hathaway, Chubb, Citigroup, GE, Hartford, St. Paul; Lloyd's in the UK; Allianz and Munich Re[insurance] in Germany; Swiss Re, Switzerland; XL Capital and ACE, Bermuda; Zurich Financial, Switzerland; and Axa, France.²⁵

Although the hit to the insurance companies is serious, and insurance-company stocks fell on the WTC attack news, they have announced they are able to absorb the losses and insurance stocks have more than recovered from their declines since the September 11 attack.

A long-term problem with large insurance payouts is that they can have the effect of seriously raising future premiums and deductibles for property insurance, especially in NYC.²⁶ The decision to cap insurance on the WTC towers was presumably a result of the high cost of the premiums, and this high cost in turn reflected the payouts in 1993. Higher premiums may have an effect at the margin on corporate-location decisions.

2. Intergovernmental Aid

The U.S. Government has committed only \$20 billion under the Stafford Act, to be used not only for disaster relief in NYC and the region, but also in Northern Virginia and Pennsylvania (where one of the four hijacked planes crashed). Most of the money is appropriated to the Federal Emergency Management Agency (FEMA) with the rest going to other Federal agencies.²⁷ Early indications are that the Federal funds will be used to cover 100 percent of the costs of the damage and cleanup that are being incurred by the City and agencies such as the Port Authority of NY and NJ, and the Metropolitan Transportation Authority. FEMA has already released \$125 million to cover certain emergency costs that are not covered by insurance, such as temporary housing, medical aid, and burial costs.

NY State has (1) passed enabling legislation for \$5 billion of the commitment that it expects to receive, (2) appropriated \$500 million of its own funds in order to allow spending as soon as Federal funds are received, and (3) raised the cap on the Transitional Finance Authority's borrowing by \$2.5 billion to allow the City to borrow against receipt of Federal aid.

The net value of Federal aid will depend on the nature of the programs through which it flows. If much of the Federal aid is in the form of Small Business Administration (SBA) loans, the value is lower than grants to the City, because the loans must be repaid; the real long-term assistance from SBA loans is in the lower interest rate.

²⁵ Source: Original list in September from Reuters, updated to October 2 by industry sources.

²⁶ An industry source speculates that insurance rates will rise across the board and some will rise steeply. If Workers' Compensation is not supported by a Federal grant, rates could rise 20 percent to replenish the NY State fund, putting the State at a competitive disadvantage. Commercial property insurance rates could rise by up to 50 percent. Liability rates may increase by a smaller percentage.

²⁷ NYC Independent Budget Office, "WTC Disaster: Tracking Federal Aid for Cleanup and Rebuilding," *Inside the Budget Newsfax*, September 28, 2001, p. 1.

3. Private Responses

Fortunately for the City budget, certain costs to the economy are absorbed by the marketplace, not solely through insurance but also through adjustments.

Labor Market Adjustment - \$6 billion. The human-capital loss is enormous. The people who perished were well-educated and concentrated in a highly productive industry. Unlike the property damage, which is fixed in place, the human-capital loss is a loss to the region rather than only NYC.

However, we also know that the securities industry shed 8,700 jobs in the six months prior to September 2001. This is more than equal in number to the toll of the dead and missing. The labor market will replenish the great loss because it has a great labor reserve.

If the loss to the regional work force is replenished from those in the industry who are unemployed, is there no cost other than to the individuals and their families? The answer is a qualified yes. The costs to the NYC and regional economy include the following:

- *The region* suffers a loss of competitiveness through the sudden disappearance of about two percent of the 179,000 workers in the NYC securities industry.
- *Companies* must absorb the temporary cost of recruiting, training, and absorbing the missing workers. This will be substantial, but is quantifiable at something short of \$100,000 per new employee.
- *The unknowable* factor is the extent to which those who perished had skills and potential that will be inadequately replaced even after training of replacements.

Real Estate Adjustment. Several developers have expressed interest in developing the site of the fallen WTC complex (for example, Silverstein Properties, Brookfield, and Tisch). The successful proposal will presumably bring together Federal, State, City, and private-sector funds to rebuild. Partly because of property insurance, the real estate market will adjust to the loss of the WTC complex and will be able to raise financing anew. Private investment will represent an additional resource for recovery and rebuilding.

B. Continuing Offsets, FYs 02-03

Some of the costs incurred as a result of the WTC attack are insured. These costs are therefore offset to some degree by the insurance compensation that is starting to flow to affected individuals and businesses. The markets are also adjusting. Over FYs 02-03, the offsets could handle a large portion of the \$45-\$60 billion of continuing costs.

1. Continuing Insurance Payments

Insurance will cover much of the disability and business-interruption losses, a total of \$16-\$18 billion in FYs 02-03. Workers' Compensation payments, an estimated \$3 billion,²⁸ will help injured workers or the survivors of workers who died on the job. State insurance officials believe that the Federal government will declare that all terrorist-related losses in Workers' Compensation will be reimbursed to the insurers, because re-insurers are reportedly refusing to renew Workers' Compensation policies without a terrorism exclusion and the primary carriers cannot legally exclude terrorism.

NY State is responsible for unemployment insurance payments which run a standard \$300 a week, but many of the people in the WTC complex will be covered by business-interruption insurance or disaster relief or both, so it may not be unemployment insurance which pays. If 100,000 people are unemployed, \$300 a week per person is \$30 million a week or \$120 million a month.

While most surviving office workers were moved, most building staff workers and retail and other service employees were laid off. That includes the staff of the WTC itself (2,000 cleaning staff, for example), retail stores (2,000 workers), hotels (1,000 at the Marriott, 3 WTC), printing companies, airline ground staff and flight attendants, companies servicing the area (e.g., limousine services, restaurants). Perhaps 40,000 are from lower Manhattan (below Canal Street) and another 60,000 are employees of companies elsewhere in NYC that depended on the WTC complex for their business.

2. Continuing Private Absorption of Cost and Labor-Demand Shifts

Not all business-interruption costs are covered by insurance. In particular, owners of small businesses tend to be underinsured and must absorb the cost of interruption from their own resources.

Labor markets are also taking some of the strain. As service workers have moved out of lower Manhattan, demolition crews and security personnel have moved in. The major economic impact of the disaster during the next year may be

- a shift of workers within the NYC region, with possibly 150,000 jobs permanently lost or temporarily moved within NYC or to New Jersey or Connecticut or upstate NY or Long Island,²⁹ and
- a shift in the nature of workers needed, with for example a decline (at least temporarily) in workers in securities and travel-related businesses while engineers and construction workers are recruited for the rebuilding of lower Manhattan.

²⁸ The NY Compensation Insurance Rating Board estimated \$1.3 billion as of October 1, 2001; several industry analysts peg the exposure at \$3 billion, but this may include some insurers outside of NY State.

²⁹ Cushman & Wakefield (C&W) estimates that one-fourth of space currently being leased is outside of Manhattan. But it emphasizes that most leases are being pursued in Manhattan and that given the shortage of Class A space, major firms are increasingly prepared to look for space in areas within Manhattan that in the past they might not have considered. See C&W, *op. cit.*, p. 3.

Continuing insurance payments and intergovernmental aid will assist with reconstruction and this will help the construction industry. Other industries or professions that will be helped in the short and intermediate term are: security consultants and guard services, commercial office space brokers and owners, computer consultants, communications specialists, office furniture renters and sellers, insurance adjusters, attorneys, and accountants.

As the infusion of capital creates new jobs, and the City obtains a temporary stimulus, economists need to post two reminders: (1) the economic benefits are temporary, and (2) from the perspective of the City's wealth, the new investment is simply replacing capital stock that had been there and was tragically erased; the capital investment will displace other capital projects that the City might have undertaken.

The largest single cost is the net cost of lost rents/wages under the "worse" scenario. This will show up in reduced competitiveness in certain industries. The major unknown is how regional jobs will be distributed after companies have made their corporate relocation decisions over the next few months

IV. IMPACT ON NYC TAX AND OTHER REVENUES

A. NYC Tax Collections Prior to September 11

Prior to September 11, tax collections were performing according to the Adopted Budget/June Plan except for the personal income tax (PIT). For the first two months of FY 02, tax collections were \$5.29 billion, which was 2.27 percent above the Adopted Budget/June Plan figures and 4.4 percent above FY 01 tax collections for the first two months of the year. No collections are reported for general corporation tax (GCT), banking corporation tax (BCT), unincorporated business tax (UBT), and commercial rent tax (CRT), because of the so-called "60-day" rule, which allows the City to allocate the first two months' revenues to the prior fiscal year without being subject to censure from the fiscal monitors for violating generally acceptable accounting procedures. All taxes except PIT performed above the FY 02 Plan expectations. All taxes except PIT and the real property transfer tax (RPTT) performed better than the same period for FY 01. PIT was 4.6 percent, or \$28.2 million, below June Plan figures and 10 percent, or \$65.8 million, below FY 01 two-months' collections. PIT was also performing below Plan projections and below FY 01 for the last two months of FY 01.

B. Property Tax

An example of the impact is the property tax. Property that is destroyed does not yield property-tax revenue in the year following its destruction, but the law is that any building that was in fully occupied on January 5, 2001 will owe property taxes for FY 02. Companies are expected to go to their fire and business-interruption insurers to cover the taxes owed in FY 02. However, on January 5, 2002, the City will assess buildings for FY 03, and at that point all destroyed property will be removed from the tax rolls. Because of the five year phase-in rule, the effect of the attack

on property tax revenues will be spread over a period of time. The FY 03 estimated loss from the combination of a slowing economy and property losses is estimated at \$195 million.

C. Business Taxes

Companies that move out of NYC are lost to the business-tax base. Individuals who move out of NYC to follow their companies stop paying personal income taxes to NYC.

Commercial Rent Tax. CRT is paid on rental space in Manhattan below 96th Street. The economic section of this report estimates that there will be a net loss of \$1.15 billion in rent. The effective CRT tax rate is 3.9 percent. The estimated CRT loss for FY 02 is $\$1.15\text{b.} \times 3.9\% = \45 million. CRT loss for FY 03 is estimated at rent lost from the 13m. sf of the WTC. This is $13\text{m} \times \$75 \text{ per sf} \times 3.9 = \38 million.

Other Business Taxes. The economic section estimates business-interruption costs from the WTC attack and its aftermath at \$21 billion for the rest of FY 02. This is 7 percent of the Gross City Product for the rest of FY 02. Applying this percentage to business tax revenues, the estimated loss in the total of GCT, Bank and UBT taxes for the remaining 10 months of FY 02 is: estimated business taxes $\times 7\% = \$2,710\text{m.} \times 7\% = \189 million. For FY 03 the loss is estimated at half the FY 02 amount, i.e., \$95 million.

D. Personal Income Tax

Lost wages due to destroyed and damaged buildings net of companies relocating in NYC is estimated at \$2 billion. Assume 70 percent of this would have been paid out to NYC residents and apply the personal income tax (PIT) effective tax rate of 3 percent to give a PIT loss of: $\$2\text{b.} \times 70\% \times 3\% = \42 million. Another 40,000 jobs at an average salary of \$70,000 are lost to airline, transportation and other sectors. The estimated PIT loss on this for 10 months is: $40,000 \times \$70,000 \times 3\% \times 10/12 = \70 million. The total estimated loss in PIT for FY 02 is $\$42\text{m} + \$70\text{m} = \$112$ million. For FY 03, if workers in 5m sf of office space relocate, at 300 sf per worker, it would mean 17,000 employees relocated. Lost PIT on this is $17,000 \times \$100,000 \times 3\% = \50 million.

E. Sales and Hotel Taxes

Losses from tourism (including hotels and restaurants) and related retail sales are projected to cost the City \$338 million for FY 02 in lower sales and hotel-tax revenues. The losses are projected in FY 03 at 40 percent of the FY 02 level, i.e., \$135 million.

F. Effects on Other Revenues

Preliminary estimates of the impact of the WTC attack on other revenues focus on two sources of revenues: parking taxes and motor-vehicle violations, and airport fees. Because the area below 14th Street has been restricted and parking rules were not in effect, revenues from parking-violation summonses will fall (as well as taxes on parking). For the three weeks after the WTC attack, the number of summonses fell almost 40 percent compared with the same period in FY 01; for the full

month of September summonses were 57 percent of the level of July and August. The drop in summonses may also reflect deployment of police on security details. If the drop continues for the rest of the fiscal year, parking-violation revenue will decline by \$45 million in FY 02 and \$37 million for FY 03. (See Table 11.)

Major airlines have laid off nearly 120,000 employees nationwide as part of a plan to cut flights 20 percent. This will lower the amount of revenue to the Port Authority (PA), which is the base for determining rentals the PA pays to the City for leasing the airports. A 10 percent decline in PA revenues in FY 02 will mean airport-rental payments will fall by a corresponding amount, i.e, by \$9 million. The estimated loss for FY 03 is \$17 million. The total for FY 02-03 is \$26 million.

G. NYC Revenue Risks, FYs 02-03

The risk to the City budget from lost revenues is estimated at \$738 million in FY 02 and \$567 million in FY 03, for a total of \$1,305 million (\$1.3 billion) for the two fiscal years. (See Table 11.)

Table 11. NYC Revenue Risks from WTC Attack, FY 02-03, \$ million

	Revenue Risks FY 02	Revenue Risks FY 03	Revenue Risks FYs 02-03
Property Tax	\$0	\$195	\$195
CRT	\$45	\$38	\$83
GCT, Bank, and UBT	\$189	\$95	\$284
PIT	\$112	\$50	\$162
Sales and Hotel Taxes	\$338	\$135	\$473
Parking Violations	\$45	\$37	\$82
Airport Fees	\$9	\$17	\$26
Total	\$738	\$567	\$1,305

Note: CRT=Commercial Rent Tax. GCT=General Corporation Tax. UBT=Unincorporated Business Tax. PIT=Personal Income Tax.

Sources: NYC Office of the Comptroller, NYC Department of Finance, NYC Office of Management and Budget.

In addition to the revenue risks, economic development tax abatements or “tax expenditures” are tax abatements allowed corporations in return for a commitment to retain or hire a certain number of people during an agreed-upon period. Agreements after September 11, 2001 may be covered by special Federal or NY State aid. The abatements are ordinarily arranged through the NYC Economic Development Corporation.

V. CONCLUSIONS AND RECOMMENDATIONS

This analysis of the likely economic impact of the WTC attack is open-ended because it depends on the outcome of business location decisions that will be made during the coming weeks. These decisions will be based on factors that will vary by company but will be affected by actions of the City government and other governmental agencies.

A. Conclusions

The Comptroller's office estimates, on a preliminary basis, the following measures of the economic and budgetary impact of the WTC attack:

- The NYC property loss is about \$34 billion.
- Human capital worth \$11 billion has been lost, not just to NYC but to the region.
- On a continuing basis, in FY 02 NYC will lose about \$42 billion, half of it from the loss of business activity.
- In FY 03, the range of losses is between \$3 billion and \$18 billion, depending on how quickly NYC returns to business as usual and starts rebuilding.
- Insurance premiums will rise generally, and probably more in the NYC region than elsewhere..
- The revenue risks stemming from these economic losses is about \$1.3 billion in FYs 02-03.

The key to revival of the NYC economy is for (1) aid of all kinds to be flowing *quickly* to designated recipients, including microlending to small businesses; (2) security procedures to become less obstructive of travel and commerce while retaining their effectiveness; (3) as large an area of NYC as possible to be freely open for business *soon*, and (4) authority for development of the WTC site to be agreed upon as soon as is reasonable so that reconstruction can start as soon as demolition is finished.

B. Recommendations

Residents and workers in NYC for the time being are in a post-traumatic frame of mind and are willing to put up with long lines on the bridges and in front of buildings because they want order and security above all. But as time goes on, some of the most costly effects of the WTC attacks may be the increased “friction” in travel and ordinary business transactions. Here are five recommendations:

- Expedite payment of disaster grants and loans. Friction must also be reduced in the processing of funds to help people get back soon to pre-attack business activity.
- Provide tax incentives and utility cost breaks to help NYC's small businesses.
- Encourage microlending to help small businesses.³⁰
- Rebuild on the Trade Center site as quickly as possible. Establish a state-city commission with the power needed to ensure that the site and neighboring buildings are cleared or safely repaired³¹ and that well-thought-out reconstruction plans are developed and implemented with no delays.

³⁰ A report on the potential role of microlending agencies and their recent performance has been prepared by the NYC Comptroller's Office.

³¹ The report recommends, based on a concern of an engineer who has looked at collateral damage, that a mathematical model of the downdraft created by the WTC collapse be used as a basis for closer examination of buildings beyond the primary ring around the WTC that might have suffered façade loosening, prior to winter freezing when ice might form in air pockets between the façade and the buildings.

- Establish a security commission led by the police commissioner. The commission should seek to develop security procedures that protect New Yorkers and the nation, while also permitting an efficient flow of people and goods necessary to conduct business.
- The commission should foster cooperation among companies to share and keep down corporate security costs and insurance premiums.
- As much as possible, the commission should seek to use technology to allow effective scanning for potential weapons while allowing New Yorkers to go about their business as quickly as possible.