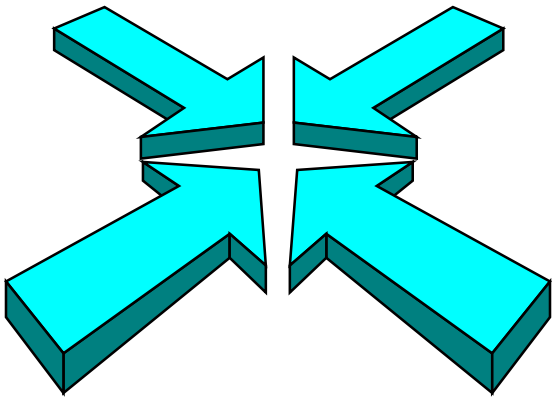
THE COST BENEFIT GROUP

www.cost-benefit.com

Measuring the Economic and Financial Impacts
of Environmental Hazards
and Real Estate Development Projects



THE COST BENEFIT GROUP

The Cost Benefit Group (CBG), formerly Damage Valuation Associates, specializes in evaluating the economic and financial impacts of environmental hazards and real estate development projects. CBG applies state-of-the-art economic and financial theory to assist clients in the following areas:

- Determining the Effects of Environmental Damages Upon Property Values
- Measuring the Economic Impacts of Environmental Hazards
- Cost-Benefit/Risk Benefit/Cost Effectiveness Analysis
- Litigation Support
- Hedonic Damage Valuation
- Real Estate Feasibility Analysis
- Appraisal of Property Values
- Valuations of life and health in personal injury and wrongful death cases

We are known for quantifying costs and benefits that others omit-from the decline in real estate prices resulting from a toxic chemical leak, to the social costs arising from a body of water rendered unavailable for recreational use, to the benefits of living an extra year resulting from cleaner air. We can also determine the number of jobs gained or lost from a variety of projects. We offer a unique combination of:

- Simple--but effective--graphics presentations
- State-of-the art computerized models
- Computerized databases of cost benefit and damage studies that facilitate quick turnaround at moderate costs
- Expertise in real estate, finance, economics, government, and environmental policy
- Thorough searches of economic literature and databases
- The creativity needed to measure all costs & benefits--even where effects appear to be impossible to quantify

The Cost Benefit Group has produced studies of 800 projects worth more than 2 billion dollars in 140 counties and 28 states. Our associates have also evaluated the economic and financial impacts of major power plant construction projects (worth more than $10 billion), utility rates, and environmental hazards upon employment, income, corporate balance sheets, real estate markets, municipalities and utilities. CBG has appraised vacant land; shopping centers; apartment complexes; office buildings; automobile dealerships; industrial buildings; nursing homes; a marina; and hotels.

These projects were commissioned by Citibank; Chemical Bank; Marine Midland Bank; the Bank of Montreal; GMAC; the U.S. Department of Housing and Urban Development; the Federal Deposit Insurance Corporation; Chinese American Bank; Home Savings of America; the State of New York; several law firms, and other institutions.

OUR APPROACH

In all our projects the Cost Benefit Group attempts to optimize client-staff involvement. We prefer working closely with the client to plan the scope of work and set objectives, so that the work dovetails neatly into the client's overall strategy, and the client avoids false starts and misdirected resources.

CONTENTS

A SAMPLE OF PREVIOUS ASSIGNMENTS

Project: Valuation of Contaminated Commercial Property
Tasks: Appraise property values before and after contamination in Bedford, Commack, East Fishkill, Elmont, Franklin Square, Brooklyn, Lake Ronkonkoma, Mattituck, Mineola, Sag Harbor, Valley Stream & Yaphank New York; Burlington, Jersey City, Pittsgrove & Ridgewood, NJ; East Stroudsburg, PA for litigation, acquisition, disposition, redevelopment, condemnation, financing and tax reductions
Clients: Techlaw, TRS, Certilman Balin, U.S. EPA, Rose, Breslin, Podvey Sachs, Meth Fessel Werbel, Zarin-Steinmetz, Law Offices of John Curley, Jersey City Redevelopment Agency, Elliott & Elliott.

Project: Cost Benefit Analysis/Damage Valuation Database
Tasks: Work with the U.S. EPA and Environment Canada and ERG to create a database of valuation study data on the Internet, now at www.evri.ca.

Project: Shoreham Nuclear Plant Case
Topics: Economic and environmental impact study of proposed rate increase, and construction of alternatives. Study impacts upon businesses and property values.
Clients: Government of Suffolk County, New York; Union Associates

Project: Contaminated Residences
Topics: Value impacts upon homes of TCE, gasoline, and other contaminants for litigation/tax certiorari. Brockport & Lindenhurst, NY; Alloway & Redbank, NJ, Laureldale, PA; Montgomery Al.
Clients: Faraci & Lange, Cahn, Wishod & Lamb, Law Offices of John Brennan, Podvey Sachs; Elliot & Elliot, Gathings Law.

Project: Garden State Plaza Litigation
Topics: Determination of property values for disputed land in Paramus New Jersey. Our estimated value of $45,000,000 was accepted by an arbitrator.

Project: Governor's Island Historic National Monument Park, New York
Topics: Valued two historic forts -- "Castle Williams" and "Fort Jay" for U.S. General Services Administration. Value arises from 1) Residential Income, 2) Commercial Revenues (restaurants, shops, lodging), 3) Transfer of Air Rights, 4) Increase in surrounding property values, 5) Net benefits to tourists, 6) Net benefits to users of vacant land for recreational and other purposes, 7) Non-use values from existence of historical monuments and option of visiting them
Client: U.S. General Services Administration, Grubb & Ellis

Project: Impacts of Con Edison Electric Substation, West 30th - 31st Street New York, NY
Topics: Estimate value diminution from electric substation due to public perceptions regarding the dangers of electromagnetic emissions, the risk of fire and accidents associated with such structures, noise concerns, increased dangers arising from potential terrorist attacks and the potential incompatibility of the structure with neighboring uses.

Project: Feasibility Studies/Appraisals of Redevelopment Projects
Topics: Determine feasibility through analyses of regional and neighborhood economic and social conditions; key sectors; supply and demand for real estate; the property, zoning, sale prices of vacant land and of comparably improved properties; rents achieved in relevant markets; and absorption and vacancy rates in Central Islip, Coram, Deer Park, East Meadow, East Patchogue, Fishkill, Flushing, Franklin Square, Greece, Kings Park, Long Beach, Manhattan & Mount Sinai, Oswego, Port Jefferson Station, St. James, Stony Brook, Uniondale, Webster, Yaphank, NY; Cape May, Fort Lee & Jersey City, NJ; Andover, Cambridge & Peabody, MA; & Annapolis, MD. Estimated value of these projects upon completion is far in excess of $1 billion

Project: Cost-Benefit Analysis of Green Roof Program – New York City
Topics: Estimate potential benefits and costs of roofs covered with grass and plants, including: 1) ameliorating "urban heat island" effect, 2) lowering energy expenditures, 3) purifying the air, 4) reducing storm-water runoff, 5) increased roof service life, 5) Aesthetic/Recreational benefits, 6) reducing noise, and 7) generating jobs.

Project: Health Care Real Estate Valuations
Topics: We are recognized as experts in the valuation of real estate utilized by health care institutions with unique databases and years of experience. Valuations include detailed descriptions of: regional and neighborhood demographic trends; supply and demand factors and more. Projects include hospitals in Bethpage, Brooklyn, East Meadow, and Manhattan, NY and Jersey City, NJ; Nursing Homes in Edgemere, Oswego, Rockaway Park, Rockville Centre, Uniondale and Woodside, NY Cape May, NJ, and Peabody, MA; Assisted Living Facilities in Brooklyn, Chester, Forest Hills & Plainview, NY, Montville, NJ, Cambridge, MA & Annapolis MD; and Medical Offices in Great Neck, Old Bethpage & Plainview, NY

Project: Turnberry Tower, 1438 Third Avenue, Manhattan
Topics: Value 147 unit 14 story apartment building for client involved in foreclosure litigation.

Project: Crown Sterling Suites
Topics: Value eight all-suite hotels in three states for potential sale (estimated value $152,000,000).

Project: Valuation of Personal Injury Damages
Topics: Valuation of damages, including the present values of lost earnings, fringe benefits, household chores, medical costs, in personal injury case.
Client: Law Offices of Barry Montrose, P.C.

Project: Townview Apartments, Fishkill, New York
Topics: Feasibility study of potential $34,000,000 apartment development project.

Project: La Hacienda Apartments, Brownsville, Texas
Topics: Appraise 227 unit apartment complex, include study of local economy, rents, zoning, and comparable sales.

Project: Rosewood Nursing Home, Peabody, MA
Topics: Feasibility study--development of 135 bed nursing home.
Client: Jackson Associates LI; TRI Capital; US Department of HUD

Project: Burnhamthorpe Square, Toronto, Canada
Topics: Appraise four office buildings with an estimated value of $32,000,000.
Client: Jackson Associates LI; Angeles Mortgage Investment Trust

Project: Seabrook Nuclear Plant
Topics: Economic and environmental impact of proposed rate increase. Financial analysis of rate proposals.
Clients: Union Associates; Coalition of businesses and consumer organizations

Project: Market Study of Eight New York Counties
Topics: Study optimal location of group homes for mentally retarded given locations of existing facilities, vacancy rates, rents & prices.
Client: James Felt Realty/Grubb and Ellis; The State of New York

Project: Reagan Square Shopping Center, Austin, Texas
Topics: Appraise shopping center and evaluate local economy for portfolio valuation.

Project: Suffolk Saturn, St. James, New York
Topics: Feasibility study of new automobile dealership including appraisal of vacant land, and analysis of local economy and automobile dealership market.

Note: Clients listed include institutions that commissioned other firms, with whom we served as subcontractors.

RESUMES OF KEY ASSOCIATES

KENNETH ACKS

EDUCATION:

THE NYU STERN GRADUATE SCHOOL OF BUSINESS ADMINISTRATION	**M.B.A. Finance, October 1988**
THE UNIVERSITY OF CHICAGO	**B.A. Economics and History, June 1977**

WORK HISTORY:

1990-present The Cost-Benefit Group LLC (www.costbenefitgroup.com), formerly Damage Valuation Associates

- Founder and chief executive of economic consulting and real estate analysis firm which produced studies of more than 900 projects worth over $3.5 billion dollars in 140 counties and 28 states. Firm focuses upon estimating the economic impacts of environmental hazards upon real estate, and has provided a wide range of other consulting services.
- Worked with the U.S. Environmental Protection Agency and ERG Inc. to help create cost-benefit and valuation databases and analysis systems.
- Analyzed the effects of nuclear power plants, gasoline storage tanks, asbestos, groundwater contamination, oil leaks, construction projects, and utility rates upon property values, employment, income, corporate balance sheets, real estate markets, and municipalities.
- Valued contaminated properties, office buildings, shopping centers, hotels, apartment buildings, vacant land, mobile home parks, automobile dealerships, warehouses, factories, nursing homes, and marinas from Toronto Canada, to Los Angeles California, and to Tampa Florida, including more than 50 in Manhattan.
- Conducted acquisition reviews, market analyses, and feasibility studies.
- Prepared 135 page report on the New York City economy and real estate market to outline loan portfolio risks faced by current and prospective stockholders of North Fork Bank.
- Monitor, model, and forecast regional economic and financial developments.
- Designed and estimated Econometric and Input/Output models.
- Created the ACB Cost Benefit Analysis Software, which can significantly reduce the time and costs for determining impacts.
- Furnished litigation support to more than 30 law firms regarding over 50 cases.
- Testified as expert witness before the Supreme Court of the State of New York, a Superior Court in Morris County, NJ, and the NY City Council.
- Analyzed Costs and Benefits of Green Buildings, Green Roofs, Brownfields and Real Estate Development Projects.
- Health care valuations/feasibility studies/market analyses of hospitals, nursing homes and assisted living facilities in Anapolis, MD; Cambridge and Peabody MA, Cape May and Montville NJ; and Brooklyn, Chester, Forest Hills, Plainview, Port Jefferson, and Syracuse NY
- Estimated impacts upon property values of contamination for
  - residences in Brockport, Great Neck, New Hyde Park, and Lindenhurst, NY; Alloway, Jersey City, and Redbank NJ; Montgomery, AL, Town of Pines Indiana
  - commercial properties in Bedford, Commack, Fishkill, Plainview, Ronkonkoma, Sag Harbor, and Valley Stream, NY, Jersey City and Ridgewood, NJ, and East Stroudsburg and Nesquehoning, PA
- The above projects were commissioned by J.P. Morgan Chase, Citibank, HSBC, the Bank of Montreal, GMAC, Xerox, US Environmental Protection Agency, US Dept. of Housing and Urban Development, the Federal Deposit Insurance Corporation, Chinese American Bank, Amerasia Bank, National Amusements Inc., Grubb and Ellis, Landauer Realty, the Related Companies, the New York State Housing Finance Agency, The New York City Dept. of Housing Preservation & Development, Nassau and Suffolk Counties, the City of New Orleans, Jersey City, Federated Department Stores, Sheraton Hotels, Techlaw Inc., and over 40 law firms.
- Created the Environmental Valuation & Cost-Benefit Website www.costbenefitanalysis.org, (formerly www.damagevaluation.com)http://www.damagevaluation.com which has drawn more than 63,000 visitors, been recognized as a respected source of information by numerous organizations with links and favorable mentions, achieved good search engine placement, and generated new business.

1994-present ***Editor and Publisher, Environmental Damage Valuation and Cost Benefit News (www.envirovaluation.org)***

- Design, edit and market an acclaimed newsletter, with paid subscribers in ten nations, including influential environmental policy makers. In recognition of its merits, the United States EPA and other organizations have devoted space on websites to back issues.

- Created the Environmental Valuation & Cost-Benefit News Website and Newsfeed (October, 2005). According to AWSTATS, From July 1, 2005 through December 31, 2005 our sites welcomed an average of 15,440 unique visitors per month, who made a total of 197,219 visits and viewed 1,809,095 pages. 3,102 of our visitors felt that the site was worthy of a bookmark; 11,128 spent between 5 and 15 minutes on the site; 10,865 between 15 minutes and 30 minutes, 15,737 between 30 minutes and 1 hour, and 22,719 spent more than an hour on-site. The Hit Count was 2,708,308. Site has achieved top, top five or top fifteen Google Search status for such keywords as cost-benefit, environmental economics, cost-benefit analysis, and cost-benefit green buildings, brownfields, green roofs, ...Among those linking to the site have been the United States Environmental Protection Agency, Environment Canada, the Association of Environmental & Resource Economists, Resources for the Economists on the Internet, the National Association of Business Economists, www.env-econ.net, the ISO 14000 Information Center, the Centre for Ecological Sciences of the Indian Institute of Science,..
- Created unique Internet marketing campaign, including a "virtual intern" program. Ten interns located throughout the United States have written articles, and assisted with advertising and distribution to more than 8,500 decision makers in 65 countries through a variety of avenues.

1986-1988 ***Senior Analyst, Southmark Inc.***

- Structured $80 million in real estate syndications, published forecasts of the structure and performance of local and regional economies in 7 states; and analyzed legal documents.

1984-1986 ***Project Coordinator, NYC Department of Housing Preservation and Development***

- Analyzed, negotiated and underwrote loans for the rehabilitation and development of real estate; expedited government approvals including environmental reviews; monitored legislation/determined impacts; supervised the creation and implementation of databases; and assisted attorneys in closing loans and reviewing documents. The loans played a significant role in revitalizing neighborhoods.

1977-1982 ***Research Assistant, International Research Department Federal Reserve Bank of NY***

- Monitored and forecasted economic developments and produced special studies of capital flows, trade, exchange rates, interest rates, housing finance and money supply.

PUBLICATIONS/SPEAKING:

- "A Framework for Analyzing the Costs and Benefits of Green Roofs: Preliminary Results" Seminar presentations and article for the Columbia University Earth Institute, Columbia University School of International and Public Affairs, NASA Goddard Institute for Space Studies, and New York Environmental Infrastructure Study (2004-2006)
- "Tools for Resolving Community Opposition to Public Projects" *Real Estate Review* (Winter, 1995)
- "Shooting In the Dark -- How Computer Software Can Improve the Quality of Government Policies" *The Engineering Economist* (Spring, 1995)
- "Environmental Values" *Carnegie Council on Ethics and International Affairs* (May, 1998 speech)
- "Measuring and Evaluating the Environment & Its Effects on Health" (March 25, 1999 speech at The Ethyl R. Wolfe Institute for the Humanities in cooperation with the Environmental Studies Program of Brooklyn College of the City University of New York)
- Valuation of Environmental Damages to Real Estate; The Benefits and Costs of Crime Policies; International Real Estate Investment and Political Risk; Simultaneity Bias & Specification Error from the Omission of Socio-political factors in Economic Models; Cognitive Determinants of Human Capital Investments and Productivity; Complexity, Change, and Economic Analysis;
- An Econometric Model of Political, Social and Econometric Change in Britain from 1895 to 1980

COMPUTER SKILLS:

Proficiency in using Lotus, Argus, Excel, Project, HTML (Website Design), Windows, G, and several database, econometric, and word processing computer programs. Computer models/programs have been used to discount cash flows, to estimate internal rates of return, to forecast regional economic growth, to create a website, to track client contact, and to estimate the impacts of government policies upon employment and income.

PROFESSIONAL AFFILIATIONS/COMMUNITY ACTIVITIES:

Fellow, World Innovation Foundation, www.thewif.org.uk, an independent international think tank consisting of 2,000 individuals, including 60 Nobel Prize winners, providing advice regarding scientific, technological, engineering and applied economics matters to non-aggressive governments and corporations, and designing, building and operating an Open Research Establishment featuring Laboratories and Incubators throughout the world

American Economic Association; Association of Environmental and Resource Economists; New York Association of Business Economists; National Association of Forensic Economists

Coach/Manager Long Beach Little League, Recreational Basketball 1997-2002

QUALIFICATIONS OF KARA J. FISHMAN, Ph.D., MAI

Appraisal Experience

Commercial Appraiser, MAI: Principal in Fishman Appraisal Services, November 2004 – present. Specializing in the appraisal of commercial and income-producing properties, HUD multifamily loan programs, and vacant land, both residential and commercial. Experience in the appraisal of commercial and investment properties, including office buildings (high rise, single tenant, multiple tenant); warehouse and manufacturing uses; retail shopping centers (specialty, community, neighborhood), apartments (<10 - 900+ unit properties); vacant commercial land; land approved for multi-family development; contaminated properties; properties affected by stigma; and special purpose properties, including campgrounds, self-storage, junkyards, proposed golf courses; recreational facilities, and earth excavation operations.

Experience in multi-family housing market analysis, investment analysis, and appraisal for US Department of Housing and Urban Development 221(d)(4) and 223(f) programs; MAP and TAP trained.

Commercial Appraiser, MAI: Partner in Merrifield Fishman Appraisal Services, LLC, December 2003 – November 2004. Specializing in the appraisal of commercial and income-producing properties, HUD multifamily loan programs, and small residential and mixed-use properties.

Commercial Appraiser, MAI: Independent fee appraiser in Connecticut and Massachusetts, September 1995 – January 2001; May 2002-November 2003. Specializing in the appraisal of commercial and income-producing properties, environmental valuation, HUD multifamily loan programs, and open space acquisition.

Commercial Appraiser: Fee appraiser for Lavissiere Associates, a Connecticut appraisal firm, February 1990 – August 1994. Specialized experience in the valuation of special-use properties (junkyard, campground, resort health spa, proposed golf course) and affordable housing development.

Residential Appraiser: Staff appraiser for Thomas Hoben, Litchfield, Connecticut, September 1989 – January 1990. Collected data, analyzed market conditions, performed financial analysis and prepared appraisal reports of residential properties.

Reviewer: Reviewer for economic, statistics, mathematics and government programs terminology for The Dictionary of Real Estate Appraisal, 4th Edition, to be published by the Appraisal Institute.

Environmental and Economic Experience

Environmental Analyst: Environmental analyst and economist for Mangi Environmental Group, Inc., a consulting group in Virginia specializing in NEPA (National Environmental Policy Act) and watershed assessments. Responsible for researching and writing on demographic, economic impact, recreation, land use and environmental justice issues. Agencies worked for include the U.S. Army

Corps of Engineers, the Farm Service Agency of the United States Department of Agriculture, the U.S. Forest Service, and the National Park Service.

Instructor: University of Connecticut, Department of Geography, Spring 2000. Taught "Environmental Planning and Management" to upper division undergraduate students.

Research Assistant: University of Connecticut, Department of Agricultural and Resource Economics, "Economic Evaluation of Connecticut Lakes with Alternative Water Quality Levels." Project funded by the Connecticut Department of Environmental Protection to estimate the impact of changes in water quality on social welfare property values and public site user values.

Research Assistant: Analysis of farmland values and rates of return for real estate investment group specializing in agricultural land.

Research Assistant: Eastern Research Group, Cambridge, Massachusetts. Reviewed empirical economic studies for the "Environmental Valuation Reference Inventory" project jointly developed by the United States Environmental Protection Agency and Environment Canada.

Planning Coordinator: Harlem Valley Planning Partnership, Amenia, New York. Only staff person to a five town rural planning group. Main projects were the adaptive reuse of a state hospital on 850+ acres and regional recycling program.

Housing Coordinator/Loan Specialist: Westchester County Planning Department, White Plains, New York. Processed and made underwriting recommendations on loans for housing rehabilitation and community development projects funded under the federal Community Development Block Grant program.

Education

University of Connecticut: Storrs, CT, Ph.D., December 2000, Agricultural and Resource Economics. Specializing in environmental economics and policy, non-market valuation, and water resources.

University of Connecticut: Storrs, CT, M.S., May 1999, Agricultural and Resource Economics

Columbia University: New York, NY, M.S., October 1987, Real Estate Development

Northwestern University: Evanston, IL, B.A., June 1984, History

Memberships

American Agricultural Economics Association
Appraisal Institute (MAI designation since 1994)

AN INTERDISCIPLINARY TEAM APPROACH

We have worked closely with a wide variety of firms which can offer specialized expertise that is not available in-house. The Cost Benefit Group can rapidly furnish a coordinated interdisciplinary team to evaluate a variety of environmental and financial problems.

We maintain working relationships with environmental service, survey research, and accounting firms to insure that appropriate experts are called upon. Some of these firms are described in the following pages.

THE H2M GROUP--HOLZMACHER, McLENDON & MURRELL, P.C.

H2M has served public and private sector clients for more than 60 years. H2M has staff resources of approximately 150, including 18 Licensed Professional Engineers, 4 Licensed Architects; 3 Professional Planners; 5 Diplomates of the American Academy of Environmental Engineers, certified groundwater professionals, hydrogeologists, geologists, surveyors, construction inspectors, chemists, and biologists.

Services offered by H2M include: Architecture, Environmental Planning, Civil/Site Engineering; Structural Engineering; Surveying and Mapping; Water Supply and Distribution; Wastewater Engineering; Hydrogeology; Hazardous Waste Management; Industrial Services; Regulatory Compliance; Remedial Investigations and Design; Air Pollution Control; Solid Waste Management; Resource Recovery/Recycling; Construction Management; and Environmental Testing at their own laboratory.

Among the clients that H2M has served are Aetna Life & Casualty, Allstate Life, American Cyanamid Company, Ciba-Geigy Corp., Emerson Electric, Estee Lauder Inc., Grumman Aerospace, ITT, Merck, Mobil Chemical, Nabisco, the U.S. Environmental Protection Agency, the New York State Department of Environmental Conservation, The New Jersey Department of Environmental Protection and Energy, Chase Manhattan Bank, the Bank of New York, Consolidated Edison, Jersey Central Power and Light, and the City of New York.

NRD MARKETING

NRD Marketing offers two decades of experience in fielding market surveys, and in using a variety of methods to measure public opinion. NRD can field contingent valuation surveys which determine the values individuals place upon environmental goods and disamenities. Such surveys are often the only means to determine the expected benefits from removing pollutants or maintaining a habitat. NRD has the capacity and experience to field telephone surveys, in-person interviews, and/or mail surveys. NRD has also fielded innovative on-site surveys at beaches and parks. Past clients include Bell Atlantic, Pathmark, Bradlees, R.L. Polk, Stop N Shop, and Long Beach Hospital.

HOLTZ RUBENSTEIN & CO., Certified Public Accountants/Business Advisors

Holtz Rubenstein was founded in 1975, and has a staff of approximately 50, including more than twenty-five CPA's. Services rendered include litigation support, business valuation, audits of financial statements, filings with the SEC, income tax planning and compliance, estate planning, business planning and strategy, merger and acquisitions analysis, financial management and budgeting, workouts, operations management, inventory control, and employee benefit planning.

Since 1978 Holtz Rubenstein & Co, continuously passed rigorous Peer Reviews required by the SEC Practice Section of the AICPA every three years. The reviews concluded that their system of quality control was highly comprehensive, thoroughly documented, and reflected the high professional standards of the SEC Practice Section. Holtz Rubenstein was named by CPA Services Inc. as one of the Top 50 small to mid-size USA Firms.

SELECTED CASE STUDIES

VALUATION OF CONTAMINATED PROPERTIES

We have estimated property value changes for numerous property types arising from a wide variety of contaminants, including gasoline, MTBE, lead, perc, and asbestos.

These reports generally feature detailed descriptions and analyses of contamination at the subjects, of the area and neighborhood; of the subject site and improvements; of highest and best uses for the property; of comparable sales and leases; of significant financial parameters; and of other factors relevant to valuation. The analysis of contamination at the subject features a timeline listing critical events including discovery of contamination, environmental tests, decisions by government regulators, remediation activity, public reactions, publicity in various media, and impacts upon sales, leases, and financing. The area and neighborhood analysis features historical, current, and projected economic and demographic statistics, including population, age distribution, average household size, employment, unemployment, types of jobs, largest employers, income, and income distribution; a discussion of the real estate market, including land uses, the supply of and demand for particular types of property, rents, and sale prices; and area amenities including schools, medical facilities, and recreational facilities. For special purpose properties such as nursing homes, hospitals, movie theaters, and automobile dealerships we provide in-depth analyses of economic and regulatory factors influencing these markets. The property description includes a discussion of site and building features, zoning and taxes.

Our valuation section utilizes the latest tools and data employed by real estate appraisers and environmental economists. Appraisal methods applied include the Cost, Sales Comparison, Income Capitalization, Discounted Cash Flow, Discounted Sellout, and Land Residual Approaches where indicated. Among the analytical weapons deployed by environmental economists that we consider include Hedonic Valuation, Contingent Valuation and conjoint analyses.

Courts and financial institutions have continually demanded increasing rigor over time. We therefore include comprehensive literature surveys discussing the latest theoretical and empirical research on the impacts of environmental contamination and any other topics bearing upon the value of a particular property. However, for many of these assignments we reduce the scope of work in order to minimize costs to clients and to insure that the project is tailored to the client's needs.

The table below summarizes projects analyzed, and more detailed descriptions follow:

CONTAMINATED PROPERTIES ANALYZED

#	LOCATION	STATE	PROPERTY TYPE
Commercial			
1	Bedford	NY	Neighborhood Shopping Center
2	Commack	NY	Industrial Building
3	East Fishkill	NY	Free-Standing Retail Building, Auto Repair Facility, Vacant Land
4	Elmont	NY	Gas Station
5	Franklin Square	NY	Industrial Building/Residential Land
6	Greenpoint, Brooklyn	NY	Industrial/Petroleum
7	Lake Ronkonkoma	NY	Neighborhood Shopping Center
8	Laurelton	NY	Vacant gasoline station
9	Lawrence	NY	Vacant gasoline station
10	Mattituck	NY	Airport
11	Mineola	NY	Office Building
12	Sag Harbor	NY	Free-Standing Retail Building
13	Valley Stream	NY	Movie Theater
14	Yaphank	NY	Vacant Industrially-Zoned Land
15	Burlington	NJ	Shopping Center
16	Jersey City	NJ	Vacant Land, Industrial Building, Residential
17	Pittsford	NJ	Industrial/Grain Elevator
18	Ridgewood	NJ	Office Building
19	East Stroudsburg	PA	Industrial Park
Residential			
1	Brockport	NY	Single Family Homes
2	Lindenhurst	NY	Single Family Homes
3	Alloway	NJ	Single Family Home
4	Redbank	NJ	Single Family Home
5	Reading	PA	Single Family Homes
6	Montgomery	AL	Single Family Homes

Note: Several facts regarding the cases below have been altered or omitted to protect confidentiality where necessary. Locations, land and building areas, chemicals, concentration levels, and estimated values have been altered. However, these cases are based largely upon actual work performed and reflect our experience.

COMMERCIAL PROPERTIES

Old Post Road, Bedford, New York

XXX Old Post Road (Route 22) in Bedford, New York is improved with a one-story 6,876± square foot neighborhood strip shopping center situated on a 1.5 acre site. The property is listed by the New York State Department of Conservation as an Inactive Hazardous Waste Disposal Site because volatile organic chemicals were detected in 1978. A dry cleaner had been located at the site. Tests wells found Tetrachloroethylene (300 parts per billion), Trichloroethylene (56 ppb), and cis-1,2-dichloroethylene (51 ppd) in the groundwater. We valued the property as if uncontaminated, and then as if contaminated under two scenarios. In the first scenario the owner is not responsible for costs to remediate contamination, under the second the owner must clean the property.

Modular Avenue, Commack, New York

XXX Modular Avenue, in Commack, New York is improved with a one story industrial building of masonry construction with brick and masonry exterior walls containing 45,931± square feet. It was constructed circa 1974. The building has three loading docks, three drive-ins, and one closed dock, 16 foot clear ceilings under the steel deck in the warehouse, and 5,244± square feet of office space (11.4%). The site contains a total of 246.59± feet of frontage along Modular Avenue, and has a total land area of approximately 3.1305 acres, or 136,365 square feet.

The estimated market value of the property, assuming items of deferred maintenance, structural damages, and environmental contamination were cured, as of March 29, 1999 was $1,800,000. The value, “as is” given various maintenance deficiencies and assuming no environmental contamination was $1,740,000.

Environmental Resources Management (ERM) conducted Phase I and Phase II Environmental Site Assessments of the subject property. The Phase II identified four areas of concern: (1) Staining Near 1,000 gallon Above Ground Storage Tank (AST), (2) Fuel Oil Underground Storage Tank (UST), (3) Surface Soils In Container and Debris Storage Areas, and (4) On-Site Septic System. Total costs of approximately $130,000 were identified. All in all, the problems identified and prospective risks are relatively minor, and we believed that they did not have an inordinate impact upon property value given prospective industrial uses. Off-site risks were low due to the depth of groundwater and surrounding uses. The value of the property “as is” if these known environmental concerns were treated was $1,610,000. We estimated that stigma associated with this property reduced the value by 5% to 10%, with a most lively value of 7.5%. The final “as is” value was thus $1,490,000.

Route 52, East Fishkill, New York

XXX Route 52 in East Fishkill, New York contains 1.7± acres (74,052+ square feet). The site is improved with a former gasoline station containing a one-story 1,839± square foot brick and concrete block three-bay repair facility, with two storage rooms, front customer service area, back office, and men’s and women’s lavatories constructed circa 1969-1970. XXXX Route 52 (Lot 6256-04-700259) is a 12.5± acre (544,500± square foot) site improved with a 2,700± square foot delicatessen and a 2,038+ square foot barn. According to a complaint filed with the Supreme Court of the State of New York a major oil company has admitted that petroleum and/or petroleum additives leaked from gasoline product lines, and that the contamination was not fully remediated. The owner of the station property and surrounding parcels filed a lawsuit to recover damages suffered from this spill.

The estimated Market Values and diminutions from the spill were as follows:

Parcel	Use	Values			Damages
		10/1/95	1/1/00	1/1/03	
A	Service Station	$270,000	$380,000	---	$65,000
B	Deli	$300,000	$450,000	---	$20,000
C	Vacant Land	$370,000	$520,000	$650,000	$380,000

The above estimates assumed that the properties would be remediated in a timely manner, and that vacant land was contaminated as instructed by our client, despite the lack of testing results for that property. If the vacant land was found merely to be adjacent to contaminated property and not contaminated we estimate a diminution of value of between 5% and 10% with a most likely value equal to 7.5% of $650,000, or $48,750, assuming that the oil company assumes full responsibility for the cleanup, that such cleanup occurs in a timely fashion in the future, and that the lack of contamination is well documented and supported by all government entities.

New Hyde Park Road, Franklin Square, New York

XXX New Hyde Park Road, Franklin Square, New York is comprised of a one-story on-slab industrial building containing 7,588+/- square feet and a two-story residence converted to offices containing 1,058+/- square feet, resulting in a gross building area of 8,646+/- square feet. The improvements are situated on a 24,000+/- square foot mid-block site located on twelve contiguous tax lots forming two rectangles together running block-through from New Hyde Park Road to Kalb Avenue between Cathedral Road and Maple Drive.

Since 1915 the facility chromed or nickel-plated small products such as automobile antennas, rabbit ears, pen parts, kitchen strainers, bottle openers and other products. Over time, the production activities and the chemicals used in the electroplating process changed. The process performed at the site since 1959 involved dipping and advancing materials to be plated through a series of processing tanks or vats. Degreasing and cleaning agents used in the processing vats included various caustics, organic solvents (including 1,1,1-trichloroethane and trichloroethene) and hydrogen peroxide. Nickel, chrome, brass and zinc had been used for plating. Rinsing the metal parts between each processing tank generates wastewater which is discharged to the municipal sewer system for disposal.

Prior to 1955, wastewater was discharged to the subsurface leaching pits located in the rear yard area of the site. The facility also distilled spent solvent (1,1,1-trichloroethane) for re-use. The sludge remaining from the distillation process was stored in two on-site storage tanks. The facility is known to have discharged wastewater containing heavy metals as well as organic contaminants into four sub-surface leaching pits at the rear of the site. For four decades their effluent went into the ground. There were no rules against this practice. In 1981 a Nassau County Department of Health (NCDH) inspection found that industrial wastewater continued to be discharged into the onsite leaching pits and ordered the owners to cease the discharge. As a result site owners partially excavated 3 or 4 leaching pits in March 1983. An estimated 36 cubic yards of material was removed from at a reported cost of approximately $100,000. The excavation was not completed.

The New York State Department of Environmental Conservation (NYSDEC) commissioned Woodward-Clyde Consultants Inc, to investigate the site in 1983 to determine the potential threat posed by potential offsite migration of contaminants into the groundwater. As a result of this investigation, the site was added to the National Priorities List (NPL) better known as Superfund.

A remedial investigation feasibility study (RI/FS) was conducted from 1988 through 1991 for the U.S. EPA. The results indicated the need for an interim groundwater remedial action, however, the U.S. EPA was unable to delineate the extent of the groundwater contamination plume beyond the site.

The site is located in a densely populated residential area. There are seven supply wells located within one mile of the site. The nearest is only 1,400 feet southeast of the site and supplies water to approximately 20,000 people. Another 32,000 people are served by wells less than three miles away from the site.

Chromium, cadmium, nickel, copper, lead and zinc were detected in both onsite and off-site groundwater monitoring wells. In addition, on-site wells showed contamination by volatile organic compounds (VOCs). The site scored 28.9 on a variety of factors, including the nature of the chemicals it used, its proximity to the homes that surround it and to wells providing drinking water. The limit for the Superfund list is 28.5.

In a March 1991 Record of Decision, a remedy was selected which included the treatment of soils by soil vapor extraction (SVE) for organics contamination, followed by excavation and off-site treatment for metals contamination. The remedy also included treatment of on-site groundwater through extraction and treatment by precipitation, to remove inorganic contaminants and air stripping to remove organic contaminants. The treated groundwater was then to be reinjected. The design of the selected remedies was begun in late 1991. Construction activities for the SVE unit were initiated in May 1995 and were completed in July 1995. In June, 1995 all onsite debris were removed and taken off-site. On October 5, 1995 the EPA announced its final decision that no further cleanup action was warranted to address off-site groundwater contamination. The Agency determined that the on-site groundwater and soil remedies provide full protection of public health and will adequately protect groundwater off-site.

After approximately one year of operation, in May 1996, confirmatory soil sampling established that the soils had reached clean-up levels and the unit was shut down and dismantled. Approximately 32,000 tons of soil were cleaned up. About 50 pounds of volatile and semi-volatile organics were removed during the SVE operation. During the summer of 1997 more than 5,500 tons of contaminated soil were removed from the site and replaced with native sand. The excavation of soils contaminated with metals was completed in the fall of 1997. As of March 29, 1999 the remedial design of a groundwater extraction and treatment unit was 35% complete. Articles on the site appeared at least four times in Newsday since 1986.

We estimated that the Market Value in this property as of April 6, 2000, *with the existing building and without the proposed 10 foot by 20 foot treatment system* at a location on the property to be determined, and assuming superfund stigma was $380,000. The value *with the existing building and with the proposed treatment system*, and assuming superfund stigma was $375,000. The value *without the existing building and without the proposed treatment system*, assuming superfund stigma was $410,000. The value *without the existing building and with the proposed treatment system*, and assuming superfund stigma was $400,000. The value as vacant and available for residential development was estimated at $480,000 uncontaminated and excluding stigma.

Meacham Avenue, Elmont, New York

XXX Meacham Avenue, Elmont, New York consists of a nearly rectangular, generally level, lot with a total of 72.78± feet of frontage on the west side of Meacham Avenue, and 93.05± feet on the south side of a second thoroughfare. The total land area is 7,009± square feet, or 0.16± acres. The site is improved with a gasoline station containing an 1,161± square foot brick repair facility

constructed circa 1956, with three pumps on one island containing three dispensers and five nozzles. Two 4,000 and one 2,000 gallon underground fuel oil storage tanks, along with vent lines, and fill pumps were installed at the property in 1985. One of the tanks failed in 1999 and gasoline contaminated soil at the subject property and leaked into groundwater. We estimated a market value as uncontaminated of $200,000, and a diminution in value of 20% resulting from the spill assuming that all cleanup costs and liability were borne by other parties. To this estimate actual cleanup costs should be added in order to calculate total damages. The estimate only reflects the difficulties in selling the property and stigma arising from the damage.

Maspeth Avenue, Greenpoint, Brooklyn, New York

XXX Maspeth Avenue, is comprised of four one and two-story on-slab industrial buildings containing 9,860+/- square feet. There are also four 110,000 gallon above ground tanks surrounded by a concrete wall, two 25,000 gallon tanks, a 150,000 gallon buried tank, fifteen 20,000 gallon buried tanks, and a four bay truck loading shed on site. The improvements are situated on a 81,110+/- square foot irregular generally level mid-block site located on the south side of Maspeth Avenue between Varick Avenue and 47th Street in Greenpoint, Brooklyn, Kings County, City and State of New York. The site also abuts Newtown Creek.

We estimated that the Market Value of this property as of June 6, 2000, *with the existing building*, and assuming cleanup of contamination to an industrial standard was $870,000. The Market Value *as vacant*, and assuming cleanup of contamination to an industrial standard was $750,000:

The property was registered in 1986 with the U.S. Environmental Protection (US EPA) as a large quantity generator and transporter of hazardous waste. In 1994 oil products contaminated with Polychlorinated Byphenils (PCBs) Aroclor 1242, Aroclor 1254, Aroclor 1250 (B002 Wastes) and halogenated solvents (FO25 waste) were identified in 19 out of 21 tanks and in the associated piping. The refining facility was closed since that time. There were also thirty 55 gallon drums filled with sludge from the petroleum refining process on the site. The total quantities of PCBs separator sludge (KO51 and KOP52 Waste and halogenated solvents) was unknown. The integrity of the Underground Storage Tanks (USTs) was unknown and the Above-ground Storage Tanks (ASTs) were rusting and may have been leaking into the soil. The ASTs secondary containment was cracked and could not contain a spill. The 21 tanks on the site showed signs of fatigue and the possibility that the 557,680 gallons of PCB-contaminated oil products could spill, posing a significant threat to the environment and to the aquatic life in the Newtown Creek. The site was on the CERCLIS Hazardous Waste Site list, but not on the National Priorities List (Superfund). It was categorized as a Class 2 site – a significant threat to the public health or the environment with action required.

For continued industrial use damage is relatively low as the site is not occupied by or near uses with full time residents or children, and users do not expect pristine sites. The site is in an M3-1 zone which permits noxious uses. However, such properties potentially suffer from reduced values due to stigma, risk of future problems of uncertain origins, potential time costs associated with resolving environmental issues, and other factors

In our valuation as contaminated we used the Sales Approach, and the Hedonic Property Regression and Contingent Valuation techniques as well as a Discounted Sellout Approach which combines the above methods.

The techniques produced ranges of estimated effects as follows:

Approach	Range	Most Likely	
		Residential	Industrial
Sales Approach	0% to -69%	-15.0%	-7.5%
Hedonic Property Regression	0% to -16%	-15.0%	-10.0%
Contingent Valuation Method	-3.5% to -20%	-15.0%	-7.5%
Discounted Sellout	-22%	N/A	-22.0%
Implicit Net Rental Value of Losses (1999 base)	-24%		-24.4%

We concluded that the value of the properties have been reduced by between 5% and 20%, with a most likely diminution of about 12½% for industrial uses due to impairment less the present value of costs to clean the site. Final value estimates are presented below:

APPROACH	As Unimpaired	As Impaired
Sales Comparison Approach As Industrial Building	$940,000	$822,500
Sales Comparison Approach As Vacant Land	$810,000	$708,750
Income Capitalization Approach As Industrial Building	$800,000	$700,000
FINAL VALUE CONCLUSION	$940,000	$822,500

Smithtown Boulevard, Lake Ronkonkoma, New York

XXX Smithtown Boulevard in Lake Ronkonkoma, New York is a 0.56 acre site improved with a one-story plus basement 4,806 square foot neighborhood shopping center. On or about September 10, 1992 a tenant, a local printer, was given a Notice of Violation by the Suffolk County Department of Health Services for discharging toxic chemicals into a dry well and a cesspool at the property. A subsequent letter from the New York State Department of Health dated January 27, 1993 stated that the Suffolk County Department of Health Services reviewed the results of tests performed at the site, and found that they "indicate that some very slight residual contamination still remains in the bottom soil". However, "the conditions are such that no further remediation is required by this office at this time." Based upon that letter and other factors, we found that the contamination did not significantly reduce the value of the property.

Tax Certiorari Valuation--Mattituck, New York

XXX Airway Drive in Mattituck, New York consists of a 16-acre parcel of land with a 12-acre landing strip. The property has been used to repair airplane engines. It contains a variety of structures utilized for offices, assembly of engines, a machine shop, hangars, and storage with a total gross building area of approximately 34,203 square feet.

The property had been contaminated by a variety of chemicals. Cesspools have been polluted with kerosene-like petroleum solvents and metals siphoned off from engine washing. Halfway down the runway fluids have inhibited the growth of nearby vegetation. In 1978 Suffolk County investigated the site and required that the owner cease certain activities and remove some soil. The property incurred more than $60,000 in fines. The site lies above a sole source aquifer, and there are many wells in the area. It may constitute a threat to water supplies, but contamination has reportedly not traveled far. The owner reported that due to contamination the property cannot be sold, and insurance costs have increased significantly.

Our estimate of market value for the land uncontaminated was $17,500 per acre or $280,000 for the site as vacant. Sales of industrial buildings indicate that the value of a 34,203 square foot industrial building on a two-acre site in this area would be roughly $12.50 per square foot of building area, or $427,538. Using the Income Approach, the buildings would command a rent of approximately $2.00 per square foot or $68,406 NNN. Assuming a vacancy rate of 20% results in an Effective Gross Income of $54,725, and costs of 10% indicate expected net operating income of $49,252. A capitalization rate of 12.5% lead to a value of $394,019, say $400,000.

Because the Income Approach is emphasized by assessors we estimated a value of $400,000 for the building. The value of the excess 14 acres was estimated at$17,500 per acre, or $245,000. The total value before contamination is thus approximately $645,000.

To estimate the effects of pollution we derived changes in expected rents, vacancy rates, expenses, capitalization rates and sale prices based upon comparable situations. This procedure takes into account increased costs resulting from contamination as well as well as the stigma attached to polluted properties, which renders them less easily marketable. We estimated that pollution reduced the value of the property by 50% to approximately $330,000.

The property received a substantial tax reduction based upon our estimates.

Old Country Road, Mineola, New York

A 118,000± square foot office building in Mineola, New York was suffering from declining rents and increased vacancies due to market weaknesses in the early 1990s. In addition, the owners were faced with the need to remove asbestos due to tenant demands and regulatory initiatives. These factors reduced net income significantly. The tax assessment on the property was based on rosier scenarios, and preliminary calculations indicated that the building was overassessed.

We conducted an extensive survey of market rents, and sale prices of land and buildings in the area over a five year period. This survey confirmed our initial impressions and indicated that the property was overassessed for a period of four years.

We evaluated the effects of the asbestos by (1) incorporating the effects of the removal into a discounted cash flow model, (2) examining past studies of the effects of disamenities upon property values (including surveys), and (3) considering sales of buildings with varying degrees of asbestos. We were able to obtain a value for the building as contaminated.

The owners negotiated a tax reduction of more than $2,000,000 based on our analysis.

Sag Harbor-Bridgehampton Turnpike, Sag Harbor, New York

XXXX Sag Harbor-Bridgehampton Turnpike in Sag Harbor, New York is improved with a one story 1,800± square foot commercial building situated on a 0.89± acre site. Contaminated groundwater from the Rowe Industries Superfund Site migrated to this site. Once again we appraised the property as uncontaminated, and after accounting for the effects of pollution.

Nassau County , New York

The Cost-Benefit Group analyzed a property consisting of a one-story on concrete slab, 92,211± square foot, 15-screen 6,177-seat movie theater constructed circa 1973, with additional screens added in 1979. The improvements are situated on a 20.40-acre site with 124± feet of frontage.

On October 2, 1992 the owners of a neighboring gasoline station reported an oil spill to the New York State Department of Environmental Conservation. By May 13, 1994 microwells were installed

at the theater to determine the nature and extent of the petroleum plume. On October 27, 1998 BTEX (Benzene, Toluene, Ethylbenzene, and Xylene) was detected in 15 of 23 wells with total BTEX concentrations ranging from 0.81 to 69,200 micrograms per liter. MTBE (methyl tertiary butyl ether) compounds were detected in 17 of the wells sampled, with concentrations ranging from 1.3 to 98,400 ug/l. Similar concentration levels were detected at other dates.

In order to estimate the diminution in property value arising from contamination we first appraised the property as if uncontaminated, and then subtracted the diminution in value arising from the contamination. We determined the value-in-use of the subject property by using the income approach as of January 1, 1993, January 1, 1997, and January 1, 2001 including possible stigma damages.

It was our opinion, that the value-in-use of the subject property, assuming no contamination, as of January 1, 1993, was $9,300,000. The estimated diminution in property value arising from contamination originating at the neighboring gasoline station, as of January 1, 1993, was $650,000. This diminution estimate was contingent upon the premise that the owners of the gasoline station assume all liability for the cleanup, and actually clean the property beginning on the valuation date in question. This also assumes that cleanup proceeds at a typical pace, that additional contamination is not discovered, and that redevelopment of the property is not likely to occur.
The value-in-use of the subject property, assuming no contamination, as of January 1, 1997, was $10,900,000 under the above-described assumptions. The estimated diminution in property value arising from contamination was $760,000. The value assuming no contamination, as of January 1, 2001, was $10,200,000, and the estimated diminution in property value arising from contamination was $510,000. If the cleanup did not proceed expeditiously, the losses arising from contamination would be $1,300,000 on January 1, 1993; $1,530,000 on January 1, 1997, and $1,020,000 on January 1, 2001. If the owners of the adjacent property did not assume responsibility for the cleanup, the discounted sum of costs to clean the property should be included in the diminution figures.

Furthermore, damages would increase if the owners were seeking to redevelop the property with a megaplex theater or to dispose of the property for conversion to an alternative use, as investors would not likely finance such a project, given the uncertainty surrounding the contamination.

661.5 acre site in Yaphank, New York

The Cost Benefit Group analyzed value and profit potential for a 661.5 acre site in Yaphank, New York. Approximately 520.99 acres were in an L-1 Industrial Zone, 8.52 in a L-2 Zone, 99.33 in an L-3 Zone, 11.95 acres in an A-5 Residential Zone, and 0.74 acres in an A-10 Zone. We estimated that the site would yield a total of 173 industrial lots in consultation with engineers, appraisers, and planners.

Several site-specific factors complicated development potential. First, each of the proposed lots would rely on site septic systems to dispose of generated sanitary waste. Second, the property is located in the Suffolk County Department of Health Services Groundwater Management Zone III, which requires an allowable sanitary yield of 300 gallons per day per acre (gpd/acre). Assuming that 20% of the total square footage will be office and the remaining building area industrial results in a sanitary flow generation factor of 0.44 gpd/square foot which results in a gross yield projection of 3,757,107 square feet, of which 751,421 square feet is office and 3,005,686 industrial. The subject lots must be connected to the Suffolk County Water Authority potable water mains. In addition, the property is located in the compatible growth area of the Central Pine Barrens. Properties located in the compatible growth area are limited to a 65% clearing limit. This clearing value is computed based on total clearing required to create the proposed subdivision. Finally,

there are portions of the property that have been cleared for use in the Brookhaven National Laboratory groundwater contamination remediation effort. These clearing areas will impact the total permissible clearing computed for the property. We estimated that due to the contamination at least 10 acres of the property will remain undevelopable.

In order to estimate the absorption rate the appraisers conducted an extensive survey of demand for, and supply of, vacant industrial land in the Towns of Brookhaven, Islip, Smithtown and Riverhead of Suffolk County, interviewed real estate brokers, owners, and appraisers and government planners and economic development officials; and examined publications. We estimated a stock of publicly available vacant industrial land in Yaphank of 966 acres plus 58 acres west of Yaphank and 337 east of Yaphank. Omissions, unadvertised tracts, failed projects, etc. should increase the numbers significantly to at least 1,200 acres in Yaphank, 500 acres to the west and 500 to the east.

According to site plans (land use proposals) filed with the Brookhaven Planning Department, between January 1997 and March 2001 223.06 acres of industrial land were absorbed. This indicates absorption of 52.5 acres per year. Due to saturation west of Brookhaven total absorption in the area should double in the years ahead assuming moderate economic growth. The subject accounts for ½ the vacant land available, but it is inferior to others due to lack of Empire Zoning, subdivision and improvements. We thus estimate absorption of 50 acres per year at the subject @ $150,000 to $175,000 per acre, after subdivision and improvements are completed. Sale prices in year 1 were estimated at $165,000 via the Sales Comparison Approach, and through extensive discussions with real estate brokers and owners in this market.

Gross Income is derived by multiplying the number of acres absorbed each year by the appropriate sale price. Net Income to a developer was obtained by subtracting expenses from the income derived from lot sales. Soft costs of $375,000 were estimated for Architecture/Engineering, Survey & Soils, Accounting & Administration, Appraisal, Insurance, Market Study, Construction Interest, Permits, and Other Professional Services. Hard costs were estimated in consultation with engineers and use of the Marshall & Swift Manual. as follows:

Cost	Sq. Ft.	Price/SF	TOTAL
Site Prep	24,003,302	$0.10	$2,400,330
	Sq. Ft.	Price/LF	
Roads	42,875	$225.00	$9,646,875
	Acres Developed	Price/ Acre	
Water	551	$1,500	$826,560
Septic	551	$3,140	$1,730,000
Required Bridge			$7,000,000
Other Improvements			$500,000
Total Hard Costs			$22,103,765

The net cash flow for each period is discounted back to point zero to arrive at the present value of the net cash flows. The discount rate applied is derived from the market, and reflects the risk involved. An analysis of this data suggests that discount rates for comparable industrial properties ranged from 11.0% to 14.0%. with a most likely rate for the subject of 13%. For the value as contaminated we increased the discount rate to 14.0% to reflect increased risk.

We concluded that the value uncontaminated was $20,610,000 and the value contaminated was $12,770,000 due to increased risks and costs.

Salem Road, Burlington City, New Jersey

A property situated on the west side of Salem Road in the City of Burlington, New Jersey consists of 11 tax lots zoned C-3 Commercial and R-2 Residential, with a total land area of approximately 6.79 acres, or 295,772 square feet. It is irregular and level at street grade and contains a total of 351.31± feet of frontage along Salem Road and 33.92± feet along Mott Avenue. The property was vacant. It had been improved with three structures: 1) a one and partial two story former knitting mill containing approximately 71,700 square feet originally constructed circa 1910, and converted into an indoor retail outlet mall in 1977; 2) a one story 852± block and steel industrial building formerly occupied by a shoe shop, and 3) a two story 1,070± square foot frame semi detached dwelling. The total building area was 73,622± square feet.

A Preliminary Assessment Report prepared by Environmental Resolutions, Inc. identified nine areas of concern where soil and groundwater may have been impacted by past discharges of volatile and semi-volatile organic raw materials and wastes due to foam rubber processing, chrome-plating operations and other activities.

Our estimate of Market Value"as uncontaminated", as of October 18, 1994 (one day prior to a fire) was $900,000. The estimated value "as contaminated", was $300,000 with $250,000 attributable to the land and $50,000 to the building.

Jersey Avenue, Jersey City, New Jersey

Beginning in 2000 Kenneth Acks worked with Grubb & Ellis/Landauer Realty to evaluate the highest and best use and value of three contaminated industrial tax lots on Jersey Avenue, **Jersey City, New Jersey**. The sites are located in the Liberty Harbor North Redevelopment Zone. The appraisal was for condemnation purposes as the sites are slated for condemnation and residential redevelopment.

Lot XX is an irregular, generally level, vacant 2.70± acre (117,612+ square foot) parcel of land. The site has a westerly lot line of 346.3± feet along an unimproved section of Jersey Avenue. The southerly lot line is 343.17 feet, and lies under the Tide Water Basin. The site is improved with a two-story 10,386± square foot brick, block and masonry art-deco style industrial building constructed circa 1938. Lot YY (Jersey Avenue/Morris Canal East) is a slightly irregular, generally level, 4.79± acre (208,652± square foot) parcel of land. The site is improved with two one-story corrugated metal storage warehouse buildings with gross building areas totaling 14,545± square feet constructed circa 1970. Lot ZZ is a slightly irregular, generally level, vacant 3.20± acre (139,392± square foot) parcel of land. The site offers 495.80± feet of frontage on the Tide Water Basin (also known as the Morris Canal Basin). It is improved with three one-story industrial buildings having a total gross building area of 12,523± square feet constructed circa 1948 with 2,660± square feet of office space.

We received limited information regarding contamination at the subject site. As the result of a Remedial Investigation at the property an environmental service firm implemented a program of permanent remediation of impacted soils and shallow groundwater in one section of the site in the summer of 1998. The program included removal of various pieces of equipment, including two former stationary hydraulic shears, excavation and off-site recycling and/or disposal of impacted soils; active recovery of free phase hydraulic oil on the shallow ground water table; operation of a 100 gallon per minute oil/water separator and carbon adsorption groundwater treatment system; installation of interception trenches; and restoration of the excavated areas through placement of

certified clean backfill. Approximately 8,644 tons of oil-impacted soils were removed from the site and disposed off-site and an estimated 3,000 gallons of free-phase hydraulic oil were recovered as a result of the remedial activities.

Robinson Lane, Ridgewood, New Jersey

In late 1986 gasoline tanks at the Village of Ridgewood Garage were found to be leaking. An environmental services firm (DRA) estimated that between 3,600 and 5,100 gallons of gasoline were lost. The fate of an additional 25,300 gallons of gasoline was unknown. Product fumes were first noticed within the subject building on December 2, 1986.

Since that date, the owners were forced to evacuate the building several times. In addition, floors and walls were damaged. Engineering studies found significant amounts of oil below the surface of the subject property. The owners remediated some of the damage, but oil remains in the groundwater. Potential damage from the oil had to be monitored continuously. DRA estimated that it would take six to ten years for the current remediation program to clean the ground water.

We first appraised the building as if it were unaffected by the gasoline leak utilizing four commonly employed valuation methods--(1) the Cost Approach, (2) the Direct Sales Comparison Approach, (3) Discounted Cash Flow Analysis, and (4) Income Capitalization.

The appraisers evaluated the effects of the pollution by (1) incorporating the effects of the remediation and monitoring costs into a discounted cash flow model, (2) examining past studies of the effects of disamenities upon property values including surveys, and (3) considering sales of other contaminated buildings. We were then able to obtain a value for the building as contaminated.

XXX North Second Street, East Stroudsburg, Pennsylvania

XXX North Second Street, East Stroudsburg, Pennsylvania is situated on a 3.29± acre lot. It is improved with a one-story multi-tenanted masonry warehouse buildings containing 89,160± square feet plus a 1,344± two-story residence converted into low-quality office space. The improvements were constructed at various times between 1912 and the mid 1980s and renovated circa 1990.

In 1993 underground and aboveground storage tanks were removed from the property across the street. However, the tanks allegedly released and spilled onto the subject property. In July 1998 the owners of the subject sought to refinance a mortgage. Laboratory tests for a Phase II Environmental Site Assessment indicated petroleum contamination in the groundwater samples, including concentrations of benzene exceeding Pennsylvania Statewide Health Standards for used aquifers (non-residential). One of four groundwater monitoring wells immediately downgradient of the neighboring facility, evidenced concentrations of benzene, ethylbenzene, and naphthalene exceeding PA Statewide Health standards. Cleanup to industrial standards was expected to take three to four years. If the cleanup goal is to achieve ground water quality as it existed before the release the cleanup time would likely be at 20 to 50 years.

We were provided with appraisals of the subject property as uncontaminated with estimated values of $2,520,000 in March 2001 and $2,570,000 in June 2002. We concluded that the average diminution in market values would range from 5% to 40% with a most likely value of 12.5%. The total diminution in value at the subject was estimated to range from $128,500 to $1,028,000, with a most likely value of $325,000.

RESIDENTIAL

Oxford Street, Brockport, New York

The Cost-Benefit Group was given appraisals of eight homes on the west side of Oxford Street in Brockport, New York and asked by a law firm affiliated with Erin Brockavitch to evaluate property value changes arising from contamination. The homes are located just east of a former 3M/Dynacolor facility in Brockport, Monroe County, New York. The 3.5-acre site and surrounding properties housed industrial activities for more than 150 years.

A remedial investigation of the 3M/Dynacolor Facility produced in July 2001 found that the average concentration of total cyanide in shallow soils was 36.23 mg/kg. Relatively high concentrations were in three areas. The average concentration in deeper soils was 255.44 mg/kg. The table below summarizes some of the findings of the report.

Contaminant	Shallow				Deep			
	Samples		Concentrations		Samples		Concentrations	
	Contam-inated	Total	Average	Max	Contam-inated	Total	Average	Max
Cyanide	49	104	36.23	228	29	47	255.44	2,400
Silver	59	71	25.44	5	21	22	8.45	26
Lead	53	57	232.8	1,340	21	23	199.81	2,390
Polycyclic Aromatic Hydrocarbons (PAHs)	69	89	18.41	34	17	35	3.67	13

Several Volatile Organic Compounds (SVOCs) including chrysene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-ed)pyrene were detected in soil samples. The average of the sum of all SVOC compounds was 11.3 mg/kg, and the values ranged from no SVOCs to 256 mg/kg.

Due to the potential negative effects of the contamination several homes on the east side of the street were purchased by 3M and demolished. Four purchases of homes by 3M on the east side were recorded as of the date of the assignment. They occurred between April and June 2001 at prices ranging from $80,000 to $91,000. The area was covered with top soil and sod, and will not be rebuilt.

In our report we estimated the impacts of the following factors:

1) Soil contamination
2) Significant groundwater contamination with cyanide and VOC's
3) Demolition of homes across the street

We estimated that value diminution ranged from 10% to 60% with a most likely value of 35%. The total diminution in value of the seven homes with an estimated total market value of approximately $573,000 would range from $57,300 to $343,800, with a most likely value of $200,550

Subsequent review of additional information indicated that value diminution in a wider area would likely range between 5% for the properties most distant from the contamination to 50% or more for properties actually contaminated.

Groundwater Contamination, Lindenhurst, New York

The subjects of this report were four single family homes located in ***Lindenhurst, New York***. They are immediately downgradient from the Active Industrial property, which has been classified as an inactive hazardous waste site by the New York State DEC following the discovery in 1987 that

tanks containing perchlorethylene had been leaking. A plume of contamination has been found to run under the subject homes. The plume contains toxic chemicals associated with perchloroethylene, including trichloroethane, and trichloroethene.

Also of concern was possible contamination of the groundwater under the subject homes from gasoline. Testing of a private irrigation well on one of the subject homes in March, 1994 by the Suffolk County Department of Health Services found chemicals associated with perchloroethylene in the groundwater but also found constituents of gasoline such as benzene, toluene, and xylene in excess of state standards. Tanks at a nearby Texaco gasoline station were found to be leaking. Air testing in the subject homes later in 1994 showed the presence of low levels of gasoline constituents.

The appraisers first valued the properties as uncontaminated, and then determined the influence of the toxic chemicals upon the estimates. Several techniques were used to estimate the effects of toxic contamination. The techniques produced ranges of estimated effects as follows:

Method	Range	Most Likely
Cost Approach	N/A	-9%
Sales Approach	-20% to -69%	-20%
Income Approach	N/A	-30%
Hedonic Property Regressions	0% to 16%	-15%
Contingent Valuation Method	-3.5% to -20%	-20%
Health Effects	N/A	-7%

Based on the above information, we concluded that the values of the properties have been reduced by at least 20% due to the presence of contaminants.

Redbank, New Jersey

XX Hubbard Park is a wood-framed, vinyl-sided, 8 room, 3 bedroom/2½ bath Victorian single family home constructed circa 1908 in excellent condition. It offers views of the Navesink River, a fireplace, central air conditioning, a finished basement, a Jacuzzi, walk-in closets, an extensive deck, an enclosed heated porch, full length Andersen Windows, an eat in kitchen, wall-to-wall carpeting, a tool shed, a formal dining room, and an attached one-car garage. The house contains 2,511 square feet above grade (1,323 sf on the first floor and 1,188 sf on the second floor) plus a 1,215 square foot finished basement. The site is irregular with 42 feet of frontage on Hubbard Park and a total land area of approximately 17,562 square feet.

On September 5, 1995 a gasoline spill discovered at the subject property was reported to the New Jersey Department of Environmental Protection. After tests disclosed gasoline saturated soil the New Jersey Department of Environmental Protection (NJDEP) named a nearby convenience store with gasoline pumps as the party responsible for the discharge. The NJDEP directed Welsh Farms to take immediate response actions. In early October underground storage tanks were excavated from the Welsh Farms property and contaminated soils were removed from the subject site. Soil surrounding the excavated soil was heavily contaminated with gasoline, and piping from the tanks to the dispenser pump was found to be leaking.

Between October 1995 and February 1996 wells were installed at the subject and at a nearby Copy Center. Soil vapor extraction piping was placed at Welsh Farms and the Copy Center. In July 1997 the NJ DEP approved a Remedial Investigation/Remedial Action Workplan. A groundwater

and vapor treatment system began operation in November 1997, but has been subject to periodic breakdowns and shutdowns.

In September 1999 The Whitman Companies conducted tests and reviewed documents to determine the extent of damages and risks. According to Whitman the remediation program "had not been fully implemented, has not been fully effective, and has resulted in the further contamination of the property". All five of the wells sampled registered concentrations of Benzene exceeding New Jersey Ground Water Quality standards, and four had concentrations of MTBE that exceed the criteria. It was Whitman's opinion that groundwater on the Gaunt property would continue to be contaminated for at least another eight (8) years -- and probably longer.

We appraised the property as if uncontaminated with two dates of valuation -- the date of the incident, September 5, 1995, and the date of inspection, October 25, 1999. We formed the opinion that the market value of the properties assuming no contamination, as of September 5, 1995, was $390,000 and as of October 25, 1999, was $500,000.

We concluded that the value of the property was reduced by between 30% and 40%, with a most likely diminution of 35%, yielding an estimated loss in 1999 of $175,000.

Friedburg Road, Alloway, New Jersey

According to a Remediation Investigation Report (RIR) conducted by Environmental Products & Services, Inc. renovations were being performed at a wood-framed single family home located on Friedburg Road in Alloway, New Jersey. Utilities, including the fill pipe to the fuel oil tank, were disconnected during the renovation. On January 20, 1995 Woodruff Oil delivered 135.8 gallons of heating oil to the residence which then drained into the basement floor.

On January 26, 1995 an emergency cleanup crew used a vacuum truck to remove 171.4 gallons of fuel oil from the basement floor and the tank by applying absorbent material. On February 13, 1995, a cleanup crew washed the basement and sealed one area. Dry Lock paint was applied to the floor of the room where the tank was located and the entire basement was pressure-washed.

A hydrogeologist inspected the site on November 10, 1995 and observed recurring stains on the basement floor. Brown stains on the walls above the sealed area indicated that product might have remained in the cinder block walls. The wooden basement stairs were also stained. A pine-scented cleaner masked all but a faint petroleum odor. The soil outside the basement window was slightly discolored but no odor was detected.

A formal site investigation was initiated on February 22, 1996, and concluded that the majority of the sample showed low or non-detectable concentrations of fuel oil contamination. However, several areas required additional sampling and/or remedial actions to minimize the remaining effects. The groundwater from the water supply well showed low TPH concentrations at the level of detection. However, no evidence of fuel oil components was detected in the more precise volatile and semi volatile analyses. Further analyses were recommended. Finally, although the soil beneath the basement did not exceed cleanup criteria, the residual fuel oil in the soil as well as in the concrete walls and floor may have resulted in a release of vapors into the basement and the living space as evidenced by the air sampling results.

Additional site work was performed in June and July 1996, including soil excavation from beneath the basement floor; installation of a petroleum vapor abatement system below the floor; pressure washing and degreasing of the basement floor; application of Thoroglaze glazing to the floor, the

bottom twelve inches of the basement walls and the wooden basement stairs; and removal of excavated soil from the site.

A followup sampling of groundwater showed no concentrations of volatile organics above the detection limits of 0.5 ug/l. Four analytes from the EPA Method 525.2 list were detected above the detection limits; alph-Chlordane at 1.8 ug/l, gamma-Chlordane at 1.3 ug/l, Di (2-ethylhexy) phthalate at 0.8 ug/l and trans-Nonachlor at 1.1 ug/l. Di (2-ethylhexyl) phthalate cannot be accurately measured at levels below about 2 ug/l, which is above that measure in this water sample (0.8 ug/l). The other three analytes are components of the pesticide Chlordane, which may have resulted from gardening or landscaping activities, but did not result from the fuel oil release. Thus, the results from the sample show no evidence of effects from the release. Three air samples from the basement, and four from the first floor were collected on October 8, 1996. All showed no diesel fuel components above the detection limit of 40 mg. cubic meter.

In November 1996 a Remedial Investigation Report was submitted to the New Jersey Department of Environmental Protection as part of a Memorandum of Agreement. The RIR concluded that all areas of environmental concern at the property were remediated to acceptable standards.

Since the installation of the vapor abatement system, the owner has stated that petroleum vapors continue to be a nuisance within the residence. The owner's daughter, who lived in the home, wanted to move to West Virginia, but the lingering fuel odor problems as well as the stigma resulting from the presence of contamination was preventing her from selling the house, Potential buyers who visited the home reportedly declined to bid on it because of the odor problem.

The building is approximately 35 feet by 45 feet. The basement is constructed with concrete block walls and a concrete finished floor approximately 44 feet by 25 feet. It consists of two rooms: a small room approximately 25 feet by 16 feet and a larger room 28 feet by 25 feet.

We were provided with a comparative market analysis prepared by a local realtor. The analysis concluded that the market value of the property as uncontaminated was between $120,500 and $126,000 based upon six comparable sales. The sales appear to justify the estimated market value, and we utilized the midpoint of the range, $123,250, as the actual market value.

We concluded that the value of the property has been reduced by between 20% and 25%, or 22.5%, due to the presence of odors resulting from environmental contamination and stigma. The estimated loss in market value as of June 15, 1997 was $28,000. The homeowners were awarded $56,088.62, including $30,000 due to depreciation of value from residual odor problems, in damages by the Superior Court of New Jersey in Salem County.

Coliseum Boulevard Plume, Montgomery, Alabama

The subjects of the Coliseum Boulevard Plume in Montgomery, Alabama include approximately 1,009 households in north Montgomery where evidence of TCE contamination of groundwater has arisen. The site covers at least 700 acres in the Chisolm neighborhood and the Eastern Meadows and Vista View subdivisions in North Montgomery, Alabama. The Chisolm Community, which lies in the western portion of the site, consists of low-to-moderate income housing built in the 1940's and 1950's. The Eastern Meadows subdivision was built in the 1980's and has a population of approximately 330 residents. The Vista View subdivision was built in the 1980's, and is still under construction. It has approximately 555 residents.

The lot sizes range from 6,000 to 12,000 square feet. Typical units in Vista View and Eastern Meadows are single-story detached brick and vinyl-sided homes with asphalt shingle roofs, single

hung aluminum windows with storm screens, and no basements. Three-bedroom homes contain gross living areas ranging from 1,252 to 1,319 square feet. Typical units in Chisolm are single-story detached brick ranches with asphalt shingle roofs, single hung aluminum windows with storm screens, and no basements. Three-bedroom homes contain gross living areas ranging from 1,429 to 1,521 square feet.

Sometime shortly before September 1999 the owner entered into a contract to sell a lot in Vista View. The buyer required field screening of soil samples for Volatile organic compounds (VOCs). Because the screening produced indications of VOCs the buyer began a Phase II Environmental Site Assessment (ESA). Acetone, methylene chloride and Total Petroleum Hydrocarbons were detected in soil samples from the parcel and TCE in the two groundwater samples.

TCE is a chlorinated organic solvent that has been listed by the EPA and the ATSDR as a potential human carcinogen. It is commonly used to remove grease from machinery and in dry cleaning and other household products. TCE is approximately 1,465 times heavier than water and, therefore it is known as a dense non-aqueous phase liquid (DNAPL), which has the characteristic of sinking rapidly through both surface soils and the uppermost aquifer until reaching a level where an impermeable barrier (such as clay lens) is encountered. TCE may then pool atop such a barrier and migrate as a separate phase along the topography of the subsurface impermeable barrier.

Groundwater samples taken in October 1999 contained 0.029 and 0.008 mg/L trichloroethylene. The November 1999 found 0.030 and 0.014 mg/L trichloroethylene and 0.006 mg/l of TCE. The greatest concentrations of TCE were 0.952 mg/l.

The contamination was discussed fairly widely in the local press. Public meetings drew hundreds. On November 14, 1999 Mike Sherman began an article entitled “Water problem creates uncertainty about property values” in *The Montgomery Advertiser*. In the second week of November, 2000 the Alabama Department of Public Health and Environmental Management distributed fliers that warned residents to stay away from a ditch east of Coliseum Boulevard where contamination surfaced. A November 15, 2000 article by Sherman entitled “Angry People Seek News About Plume” noted that hundreds of North Montgomery residents turned out for the first information meeting on chemical contamination and voiced concerns about possible damage to property values and personal health from the plume.

In February, 2001 Geolex Inc. was retained to evaluate the contamination. They found

1. The existence of elevated concentrations of trichloroethylene (TCE) in the shallow aquifers underlying the site presents an imminent and substantial endangerment to the environment. Concentrations up to approximately 2,000 times the maximum permissible standard for TCE, which is 5 ug/l or parts per billion (ppb) have been detected in groundwater at the site.
2. The TCE plume as of February 2001 covered an area of approximately 364 acres and varies in concentration with depth in the uppermost aquifer. The highest concentrations of TCE are located in the lowermost portion of the aquifer.
3. Surface water samples taken by the Alabama Department of Environmental Management in the northeast portion of the Vista View Subdivision have indicated levels of TCE in surface water as high as 168 ug/l, in excess of 30 times the permissible standard of 5 ug/l.
4. Concentrations in hot spots are high enough to indicate the potential existence of residual DNAPLs in the lower portions of the uppermost aquifer, which can serve as an ongoing source of TCE contamination for tens, if not hundreds, of years.

On May 24, 2002 Mike Sherman reported that cleanup of contaminated groundwater will take millions of dollars and years of work, according to Alabama Department of Transportation Engineer, B.B. “Buddy: Cox. He was unable to say exactly how long it will take and how much it will cost and how property values will be affected.

We first estimated average home value through the following data from the Alabama Real Estate Research and Education Center

Year	VISTA VIEW				EASTERN MEADOWS				CHISOLM			
	# of Sales	Total Value	Average Price	Percent Change	# of Sales	Total Value	Average Price	Percent Change	# of Sales	Total Value	Average Price	Percent Change
1995	20	$1,551,326	$77,566	N/A	3	$172,999	$57,666		10	$330,146	$33,015	
1996	14	$1,126,681	$80,477	3.8%	4	$260,500	$65,125	12.9%	15	$439,669	$29,311	-11.2%
1997	16	$1,407,001	$87,938	9.3%	2	$105,500	$52,750	-19.0%	9	$339,029	$37,670	28.5%
1998	11	$891,650	$81,059	-7.8%	9	$505,450	$56,161	6.5%	16	$613,100	$38,319	1.7%
1999	15	$1,233,526	$82,235	1.5%	1	$62,000	$62,000	10.4%	11	$352,400	$32,036	-16.4%
2000	9	$742,410	$82,490	0.3%	0	N/A	N/A	N/A	16	$531,596	$33,225	3.7%
2001	2	$158,000	$79,000	-4.2%	2	$126,600	$63,300	??	16	$560,200	$35,013	5.4%
2002	N/A	N/A	N/A	N/A	1	$64,500	$64,500	1.9%	N/A	N/A	N/A	N/A
1998-1999			$85,135				$55,541				$38,085	
MONTGOMERY												
1998-1999			$114,915									
Percent Change 2002-1998/99				9.6%								
Current Values uncontaminated *			$93,308				$60,873				$41,741	
Rounded To:			$93,300				$60,900				$41,700	
Aggregate Value	240	$22,392,000	$93,300		102	$6,211,800	$60,900		667	$27,813,900	$41,700	
TOTAL FOR ALL AREAS					1,009	$56,417,700	$55,914					

* Current Values derived by applying percent change in Montgomery during first five months of 2002 from average in 1998 and 1999 to average prices in applicable areas during 1998 and 1999.

Current average values as uncontaminated were thus estimated to be $93,300 at Vista View, $60,900 at Eastern Meadows and $41,700 at Chisolm. The overall average is estimated at $55,914 and the total $56,417,700 as summarized in the table below

Section	# of Homes	Total Value	Average Price
Vista View	240	$22,392,000	$93,300
Eastern Meadows	102	$6,211,800	$60,900
Chisolm	667	$27,813,900	$41,700
TOTAL	1,009	$56,417,700	$55,914

We estimated that the average diminution in market values range from 7.5% to 30% with a most likely value of 12.5%. Assuming an average home value of approximately $56,000 on June 1, 2002, the total diminution in value of the 1,009 homes with an estimated total market value of approximately $56,420,000 would range from $2,820,000 to $14,1000,000, with a most likely value of $7,050,000.

CREATION OF BENEFIT VALUATION DATABASE FOR THE U.S. EPA

The Cost Benefit Group has worked with the U.S. Environmental Protection Agency, Environment Canada and other consultants to create a database of benefit valuation estimates derived from previous studies. The database covers values derived for water, land, and air pollution through a wide variety of methodologies. The database is available on the internet at www.evri.ca. We conducted a comprehensive literature review to derive the raw materials for the dataset.

VALUATION OF GOVERNOR'S ISLAND NATIONAL MONUMENT PARK for US GENERAL SERVICES ADMINISTRATION (GSA)

Governors Island is located off the southern tip of Manhattan in New York Harbor. New York City had given the island to the federal government in 1800 for use as a military base, but the base was being abandoned, and the City wanted it back. Kenneth Acks of the Cost-Benefit Group valued two historic forts -- "Castle Williams" and "Fort Jay" in order to help the federal government assign a price.

Castle Williams is a three-tiered circular 65,000 square foot fort built between 1807 and 1811. The Castle was also used as quarters for troops and as a military prison. Fort Jay consists of four nearly identical Greek Revival styled buildings containing 44,314 square feet. It was in continuous use as quarters for troops and officers from the 1830s until 1997. The forts were situated on 20.68+/- acres (900,777 square feet) of land zoned R3-2. Some of the existing structures on the island have been in poor condition and are neither functional nor historic, and therefore, do not contribute value to the site. Those structures have a total building area of 212,916 square feet on the entire island and 17,424 at the subject Historic Monument Park.

In the early 1620s the Dutch established a trading post on the island, and in 1637 Governors Island was reputedly purchased from the Manahatas Native Americans by the Dutch West India Company for two ax heads, a string of beads and a handful of nails for use as an estate for Dutch governors of New Netherlands. Between 1637 and 1755 the island was used as a governor's residence, a lumber stand, a pasture for raising cattle and goats, a quarantine station, and a game preserve. The English took possession of the island under the terms of the Treaty of Westminster in 1674.

In 1755, during the French and Indian War, the British established the first military post on the island. The first American command on Governors Island began following the temporary British withdrawal from New York in 1775. During tensions with Britain over the XYZ Affair in the mid-1790s volunteers representing different trades and militia forces were called upon to enlarge the existing fortifications (christened Fort Jay), and to construct additional defenses. On February 15, 1800 New York State ceded the island to the United States in order to enhance defense capabilities in the region. In 1806 Lieutenant Colonel Jonathan Williams designed and directed a major reconstruction of the island's fortifications. The fort, renamed Fort Columbus, acquired its present dimensions while maintaining its four-bastioned square shape. The fort was able to mount 104 guns. In 1807 Williams began construction of "Castle Williams", which was completed in 1811. The Castle was erected to guard the Channel between Governors Island and New York City. The two forts may well have played a key roll in deterring the British forces from invading New York during the War of 1812.

Since 1850 the Castle served a variety of penal functions: it accommodated Confederate prisoners during the Civil War and served as the Eastern Branch of the United States Disciplinary Barracks until 1966. Walt Disney and Rocky Graziano both served time in Fort Williams for being absent without leave. The U.S. Army transferred the island to the U.S. Coast Guard in 1966. Governors Island became the largest Coast Guard base in the world after its acquisition in 1966.

In 1985 the U.S. Department of the Interior declared the 90 acres north of Division Road a national landmark. On December 7, 1988, President Reagan, President-Elect George Bush and Soviet Union Premier Mikhail Gorbachev met at the Admiral's House on the island for an important round of Summit talks, and in 1993 the Island hosted United Nations sponsored talks to restore democratic rule in Haiti.

Our highest and best use analysis indicated that a combined historical monument/residential use maximized value at the park. Value at the Historic Monument Area arises from seven potential sources.

1) Residential Income
2) Commercial Revenues (restaurants, shops, lodging)
3) Transfer of Air Rights
4) Increase in surrounding property values
5) Net benefits to tourists
6) Net benefits to users of vacant land for recreational and other purposes
7) Non-use values from existence of historical monuments and option of visiting them

Because the value of this historical monument park is related to the historical value of the island and its structures we included an extensive discussion of the history of Governor's Island, as well as that of the subject site and buildings in the report. Below, we will summarize some of the more interesting elements of our analysis.

The Income Approach was utilized to provide an estimate of value derived from potential residential, commercial, and tourist revenue flows. Estimates of residential income were derived by examining rents and expenses at facilities most comparable to the subject. In order to estimate potential tourist revenues and expenses we gathered information on attendance, charges, and income generated from forts and from historical attractions in and around New York harbor as well as historical military attractions in other parts of the state and country. The net operating income was then be capitalized to arrive at an estimate of value. Capital costs needed to generate this revenue were then subtracted from this estimate. Because the Sales, Income and Cost

Approaches typically employed by real estate appraisers are not likely to adequately estimate the value of a historical monument we considered the contingent valuation, travel cost, and hedonic valuation methods as a supplement to the Sales and Income Approaches.

Our estimate of the market value for the subject property "as is", as of June 1, 2001 was $10,500,000. Estimated value components are in the table below

VALUE SUMMARY

COMPONENT	VALUE
Visitor Admissions	$5,100,000
Commercial (Refreshments & Souvenirs)	$3,600,000
Residential	$12,000,000
Transferable Development Rights	$7,400,000
Excess Vacant Land for Recreation & Open Space	$0
TOTAL VALUE FOR HISTORIC MONUMENT AREA UPON RENOVATION	$28,100,000
Less Restoration Cost	$17,600,000
"As Is" Value for Historic Monument Area	$10,500,000
Increase In Surrounding Property Values	$14,500,000
Non-Use Values to New Yorkers	$10,900,000
Non-Use Values to non-New-Yorkers	$29,500,000

Transferable Development Rights

As part of this assignment we needed to calculate developable area, and multiplied the result by the price per square foot of permitted floor area, which was based upon comparable sales of vacant land in comparable areas to arrive at the total value. The calculations are presented below:

Item	Entire Island	Historic Monument
Building Footprints for Structures to Remain	774,755	45,892
Building to Be Demolished	212,816	17,424
Paved Areas	2,143,076	N.A.
Open Space	4,361,673	N.A.
Total Upland Area	7,492,320	900,777
Times 0.5 Floor Area Ratio (FAR)	3,746,160	450,389
Less Existing Gross Building Area	2,771,487	130,874
Total Projected Available Floor Area	974,673	319,515
Plus Floor Area for Buildings to Be Demolished	106,408	8,712
TOTAL FLOOR AREA AVAILABLE	1,081,081	328,227
Value Per Square Foot Available		$85
Total Value		$27,899,253

Commercial Income

Visitors to Historic Sites

To estimate commercial income we needed to project the number of visitors to a new one-of-a-kind historical monument. To do this we considered the history of the property, and investigated attendance at the following potential comparable attractions and others:

SITE	LOCATION	ATTENDANCE	FEE
NYC AREA			
Statue of Liberty and Ellis Island	NY Harbor	5,370,015	$7 ride
Castle Clinton	Battery Park, Manhattan	4,467,492	Free
The Intrepid Sea-Air-Space Museum	West Side, Manhattan	460,000	$12.00
The South Street Seaport Museum	Downtown Manhattan	454,169	$6.00
The Cloisters	Upper Manhattan	245,717	$10.00
The New York Historical Society	Manhattan	125,000	$5.00
General Grant National Memorial	West Side, Manhattan	118,000	Free
Historic Richmond Town	Staten Island, NY	100,000	$4.00
OTHER NYS/NJ			
Saratoga National Historical Park	Saratoga, NY	150,000	$2.00
Old Fort Niagara	Niagara, NY	101,400	$6.75
Fort Ticonderoga	Ticonderoga, NY	102,469	$10.00
Morristown National Historical Park	Morristown, NJ	678,000	$4.00
Sackett Harbor Battlefield Site	Sackett Harbor, NY	109,285	$1.00
OTHER US, NPS FORTS			
Fort Caroline	Jacksonville, FL	176,230	Free
Fort Frederica	St. Simons Island, GA	281,437	$2.00
Fort Matanzas	St. Augustine, FL	579,385	Free
Fort McHenry	Baltimore, MD	682,012	$5.00
Fort Point	San Francisco, CA	1,682,903	Free
Fort Pulaski	Savannah, GA	358,710	$3.00
Fort Raleigh	Manteo, NC	246,094	Free?
Fort Sumpter	Charleston Harbor, SC	301,420	$11.00
Fort Washington Park	Fort Washington, MD	248,131	$2.00

The number of visitors ranged from 100,000 at Fort Richmond to 5,370,000 to the Statue of Liberty and Ellis Island. After eliminating Fort Point, because it attracts many not interested in a history, visitation ranges from 176,230 at Fort Caroline to 682,012 at Fort McHenry. The large number of visitors to Liberty and Ellis Islands demonstrates that location on an island in New York Harbor should not prove a significant detraction for the Governors Island Historical Monument.

The best indications are provided by the Intrepid (460,000 visitors) and Fort McHenry (682,012 visitors). Fort McHenry has superior historical value, but an inferior location with respect to the pool of visitors. The location, on the other hand, does face less competition from other attractions. The Intrepid offers a somewhat superior location as it is easily accessible by car, but it is not in the heart of Midtown, and offers inferior views.

After considering the nature of the attraction, the pool of potential visitors, likely development scenarios for the island, and assuming

1) renovation of the facilities,
2) sufficient publicity, and
3) enhancement of the facilities through exhibits, lectures, and events

we estimated that 450,000 visitors each year would likely pay $5.50 plus transportation costs to visit the Governors Island Historical Monument Park. This estimate is relatively conservative and it is

possible that 1,000,000 or more visitors would be willing to pay as much as $8.00 per visit plus transportation costs if the publicity, exhibits and events were sufficient. Reserving one building (4 units) from Fort Jay for tourist uses rather than residential use would further enhance the tourist revenue potential. Poor publicity, maintenance, exhibits, access and/or events, on the other hand could reduce the number to 150,000 at $3.00 per person.

We note that in a report prepared for the Regional Plan Association, Economic Research Associates estimated annual attendance of 350,000. They emphasized attendance at six museums: Children's Museum of Manhattan, The Cloisters, The Frick Collection, the Intrepid Sear-Air-Space Museum, the Museum of the City of New York and the National Museum of the American Indian. The museums had annual attendance ranging from 250,000 - 450,000 resulting in an average penetration factor of 3.6% of the total visitor market of 8,600,000. Using a penetration factor of 4% the estimated annual attendance for the attraction would be approximately 350,000 visitors.

Contingent Valuation Surveys

Because historical attractions are not typically operated by for-profit entities, charges and income flows do not necessarily reflect value. We therefore examined information from surveys to determine value.

The contingent valuation method attempts to estimate values for public goods by asking individuals, in survey or in experimental settings, to reveal their personal valuations of increments or decrements in unpriced goods by using hypothetical, contingent markets. These markets define very specifically the good or amenity of interest, the status quo level of provision, the offered increment or decrement, the institutional structures, and the methods of payment. Researchers attempt to determine amounts that individuals would be willing to pay, or willing to accept, for preserving resources, or for accepting damages. Techniques range from purely hypothetical direct evaluations asking respondents for dollar bids, to hypothetical questions asked of households and recreators concerning changes in behavior. Preferences are then imputed. Households are confronted with possible changes in an environmental attribute and asked for a valuation.

The method is subject to numerous biases, and has been attacked by many economists. After all, it is easier to tell a researcher that one would be willing to pay $100 to save the spotted owl than to actually take that sum out of one's pocket--which would provide a truer indication of willingness to pay.

However, such surveys are often the only means to estimate values. They were endorsed in 1992 by an advisory panel of economists including two Nobel laureates. Alaska used the contingent valuation method to calculate that the Exxon Valdez Oil spill had done nearly $3 billion in damage beyond the amount actually spent on cleanup. Brookshire, et. al. (1976) found that the average bid per family to prevent one additional power plant near Lake Powell was $2.77 in 1974 dollars. The method can also be applied to restricted samples of experts. On January 7, 1994 the National Oceanic and Atmospheric Administration said that although contingent valuation could be a valid tool for assessing environmental damage, it would be better to underestimate than to overestimate damage by relying too heavily on that method. The proposal suggested discounting by 50 percent the value that people attach to unspoiled resources, and would require exhaustive and expensive statistical tests among large numbers of respondents to validate results.

We considered estimates from previous studies to value the benefits of the historic forts. Because analyses of environmental attributes rarely afford enough time or resources to develop new

estimates that apply to a specific attribute a variety of pragmatic "benefit transfer" methods have evolved that use existing benefit or cost measures for similar situations to develop benefit estimates for specific environmental attributes. We supplemented our analyses through the "benefits transfer" approach to estimate values through studies listed below.

We were able to obtain data from a recent study of two forts, but due to differences in location, historical significance, and size we considered data from other surveys regarding the value of historic buildings. The data indicate that our estimate of a willingness to pay of $5.50 per visit appears to be conservative.

A team of economists including Robert Unsworth of Industrial Economics Inc. completed contingent valuation surveys of visitors to two historic forts -- Fort Sumpter (Charleston, SC) and El Morro (San Juan, Puerto Rico). The values they generated are use values (not preservation or other non-use values). Using payment cards they found that visitors were willing to pay an average of between $5 and $7 to visit El Morrow and $10 to $12 plus the cost of a necessary boat ride to visit Fort Sumpter. El Morro is larger than the subject, and Fort Sumpter offers greater historical significance, but these surveys provide a valuable indication of willingness to pay. The current charge for El Morro is $2 indicating a surplus ranging from $3 to $5)

In "Contingent Valuation of Quasi-public Goods: Validity, Reliability, and Application to Valuing a Historic Site" by Catherine M Chambers; Paul E Chambers; John C Whitehead, survey respondents were presented with a mailed questionnaire. They are informed about the current status of, and threats to, the Ste. Genevieve Academy. Ste. Genevieve was founded by French settlers in about 1750. It was the first permanent settlement in what later became the state of Missouri. The Academy is one of the oldest school buildings west of the Mississippi River. Construction of the academy began in 1808 and was completed in 1810 (one year before the completion of Castle Williams). The structure is listed on the National Register of Historic Places, and was unoccupied. Respondents were informed that the building was owned by the State of Missouri. However, the academy may be sold to private owners and converted to a bed and breakfast inn.

The following valuation question was presented:

> Suppose a special trust fund was established. The trust fund would accept one-time money donations that would only be used to purchase the Ste. Genevieve Academy and permanently maintain it as a historic site. How much money would your household be willing to donate to the trust fund? Remember this would be a one-time donation.

Respondents could choose among seven donation categories in a payment card type format: $0, $1-$5, $6-$10, $11-$25, $26-$50, $51-$100, and more than $100. Follow-up questions were then presented to determine reasons for contributing to the trust fund or answering with a donation of $0.

A random sample of 151 household names was drawn from telephone directories in St. Louis, 64 miles from the preservation site, and 154 from Warrensburg, Missouri, a rural area 269 miles from the site, which represents the rest of the state. Samples of 151 and 154 households were drawn from the St. Louis and Warrensburg phone books.

The most frequent Willingness To Pay ("WTP") response was $0. This result is not surprising, since the Ste. Genevieve Academy is a relatively obscure historical resource. Respondents who gave a zero WTP response were then asked to choose a statement that best described why they

were not willing to pay anything. Of 84 respondents, 4% answered "I do not support historic preservation," 25% answered "I do not have enough money," 7% said "I do not think the money will be used for this project," 11%: "I do not like these kinds of questions," 30%: "I do not think the conversion will significantly change the building," and 24%: "some other reason." Respondents who did not think that the money would be used for the project might have a positive economic value for the project but apparently did not believe the contingent market scenario. These respondents were flagged as "protest zero" responses and were deleted from the empirical analysis.

The two next most frequent categories of WTP are $1-$5 and $6-$10. Only about 13% of the sample stated a WTP greater than $11. None of the respondents stated a WTP greater than $100. Respondents who stated a positive WTP were asked to choose a statement that reflected the best reason for their answer. Of forty-eight respondents, the majority (54%) indicated a reason that reflected non-use, or bequest, values: "I want to preserve history for future generations." The next most common answer (25%) reflected use values: "I like to visit historic buildings." Because the number of respondents who chose this response is double the number of respondents who gave a positive WTP, and had seen the Ste. Genevieve Academy in the past, these responses suggest that a major motivation for WTP is option demand or future use value. Of the other respondents, 13% answered "I value all historic preservation," 4% answered "I think the bed and breakfast inn will significantly change the building," and 2% answered "this sounds like a good cause" and "some other reason."

Over four-fifths of the sample had no prior knowledge about the Ste. Genevieve Academy before the survey was conducted. After learning about the Academy through information presented in the survey instrument, almost one half of the respondents stated that they were at least "somewhat concerned" about the potential changes. Almost one third of the sample had traveled to Ste. Genevieve, but only 8% had seen the academy. This suggests that a large portion of WTP can be described as non-use values, such as the value of the knowledge of historical preservation or bequests to future generations.

Willingness to pay ranged from $5.07 to $6.48 per household. The estimate of the aggregate nonmarket value of preservation of the Ste. Genevieve Academy was in the $.86 million to $1.1 million range (1994 dollars). The academy was listed for sale from the State of Missouri's Historical Property Offering with an asking price of $55,000

We also considered studies of Stonehenge, 100 Washington Monuments, Lincoln Cathedral, and a study asking respondents whether they would be willing to contribute to a fund-raising effort to preserve buildings, outdoor art, and historic cemeteries in the context of reduced local revenues, and our own independent research.

Heritage Travel Statistics

General statistics on heritage travelers can help provide a further indication of willingness to pay for visits, and auxiliary spending at the Governors Island Historic Monument Park as well as a demographic profile of potential visitors. The demographic profile can help to refine the projections.

The Travel Industry Association of America (TIAA) estimates that Americans traveling 100 miles or more from home in 1997 spent $443 billion. In addition, an estimated 51 million foreigners spent $81 billion while visiting the United States. The industry accounts for approximately 6% of the nation's Gross Domestic Product. The domestic portion included more than 1.2 billion trips to

destinations 100 miles or more from home. The TIAA reported that over one-fourth of U.S. adults (53.6 million) took at least one trip in 1996 that included a historic component, and that the average such trip involved a $614 outlay ($340 median).

In New Jersey, which has been studied in greater depth than New York with respect to historic preservation, 163 million adult trips of all distances during 1995 generated $11 billion in traveler expenditures. Heritage travel made up about 5% of all these trips. Travel expenditures of New Jersey heritage travelers, counting only the spending attributable to the heritage portion of their travels, amounted to $433 million annually.

Heritage travelers spend an average of $252 for an overnight trip, 60% more than the $157 spent by the general New Jersey traveler. They also stay longer in New Jersey, an average of 4.7 nights. Of overnight travelers who spend $1,000 or more on a trip, 18% are heritage tourists compared with 8% for the general New Jersey traveler. Heritage travelers spend more on lodging – 84% compared with 59% by the general traveler. Day-trippers with historic destinations spend about 20% more than travelers with no interest in history. They spend significantly more on meals and shopping.

Of the 15,530 jobs created from heritage tourism, 7,085 stay in New Jersey, with more than half serving the restaurant and lodging industries. Slightly more than $383 million in income is created from visits to historic sites, with $168 million staying in New Jersey. Of the overall figure more than half is in retail and services, particularly lodging, restaurants and bars. Of the $559 million in wealth generated from heritage tourism $287 million stays in New Jersey. Services and retail account for 45% of that overall figure, including a significant amount from the lodging and dining industries.

Federal, state and local governments gain $216 million in tax revenue from heritage tourism in New Jersey. Slightly more than half that money goes to federal coffers, while nearly 36% goes to state governments and 13% to local communities.

Historic sites and organizations attract more than 6.4 million visitors annually. They also create 1,438 jobs, generating $33 million in income, producing $13 million in taxes, and $43 million in wealth.

Cost

In estimating cost we utilized National Park Service data and emphasized costs at Fort McHenry, Fort Sumpter, the Home of Franklin Delano Roosevelt, and Saratoga, based on location, size, and number of visitors. These costs were $1,573,000, $1,164,000, $1,550,000, and $1,334,000 respectively. With the exception of the Statue of Liberty costs at all other attractions were lower. We requested but did not receive detailed breakdowns of operating costs by category (e.g. labor, repairs and maintenance, security, etc.) for comparable structures. To these basic costs we added a management fee at 10% and reserves of $1.00 per square foot. The reserve figure is high due to the age of the structures and the high costs associated with maintaining the integrity of these historic structures.

Net Operating Income from Tourism

Net Operating Income and Value are derived in the table below:

VALUE FROM ADMISSIONS

Charge	$5.50
Admissions	450,000
Total Revenues	$2,475,000
Costs	$1,500,000
Net Admission Revenues	$975,000
Management Fee for Admissions @10%	$247,500
Reserves @.90/SF	$67,500
Additional Expenses	$315,000
Net Operating Income	$660,000
Capitalization Rate	13.00%
Capitalized Value	$5,076,923
Rounded To:	$5,080,000

Additional income and value is derived from concessions, etc. based upon concessions and souvenirs

Influence on Surrounding Property Values

In an unpublished paper entitled “The Internal and External Impact of Historical Designation on Property Values” N. Edward Cousin of Penn State and Robin M. Leichenko of Rutgers University utilized a database of approximately 7,600 properties from Taylor County, Texas, including 160 designated as historic either by the National Register of Historic Places (NRHP) or by the local historical commission in the City of Abilene. Local designation requires owners to obtain a “Certificate of Appropriateness” for all proposed changes. In return, the owner receives a permanent reduction in city property taxes of either 20% or $200, whichever is greater, and a project tax break of up to 50% that can last as long as 10 years for approved improvements.

For the youngest historical dwellings (up to 46 years of age) the price difference between a historically designated house and one not designated is $19,907, more than half the mean value of $39,165. The price differential declines with age and hits zero at 77.6 years of age. For nationally designated buildings the difference at 46 years old is $28,618 and declines to zero at 91.5. Houses in census tracts with more historical buildings have higher prices after controlling for house quality. House values increase $406 for each historic house in the district but fall $6 with the number squared. Benefits are maximized at about 33.8 buildings. The aggregate rise in property value was over $18,000,000.

The City of Athens Georgia, founded in 1807, was named for the Greek center of culture and learning. Approximately 600 properties, sampled from six of Athens’ historic districts, were examined to determine whether property values in local or national designated districts increased at a faster pace than those located in non-designated areas.

Two districts sampled for the study, Woodlawn and Boulevard, are both listed in the National Register of Historic Places and locally designated. Over a twenty-year period, beginning in 1976, the property assessment values sampled rose at a rate of 47.75% after inflation. For two districts appearing only on the national register -- Milledge Circle and West Hancock -- average assessment values increased at a rate of only 22.94%, approximately half the rate of the locally designated

areas. The third comparison group consists of three non-designated neighborhoods: Cloverhurst, King, and Pulaski Heights. These non-designated properties show an increase in value of 33.87%, which surpasses that of the combined nationally registered districts, but is below that of the local district. Values in the four designated areas outpace their three non-designated counterparts between 1988 and 1996. The assessment values in historic districts rose at 65.1%, and the assessment values in non-designated neighborhoods rose at a rate of 60.6%.

We also looked at studies in Virginia, Galveston, TX, Cleveland Ohio, Chicago, IL, Washington, DC, Philadelphia, PA, a 1979 Department of the Interior Study, Denver, CO. The studies generally find positive impacts of historic designation upon property values, but several found no evidence of benefits. Most of the studies relied upon assessed values, which are not considered good indicators of market value, and most did not conduct rigorous statistical tests or analyze alternative factors thoroughly. Furthermore most studies analyzed the effects of designation rather than the presence of the historic property itself. In addition, some of the studies were presented by, or prepared for, preservation groups or preservationists, and we suspect would therefore be biased upward despite, or because of, the best of intentions. We assigned a positive but small impact upon surrounding properties of 5%.

General Impact Studies

Several studies have examined the general economic impacts of historic designation and heritage tourism. Most of these studies use input-output models, standard tools for assessing impacts, which are based upon the work of the Nobel Prize winning economist Wassily Leontief. These models utilize special datasets containing information on inputs required to generate outputs, based upon data from actual companies.

We ran the National Park Service's Money Generation Model (MGM2), which can be found at http://msu.edu/user./stynes/npsmgm. The model summarizes economic impacts in terms of sales, income, employment and value added.

National Parks impact the local economy in several ways, including the following:

1) visitor spending in the region
2) park operations: payroll and purchases of goods and services from local suppliers
3) construction activities
4) economic development in the region induced by the presence of the park

The basic components are summarized in the following equation

Economic impacts = Number of Visitors * Average spending per visitor * Economic Multipliers

The primary inputs are visits, average spending and multipliers. Spending averages can be input by the user or from predefined tabulations derived from surveys taken at parks. MGM2 also offers several sets of multipliers derived from input-output models (the IMPLAN model), or the user can input their own.

The model estimates direct effects, secondary or multiplier effects, indirect effects and induced effects. It reports impacts in terms of sales, jobs, personal income and value added.

Visitors are divided into eight distinct subgroups (1. local, 2. non-local day visitors, 3. visitors in motel/cabin/lodge inside the park, 4. campers inside the park, 5. visitors staying in back-country sites, 6. visitors in motel/B&B, cabin, rented condo outside the park, 7. campers staying outside

the park, and 8. visitors staying overnight in the area in seasonal homes, with friends and relatives or other private home)

The model indicated direct spending effects of $8,856,000, with 210 jobs, and generation of $3,351,000 in personal income. Total effects after multipliers were estimated at $13,609,000, with 275 jobs, and personal income generation of $5,077,000.

IMPACTS OF CON EDISON ELECTRIC SUBSTATION, NEW YORK, NY

In an affidavit filed in the Supreme Court of the State of New York on behalf of the Herald Square South Civic Association; Kenneth Acks of the Cost Benefit Group estimated that a proposed electrical Substation between 30th and 31st Street and between Broadway and Fifth Avenue in Manhattan, New York could lead to value losses of 5.0% to 20% in certain neighboring properties. Estimated losses resulted from public perceptions regarding the dangers of electromagnetic emissions, the risk of fire and accidents associated with such structures, noise concerns, increased dangers arising from potential terrorist attacks and the potential incompatibility of the structure with neighboring uses.

The proposed substation was located at 15 and 25 West 30th Street and 24-26 West 31st Streets (Block 832, Lots 25, 27, 59 and 60). The site consists of four rectangular tax lots forming an L-shaped parcel running block through between West 30th and 31st Streets. The total site area is 34,054 square feet, or 0.78 acres. It is zoned M1-6 with a maximum floor area ratio (FAR) of 10.0, indicating a maximum buildable area of 340,540 square feet. The site offers195 feet of frontage on West 31st Street and 155 feet along West 30th Street. Consolidated Edison Company of New York proposed the construction of an electric utility substation, ranging from one to four stories and containing a total of approximately 45,100 square feet. The structure would contain space for five transformers with the capacity to generate 250 megawatts of power, and other equipment. Lots 25, 29 and 60 were purchased from Eljan Parking in January 2003 for $11,200,000, and Lot 27 from Crosstown Parking in February 2003 for $26,000,000.

The preliminary estimate, indicated that the cumulative loss in real estate value for Block 832 adjoining the proposed Substation site would be in the approximate range of $4.9 – $19.4 million, and on Block 833 across from the proposed site, in the range of $10.2 to $40.8 million, due to the commencement of construction and operation of the proposed electrical Substation. Given the current Class IV tax rate of 11.580 which would be applicable to most of the properties near the subject, the loss in tax revenues to the City of New York would range between $784,688 and $3,138,752 every year assuming that assessment changes accurately reflected value changes.

Mr. Acks noted that in 1979, Colwell and Foley estimated a value loss of 2% - 9% for properties in close proximity to transmission lines, and between 6% and 9% of value at a distance of 50 feet. They found that the reduced value declines in magnitude with an increase in distance and visual impairment such as the growth of trees. The study used a regression equation, which included distance to the line as an index of the extent of damage.

In “Impact of Power Transmission Lines on Property Values: A Case Study,” which appeared in the July 1992 issue of *The Appraisal Journal*, Jul Hsian Kung and Charles Seagle analyze the impact of power transmission lines on residential property values and the marketability of real estate in Memphis and Shelby County, Tennessee. The homeowners stated that had they been aware of the potential health risks associated with the presence of the electromagnetic fields emitted by transmission lines, 87% said that the price they had been willing to pay for their home would have been adversely affected or they would have looked in other areas for comparable housing.

Forty-three respondents (91%) said that they thought the market for these homes would decline if negative health effects were widely publicized. A public poll taken in 1993 by Cambridge Reports/Research showed that 63% of all adult Americans were aware of the EMF issue, up from 31% in 1989. Half responded that they were "extremely worried" about it. The reason for the growing awareness has been the increased reporting of residential and school cancer cluster investigations near power lines, along with numerous studies of occupational exposure showing an increased frequency of cancer in workers who have had higher exposure levels to EMF.

In another 1992 article, which appeared in *The Journal of Real Estate Research*, Delaney and Timmons found a loss of about 10 percent from power lines. The measurement tools used were matched paired sales, public and MLS data on sales, discussions with the public and appraiser opinion. A review of 100 Houston residential properties, which abutted a power line corridor, found that in 1993 there was a measurable loss of value relative to non-abutting peer properties (Bolton and Sick 1999; Bolton 1994). A late 1994 California matched-sales analysis showed that vacant lot values were adversely affected by 18-53.8 percent (Bolton and Sick 1999). Two 1995 studies also found that immediate proximity to, or direct view on, a pylon caused house prices to drop, from 5% at a distance of 50 meters, or 160 feet to more than 27% at 10 meters, or 33 feet (Callanan and Hargreaves, 1995; and Hamilton and Schwann, 1995). An extensive evaluation of 12,907 residential real estate transactions in Vancouver, British Columbia, from 1985 through 1991 established “an undeniable drop in value . . . [of] 6.3 percent . . . due to proximity and visual impact.” Additional studies were also considered.

ECONOMIC IMPACT OF OPERATING THE SHOREHAM NUCLEAR PLANT

Kenneth Acks was part of a team of analysts, economists, and engineers hired by the Suffolk County Government to evaluate the economic impact of charging ratepayers for the cost of the Shoreham nuclear plant, of operating the plant, and of selected alternatives.

Scope of Work: Mr. Acks studied the economic impact of charging the full projected completion costs to the ratepayers, and of constructing alternative generating facilities. He investigated impacts upon employment, corporate balance sheets, business location decisions, consumers, governments, homebuyers, the housing market, and property values. Through surveys, Input/Output models and econometric analyses Mr. Acks obtained estimates of welfare losses, and a thorough tally of costs and benefits arising from the operation of the plant. Findings were presented in testimony to the state utility commission as well as to blue ribbon panels established by the County Legislature and the governor of the state. Results were also utilized in the RICO case against LILCO, which resulted in the award of $23 million in damages by a jury.

Findings: Mr. Acks and his fellow consultants forecast a loss of over 35,000 jobs in the LILCO service area, assuming that the full cost of the plant were to be put into the rate base. A decline in local business and consumer income would cause a loss of 20,853 jobs; and an additional 14,288 jobs would be lost due to flight of manufacturing industries from Long Island.

Through both a macro-economic analysis and survey of area businesses, Mr. Acks identified specific industries which would suffer severely by major rate hikes. For example, the energy-intensive plastics industry would be forced to move or close down because locally applied rate hikes would cause it to lose competitive standing vis a vis neighboring non-LILCO area competitors.

A unique hedonic property value study found that Shoreham's operation would reduce home values near the plant by 7.1% and by lesser amounts as far as 20 miles from the plant. The total loss in home values was projected at $410 million. Property tax collections would fall by $12 million per year (assuming the reductions in property values were properly recorded by assessors).

VALUATION OF PERSONAL INJURY DAMAGES

Damage Valuation Associates, the predecessor of The Cost Benefit Group was called upon to value damages resulting from a care accident which severely injured a patient and impaired his mental abilities. We summed the present values of lost earnings, fringe benefits, household chores, medical costs, and of lost enjoyment of life. The economists estimated damages based upon four scenarios. The following estimated present values were presented:

Type of Damage	Past (thru 12/95)	Future	Total	Rounded
Lost Earnings	$210,945	$241,694	$452,639	$450,000
Fringe Benefits	84,691	131,461	216,152	220,000
Household Chores	12,045	15,838	27,883	30,000
Medical Costs	25,792	30,559	56,351	60,000
Enjoyment of Life	653,269	1,553,672	2,206,941	2,210,000
TOTAL	986,742	1,973,224	2,959,966	3,000,000

FEASIBILITY STUDIES/APPRAISALS OF REDEVELOPMENT PROJECTS

The Cost Benefit Group is often called upon to evaluate the feasibility of potential development projects. In order to determine whether projects make sense we conduct extensive analyses of: regional and neighborhood economic and social conditions; key sectors; supply and demand in real estate and industry markets; the property, zoning, sale prices of vacant land and of comparably improved properties; rents achieved in relevant markets; and absorption and vacancy rates. The estimated value of these projects upon completion is far in excess of $1 billion. We take pride in having observed the creation of more than 1,000 housing units following these reports. Some of these analyses were used to determine appropriate compensation in condemnation cases to facilitate redevelopment.

We also work together with environmental service and engineering firms to evaluate vacant land parcels with respect to the presence of environmental hazards, soil conditions, danger of flooding, availability of utilities, drainage, and topography. Risks posed by site characteristics, if any, are factored into our analyses.

Our experience with a wide variety of property types facilitates our ability to understand the highest and best uses of properties. Some of these projects have involved Low Income Housing Tax Credits and other special financing arrangements. We factor in the value and profit implications of these and other benefits. We have also appraised more than 40 dilapidated/vacant properties with more than 300 units for the Neighborhood Entrepreneurs Program and others sponsored by the Division of Alternative Management Programs of the New York City Department of Housing Preservation and Development

Feasibility studies and appraisals analyzing vacant land or redevelopment projects conducted in the past or currently in process, involve many of the larger development projects in the metropolitan area, and include the following:

Project Name	Location	Project Type
St. Brigids Roman Catholic Church	New York, NY	Church - Nursing Home
A. Holly Patterson Geriatric Center	Uniondale, NY	Redevelopment of Nursing Home
Nassau University Medical Center	East Meadow, NY	Expansion of Medical Office Space
Jersey City Medical Center	Jersey City, NJ	Convert Medical Center to Residential
Gyrodyne	St. James & Stony Brook, NY	Purchase/Condemnation by University
Long Beach Superblock	Long Beach, NY	Mixed Use Project on Vacant Land
Governor's Island Monument Park	Governor's Island, NY	Residential/Tourism Use
661.5± acres Vacant Industrial Land	Yaphank, NY	Industrial
Patchogue Senior Apartments	East Patchogue, NY	Affordable & Senior Housing
Brookview Apartments	Deer Park, NY	Senior Housing
Ranches at Mount Sinai	Mount Sinai	Townhouses
Pinewood Apartments	Coram	Senior Housing
95-99 Main Street	Fort Lee	Retail
Liberty Harbor North	Jersey City, NJ	Vacant & Industrial to Residential
Central Islip Psychiatric Center	Central Islip, NY	Minor League Ball Park & Law School
Kings Park Psychiatric Center	Kings Park, NY	Vacant Land at Psychiatric Hospital
Genzale Plating	Franklin Square	Industrial to Residential
Townview Apartments	Fishkill, NY	Garden Apartments
Rosewood Nursing Home	Peabody, MA	Nursing Home
Broadhurst Willows Apartments	Manhattan, NY	Affordable Housing
Draper Hall Apartments	Andover, MA	Housing
Cadbury Commons Health Care	Cambridge, MA	Assisted Living
Baytowne Apartments	Webster, NY	Apartments
St. Luke's Nursing Home	Oswego, NY	Nursing Home Expansion
Annapolitan Health Care	Annapolis, MD	Assisted Living
Suffolk Saturn	St. James, NY	Automobile Dealership
English Station Apartments	Greece, NY	Apartments
Woodcrest Estates	Port Jefferson Station, NY	Senior Housing
North Cape Convalescent Center	Cape May, NJ	Nursing Home
100,000 SF Parcel of Vacant Land	Flushing, New York	Mixed Use – Retail, Apartment, Hotel

COST-BENEFIT ANALYSIS OF GREEN ROOF PROGRAM – NY CITY

A green roof covers a building's upper surface with lightweight engineered growing medium which can be outfitted with a wide variety of plants while protecting the integrity of the underlying structure. In addition to providing green spaces and gardens for residents, green roofs may provide important environmental and human health benefits including:

1) ameliorating the "urban heat island" effect,
2) lowering energy expenditures,
3) purifying the air, and
4) reducing storm-water runoff.

On summer days, temperatures in cities can be up to seven degrees hotter than readings in surrounding areas, as they become incubators for smog, threaten public health, and increase energy demand -- a situation known as the "urban heat island" effect. By replacing the heat-absorbing tar and other dark roofing materials that contribute significantly to higher urban temperatures with plants and grasses, green roofs may reduce warmth. Storm-water run-off—which carries contaminants, including heavy metals, from paved surfaces and rooftops to waterways—has been identified as a major source of water pollution. By absorbing up to 75% of rain that falls upon them green roofs may cut demands placed upon sewage systems, and produce cleaner waterways.

Green roofs fall into two categories, extensive and intensive. Extensive green roofs are lower in weight, cost, and maintenance than intensive systems. Plants for extensive green roofs tend to require only a few inches of soil and little additional irrigation or care. Extensive roofs are often unable to accommodate regular human traffic and are not suitable for many structures. Intensive green roofs, though heavier, more costly, and in need of more maintenance can accommodate vegetables, shrubs, and trees. Because these are deep-rooted plants, at least 12 inches of soil may be required.

Initially inspired by the sod roofs of rural Scandinavia which have been in existence for centuries, green roofs have been adopted by municipalities throughout the world. In Germany it has been estimated that 10% of buildings now have green roofs. Under "Tokyo Plan 2000" useable rooftop space atop new buildings larger than 1,000 square meters must be 20% green. Closer to home, green roofs have been incorporated into city planning in Chicago, Portland, Oregon, and Toronto, Canada. In Chicago, where there is a 20,000 square-foot green roof atop the city hall, the Chicago Energy Conservation Ordinance, requiring all new or refurbished roofs to contain green roofs or reflective roofing, was passed on June 3, 2002.

The Cost-Benefit Group is working with the Columbia University-NASA Goddard Institute of Space Studies (GISS), the Earth Pledge Foundation (much of the above information is derived from their website and www.GreeningGotham.org which they created); Hydroqual Inc.; the Gaia Institute; The Columbia University School of Public Health; The Center for International Earth Science Information Network (CIESIN), Comcarto Graphics; and others to measure the degree to which green roofs provide benefits and then to attach a dollar value to these benefits.

To date we have generated rough estimates of the following potential costs and benefits:

BENEFITS

Private

(1) Service Life
(2) Cooling,
(3) Heating,
(4) Agricultural,
(5) Aesthetics/Recreation, and
(6) Sound

Social/Public

(1) Water Runoff Capital Spending,
(2) Water Runoff Operating Expenditures,
(3) Energy/Heat Island Cooling,
(4) Greenhouse Gases,
(5) Air Quality (Particulates, NOX, Ozone, SO2, Carbon Monoxide removed)

COSTS

Private

(1) Net Cost of Green Roofs v. Non-Green
(2) Maintenance

Social

(1) Program Administration and Setup, (2) Program Maintenance

We also estimated income generated, jobs created (construction and permanent), and fiscal impacts (changes in tax revenues)

Estimating individual cost and benefit items requires breaking down the above items into more basic elements, and converting physical data into dollars and cents terms. For example, to estimate the benefits of air quality improvements we considered 1) the possible scope of the program, (say 10,000 roofs averaging 5,000 square feet), 2) the likely reduction in particulates (0.018587 per square foot), and 3) the benefits of this reduction per household $4.47/kg).

The attached spreadsheet presents crude preliminary estimates and a framework for analysis. It is flexible, permitting modification of assumptions and improvements in data.

COSTS & BENEFITS OF GREEN ROOF PROGRAM NEW YORK CITY

Green Roofs	9,841
Avg. Sq. Ft.	5,000
Total Sq. Ft. Greened	49,205,205

	Present Value Net Benefits/Costs	Per Building	Per Sq. Ft.	Total Annualized	Basis
BENEFITS					
Private					
Service Life	(lowers costs below)				
Cooling	$71,230,238	$7,238	$1.45	$5,109,796	Cut cooling costs 20% from $0.30/SF/year x total square footage
Heating					
Food	$72,473,979	$7,364	$1.47	$5,199,017	Hotel produced C$25,000 x .72 to get US$ divide by 2,100 SF to get $/SF multiply by prob. of 1%
Consumption/Aesthetics/Recreation	$55,019,418	$5,591	$1.12	$3,946,891	5 people per building would pay an average of $50 per year + 5 pay $25 + 5 pay $10
Sound	$23,987,537	$2,438	$0.49	$1,720,778	Cut 4 decibels, increases property value 1.3% per decibel, average building value = $100/SF
Social/Public					
Water Runoff Capital Expenditures	$30,993,020	$3,149	$0.63	$2,223,325	Decrease Stormwater 60% on each greened roof (5% of all roofs covering 0.6% of all surface area)
Water Runoff Operating Expenditures	$6,641,361	$675	$0.13	$476,427	Decrease Stormwater 60% on each greened roof (5% of all roofs covering 0.6% of all surface area)
Energy/Heat Island					
Cooling	$54,799,132	$5,568	$1.11	$3,931,088	Program (50,000,000 SF green roofs) cuts city temperature 1 degree cuts $.40/SF costs 2%
GreenHouse Gases					
Carbon Dioxide	$8,998,034	$914	$0.18	$645,486	Greening all Toronto roofs cuts GHG 2.4 megatons multiply by NY population/Toronto
Air Quality					
Particulates removed	$70,249,901	$7,138	$1.43	$5,039,470	1m2 (10.76 ft2) of grass roof can remove .2 kg airborne particles per year so 1 SF cuts .01859 kg x value of $4.78/kg removed
NOX Removed	$26,578,295	$2,701	$0.54	$1,906,629	physical reduction = 25% of particulate reduction x value removed from Nowak
Ozone Removed	$26,589,968	$2,702	$0.54	$1,907,467	physical reduction = 25% of particulate reduction x value removed from Nowak
SO2 Removed	$6,314,409	$642	$0.13	$452,972	physical reduction = 25% of particulate reduction x value removed from Nowak
Carbon Monoxide Removed	$3,928,965	$399	$0.08	$281,850	physical reduction = 25% of particulate reduction x value removed from Nowak
TOTAL BENEFITS	$394,392,620	$40,076	$8.02	$28,292,278	
COSTS					
Private					
Net Cost of Green Roofs v. Non-Green	($269,366,208)	($27,372)	($5.47)	($19,323,342)	Green Roofs @ $17.50/SF last 36 years, Non-Green @ $9 .00/SF last 16 years
Social					
Program Administration and Setup	($5,674,193)	($577)	($0.12)	($407,046)	1% of initial costs
Program Maintenance	($23,678,736)	($2,406)	($0.48)	($1,698,626)	12 employees earn an average of $60,000 + $30,000 per employee in other costs
TOTAL COSTS	($298,719,137)	($30,354)	($6.07)	($21,429,014)	
NET BENEFITS	$95,673,483	$9,722	$1.94	$6,863,264	
BENEFIT/COST RATIO	1.32				
RETURN ON NET INVESTMENT	32.0%				
Initial Expenditures Green Roofs	($885,693,690)				*Estimates For Illustrative Purposes Only*
Initial Expenditures on Non-Green Roofs	($418,244,243)				
Foregone					
Income Generated	$492,990,775	$50,095	$10.02	$35,365,347	
Jobs (construction)	3,592	0.36500	.000073	258	
Jobs (permanent)	1,276	0.12960	.000026	92	
Fiscal Impacts	$26,822,025	$2,726	$0.55	$1,924,114	

ASSUMPTIONS				
Average Roof Size			5,000	Sq. Ft.
Total Building Stock			**196,821**	Buildings
Percent Greened			5%	
New York City Land Area			8,447,155,200	sq. ft.
Years of Analysis			*55*	Years
Inflation Rate			3.00%	
Nominal Social Discount Rate			7.00%	
Nominal Private Discount Rate			10.00%	
				Percent
	Non Green	Green	Units	Difference
Roof Life and Costs				
Roof Life	16	36	Years	225.0%
Cost of Roof	**$8.50**	$18.00	/SF	211.8%
Technical Change Rate Non-Green (Roof Cost)			1.00%	
Technical Change Rate Green (Roof Cost)			1.50%	
PRIVATE				
Heating/Cooling				
Cooling Costs	**$0.40**	$0.35	/SF	15.0%
Food Production				
Food Production Value		$8.57	/SF	
Consumption/Aesthetic Benefits				
Beneficiaries of Green Roof Consumption/Gardens		9	People	
Average Benefit		**$28.33**	WTP per building per year	
Sound Reduction				
Sound Reduction		4	decibels	
Average Property Value	**$150.00**		/SF	
Change in Property Value Per Decibel		1.3%		
SOCIAL				
Stormwater				
Stormwater Reduction on Roof		70%		
Capital Spending on Wastewater Treatment & Sewe		$700,000,000	NYC Budget and Mayor's	
Operating Spending on Wastewater Treatment & Se		$150,000,000	NYC Budget and Mayor's	
Percent Wastewater & Sewer from Rain		65%		
Scale Factor		90%		
Urban Heat Island				

REAL ESTATE VALUATIONS/APPRAISALS

The Cost Benefit Group has appraisals virtually every type of real estate. The table below describes the distribution of valuation projects. Most of these projects included detailed descriptions of: regional and neighborhood economic and social conditions; supply and demand in real estate and industry markets; the property, zoning, assessments, taxes, highest and best uses, financial indicators, sale prices of and rents in comparable properties; and absorption and vacancy rates.

Valuations in Selected Areas	#
New York, New York	53
Other New York City Boroughs, NY	27
Nassau County New York	65
Hamptons, New York	8
Other Suffolk County, New York	23
New Jersey	18
Pennsylvania	4
Other States	125
Valuations By Property Type	
Mixed Use	12
Single Family Residential	5
Multi-Family Residential	52
Shopping Center	11
Free-Standing Retail	35
Restaurants	10
Office	22
Industrial	37
Vacant Land	47
Hospitals	3
Nursing Homes	12
Hotels	11
Other	10

We are often called upon to perform more complex valuations of special purpose properties such as hospitals, nursing homes, hotels, marinas, auto dealerships, ... In these analyses we feature detailed descriptions of trends in the industry and unusual valuation factors. Our experience with a wide variety of property types facilitates our ability to understand the highest and best uses of properties. Some of the property types analyzed are listed below.

HEALTH CARE VALUATIONS

We are recognized as experts in the valuation of real estate utilized by health care institutions. We have unique databases, and experience in valuing such real estate not available to most competitors. Among the health care properties evaluated are the following.

Name	Location	State
HOSPITALS		
Nassau University Medical Center	East Meadow	NY
Beth Israel Kings Highway Medical Center	Brooklyn	NY
Mid Island Medical Center	Bethpage	NY
Hospital for Special Surgery	New York	NY
Jersey City Medical Center	Jersey City	NJ
NURSING HOMES		
Boulevard Care Center	Woodside	NY
A. Holly Patterson Geriatric Center	Uniondale	NY
Park Nursing Home	Rockaway Park	NY
Rockaway Care Center	Edgemere	NY
Rockville Manor	Rockville Centre	NY
Rosewood Nursing Home	Peabody	MA
St. Luke's Nursing Home	Oswego	NY
ASSISTED LIVING FACILITIES		
Savoy at Brooklyn	Brooklyn	NY
Esplanade/Atria at Chestnut Ridge	Chester	NY
Castle Senior Living at Forest Hills	Forest Hills	NY
Chelsea at Montville	Montville	NJ
Castle Senior Living at Plainview	Plainview	NY
MEDICAL OFFICES		
Northern Boulevard	Great Neck	NY
Old Country Road	Plainview	NY
Sunrise Highway	Central Islip	NY
Old Bethpage & Haypath Roads	Old Bethpage	NY
HEALTH CARE DEVELOPMENT PROJECTS		
Rosewood Nursing Home	Peabody	MA
Cadbury Commons Health Care	Cambridge	MA
St. Luke's Nursing Home	Oswego	NY
Annapolitan Health Care	Annapolis	MD
North Cape Convalescent Center	Cape May	NJ
St. Mary's	New York	NY
A. Holly Patterson Geriatric Center	Uniondale	NY
St. Brigids Roman Catholic Church	New York	NY

HOSPITALITY VALUATIONS

Our hospitality valuations featured detailed industry descriptions and analyses of income and expense, trends in the industry and in specific markets by location and type of hotel. Previous projects included the following:

Name	Location	State
Meadowlands Hilton	Secaucus	NY
Cherry Hill Hyatt/Hilton	Cherry Hill	NJ
Eatontown Sheraton	Eatontown	NJ
Hudson Valley Resort & Conference Center	Ulster	NY
Deauville Hotel	New York	NY
The Greenporter	Chester	PA
Development Site	Flushing	NY
570 Sunrise Highway	West Babylon	NY
Dune Point & Sand Piper Inns	Fire Island	NY
Carmen Mill Road	Massapequa	NY
400 Carman Hill Road	New York	NY
Crown Sterling	Minneapolis	NY
Crown Sterling	San Francisco	CA
Crown Sterling	Napa	CA
Crown Sterling	Tampa	FL
Crown Sterling	Los Angeles	CA

OFFICE BUILDINGS (Partial List)

Address	Location	State	Square Feet
580 Fifth Avenue	New York	NY	401,000
100 Chestnut Street	Rochester	NY	320,347
800 Long Ridge Road	Stamford	CT	255,000
22 West 43rd Street	New York	NY	200,332
600 Old Country Road	Garden City	NY	193,724
901 Stewart Avenue	Bethpage	NY	190,574
120 Eagle Rock Avenue	East Hanover	NJ	173,482
1776 Broadway/229 West 57th Street	New York	NY	148,900
170 Old Country Road	Mineola	NY	118,000
29-28 41st Avenue	Long Island City	NY	114,000
535 Broadhollow Road	New York	NY	101,545
141-07 20th Avenue	College Point	NY	85,000
314-334 East 38th Street	New York	NY	83,038
10 West 47th Street	New York	NY	71,738
1895 Walt Whitman Road	Melville	NY	54,412
245-265 Great Neck Road	Great Neck	NY	48,500
315 Fifth Avenue	New York	NY	46,475
400 South Oyster Bay Road	Hicksville	NY	40,193

THE ACB COMPUTERIZED COST BENEFIT ANALYSIS SYSTEM

The Problem. Although the economic theory of social costs and benefits of government policy and of private development projects is fairly well developed, few decisionmakers avail themselves of these tools. The dichotomy between theory and practice arises because of the expense and time involved in measuring complicated phenomena. Therefore, policy tends to be made, not systematically, but in an ad hoc intuitive fashion, which is more susceptible to political manipulation. In addition, important costs and benefits are often omitted due to the cost of collecting information. The above failures can also lead to the inability to negotiate mutually beneficial compromises.

The System. The ACB system reduces the costs of social cost-benefit analysis by creating a menu driven centralized database of information generated by previously published studies which will provide rough first guess estimates of the costs and benefits of various proposals. The system allows the policymaker to change assumptions and will also serve a bibliographic function.

The studies on the database can also be used to determine damages in lawsuits.

In terms of crime, the program, upon the users selection of various menu choices, presents coefficients from studies showing the extent to which the hiring of a policeman tends to increase arrests. It then multiplies these results by the coefficients of studies measuring the extent to which an increase in arrests cuts crime, and finally by estimates of the costs of crime.

The information used for this database consists of regression coefficients, survey results and cost estimates derived from studies previously published in academic journals, or by official government agencies. The academic journals include the American Economic Review, the Journal of Economic Literature, the Journal of Political Economy, the Review of Economics and Statistics, the Journal of Environmental Management, the Journal of Public Economics, Land Economics, and the Journal of Urban Economics.

The system: 1) takes data from studies, 2) places the data into comparable groups, 3) converts the units of each study into a common base, 4) derives a single representative (weighted average) number for each group by weighting the elements of the studies. One scheme attaches greater significance to studies performed in later years (in terms of data and publishing date), and also utilizes subjective weights based on the apparent quality of the study, and 5) produces a series of potential cost benefit scenarios based on different types of analyses.

A description of the system appeared in the April 1995 issue of *The Engineering Economist*.

LOCATION OF GROUP HOMES FOR MENTALLY RETARDED-NEW YORK

Kenneth Acks directed a study to determine optimal location of group homes given siting of existing facilities, community opposition, vacancy rates and prices. The study was sponsored by the NYS Office of Mental Retardation and James Felt Realty/Grubb & Ellis.

Scope of Work. The Cost Benefit Group studied supply and demand for housing, property values, rents, and vacancy rates in each of New York City's 59 community districts and 3 suburban counties. We delineated economic activity, population, age distribution, income, income distribution, zoning, land uses, and the stock of housing. We also investigated changes in stock, rehabilitation, and construction activity. Vacancies were disaggregated by type, size, rent, and duration. A model was created to determine the expected number of vacancies and rents for supported apartments and group homes.

We also determined appropriate locations in terms of price, level of community opposition, safety, and extent of previous public activity. Prices and vacancy rates were forecasted. Hedonic studies of property values and wages were explored to determine the premiums that must be paid for client and staff safety. Prices, rents, and construction costs in other areas of New York State were compared to those in New York City.

A BENEFIT ANALYSIS OF THE REDUCTION OF THEFT CRIMES

Kenneth Acks provided research support for a study of the costs and benefits of crime reduction programs for Professor Albert Madansky, the Center for the Study of Public and NonProfit Institutions of the University of Chicago, and the U.S. Department of Labor.

Scope of Work: Analyzed benefits, both nationally and state-by-state, of a reduction in the criminal population. Seven cost elements were evaluated:

(1) The dollar value of the thefts perpetrated in a year
(2) The annual dollar of savings in police protection costs
(3) The annual dollar savings in judicial costs
(4) The annual dollar savings in incarceration costs
(5) The annual savings in personal anti-theft and insurance costs
(6) The annual savings in public welfare costs
(7) The annual net benefit of an additional ex-offender in the labor force

Findings: Average Benefit From Cutting the Criminal Population by 100 Theft Criminals.

#	Effect	Average	Optimistic
1	Dollar Value of Thefts	$247,853	$309,816
2	Police Protection Savings	$46,020	$225,500
3	Judicial Cost Savings	$787	$52,990
4	Incarceration Savings	$10,297	$679,614
5	Anti-theft Savings	$614,669	$618,151
6	Public Welfare Savings	$35,200	$35,200
7	Labor Force Value Added	--	$278,000

HEDONIC VALUATION TECHNIQUES

In order to quantify what others omit The Cost Benefit Group often employs "Hedonic Valuation Techniques" and the "Contingent Value" Method.

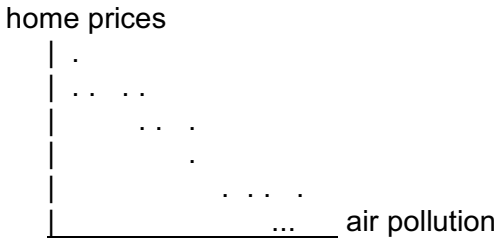
Hedonic Valuation Techniques estimate the pleasures that individuals derive from goods, from characteristics of goods, from natural resources, from activities, from particular aspects of health, or even from life itself. They are most commonly employed when markets and prices do not exist, or where distortions cause prices to deviate from true values. For example, no markets directly price the value of the loss of hearing, of lung disease, of the loss in property values resulting from high powered transmission lines, or of death due to negligence.

Although less well defined, these estimates are needed to evaluate the propriety of regulations, to allocate expenditures optimally, and to determine the true value of damages in lawsuits.

To estimate values economists estimate how much individuals are willing to pay for deriving benefits, or willing to accept in payment for bearing burdens. Ten types of data have been employed (along with statistical methods) to estimate implicit valuations: 1) survey questionnaires, 2) wage premiums for dangerous jobs, 3) property value differentials through time and across localities 4) travel costs, 5) expenditures on safety equipment, 6) avoidance expenditures, 7) public expenditures, 8) laboratory experiments, 9) relocation costs, and 10) insurance premiums.

In using safety expenditures economists divide the dollars that consumers are willing to pay for such devices as smoke detectors or automobile air bags by an estimate of risk reductions. For example, consumers might be willing to spend $20 for a smoke detector that has one chance in 100,000 of saving a life--which implies a value of life of $20/(1/100,000) or $2,000,000.

Wage and property value studies utilize multiple regression analyses. For example, researchers take a large sample of homes and compare sales prices with the degree of pollution, while holding other factors (such as the number of bedrooms) constant. The relationship may look something like this:



From this graph it is apparent that high levels of pollution tend to be associated with low home prices. Regressions, essentially draw a line through the middle of the dots, minimizing the distance between the line and the dots. The slope of the line determines the extent of the reductions. A steep line indicates a large effect, while a slow descent reflects a mild influence. The economist can then conclude that a 1% increase in air pollution is associated with a 3% fall in property values--and is worth $3,000. These estimates are superior to techniques typically employed by appraisers because they systematically incorporate a wide range of data.

In Sherrod v. Berry a jury awarded hedonic damages equal to 2.83 times the size of conventional economic losses. The Association of Trial Lawyers of America has endorsed the technique.

Government agencies also set values on life and property through hedonic methods when doing cost benefit analyses of regulations and spending. The Occupational Health and Safety Administration uses a value of $3.5 million for life, while the Environmental Protection Agency assigns price tags between $400,000 and $8.5 million. Although the use of these methods to value life is controversial they are routinely employed for many purposes.

Thus, hedonic analyses place values on goods, or characteristics where markets do not exist. Although such estimates are less certain than market prices, vast misallocations of resources and gross injustices occur when valuations are omitted.

Nearly all public expenditures and regulations involve goods where prices either do not exist or fail to convey accurate information. Yet these techniques are often overlooked because of the high costs associated with conducting such studies. By creating a computerized database of previous hedonic and cost benefit analyses The Cost Benefit Group can produce these valuations at reasonable costs.

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