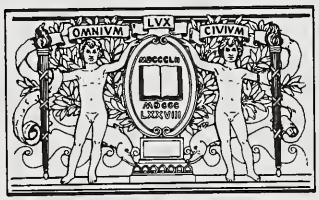


BOSTON
PUBLIC
LIBRARY

BOSTON REDEVELOPMENT AUTHORITY

BOSTON, MASSACHUSETTS

QUALIFICATIONS FOR ENGINEERING SERVICES

STREETSCAPE IMPROVEMENTS TO

ST. BOTOLPH STREET

HARCOURT TO WEST NEWTON STREETS

BOSTON FENWAY AREA

MARCH 25, 1988

UNIVERSAL ENGINEERING CORPORATION
CONSULTING ENGINEERS
BOSTON, MASSACHUSETTS

UNIVERSAL ENGINEERING CORPORATION

CONSULTING ENGINEERS

100 BOYLSTON STREET · BOSTON · MASSACHUSETTS 02116

AREA CODE 617 542-8216

March 25, 1988

Boston Redevelopment Authority
Room 943
One City Hall Square
Boston, MA 02201

Re: Statement of Qualifications for Engineering Services
for St. Botolph Street, Harcourt to West Newton Streets

Gentlemen:

We are pleased to submit our qualifications to provide Engineering Services for the captioned project. Universal Engineering has extensive experience in conducting existing street surveys, preparing construction documents and providing resident engineering services for many cities and towns in Massachusetts.

Universal Engineering has been a resident of Boston since its founding in 1953 and has over thirty years of experience in urban revitalization, including street and sidewalk reconstruction, streetscape design, street lighting, vehicular/pedestrian circulation, parking improvements, landscaping and cultural aesthetics.

Since 1967 Universal has worked with the Boston Redevelopment Authority to study, design and prepare construction documents for several Urban Renewal Projects within the City, including the Park Plaza Project, ($8,000,000); the Fenway Urban Renewal Project, ($14,000,000), and the Columbia Point Project ($2,000,000). Universal was also commissioned by the Commonwealth of Massachusetts Department of Public Works to provide engineering services for the Huntington Avenue Urban Systems Project in 1982 ($13,000,000).

Our successful relationships with the Boston Redevelopment Authority, the MDPW and various city and town agencies have been under the direction of Mr. J. Preston LeBlanc, P.E., Senior Vice President of Universal who will be principal-in-charge on the Project.

Mr. LeBlanc has been in responsible charge of Universal's consulting engineering work for urban streetscape and highway projects since 1960. He is thoroughly experienced with the City of Boston Public Works, Public Improvement Commission and BRA procedures and specifications.

Our engineering staff is noted not only for its engineering capabilities but also for its sensitivity to community and business oriented design issues. We place special emphasis on communication and cooperation with all responsible parties involved in any project. Our study and design approach will be oriented towards maximum cost-effectiveness for the services we provide.

We appreciate this opportunity to present our qualifications and will be pleased to provide a detailed proposal should you select our firm to provide engineering design services.

Very truly yours,

UNIVERSAL ENGINEERING CORPORATION

J. Preston LeBlanc, P.E.
Senior Vice President

JPL:mjn
#0107.673-Q

UNIVERSAL

URBAN RENEWAL

QUALIFICATIONS

ST. BOTOLPH STREET
BOSTON REDEVELOPMENT AUTHORITY

SUMMARY

Our Firm

Universal Engineering is uniquely qualified to provide consultant services to the Authority on this project due to:

- a successful record of accomplishments on projects of similar size and diameter with the Authority.
- familiarity with the sensitivity of the project setting, having been located in downtown Boston for over 35 years.
- an adequate staff in our Boston office who have extensive experience on numerous BRA projects.
- a proven track record of accomplishing the Authority's goals within time and budget.
- sensitivity to the City's Affirmative Action Program.

Similar Projects

As engineering consultants to the Boston Redevelopment Authority on the FENWAY URBAN RENEWAL project, Universal prepared master planning for over 67 streets including St. Botolph St.

The PARK PLAZA URBAN RENEWAL project involved the urban street reconstruction, streetscape work, sidewalks, landscaping, street lighting, pedestrian circulation and traffic signalization.

The COLUMBIA POINT URBAN RENEWAL project includes urban street reconstruction, streetscape work, sidewalks, landscaping, street lighting, and pedestrian circulation.

The ST. BOTOLPH STREET ELDERLY HOUSING PROJECT involved the full range of engineering from planning to final design and resident engineering. The project encompassed the same street amenities as the current project.

Key Personnel

Our Civil/Transportation Department is presently comprised of eight engineers and drafters, all with extensive experience in urban revitilization projects. Our Chief Civil Engineer, Mr. J. Preston LeBlanc, is a Registered Professional Engineer and a Licensed Land Surveyor with over 30 years of experience in civil design and project management. Mr. LeBlanc has been with Universal Engineering since 1955.

Our Senior Civil Engineer assigned to this project is Mr. Robert Hall who has over 20 years of experience in Urban Development planning and design. Mr. Hall will act as Project Manager and assess all streetscape work.

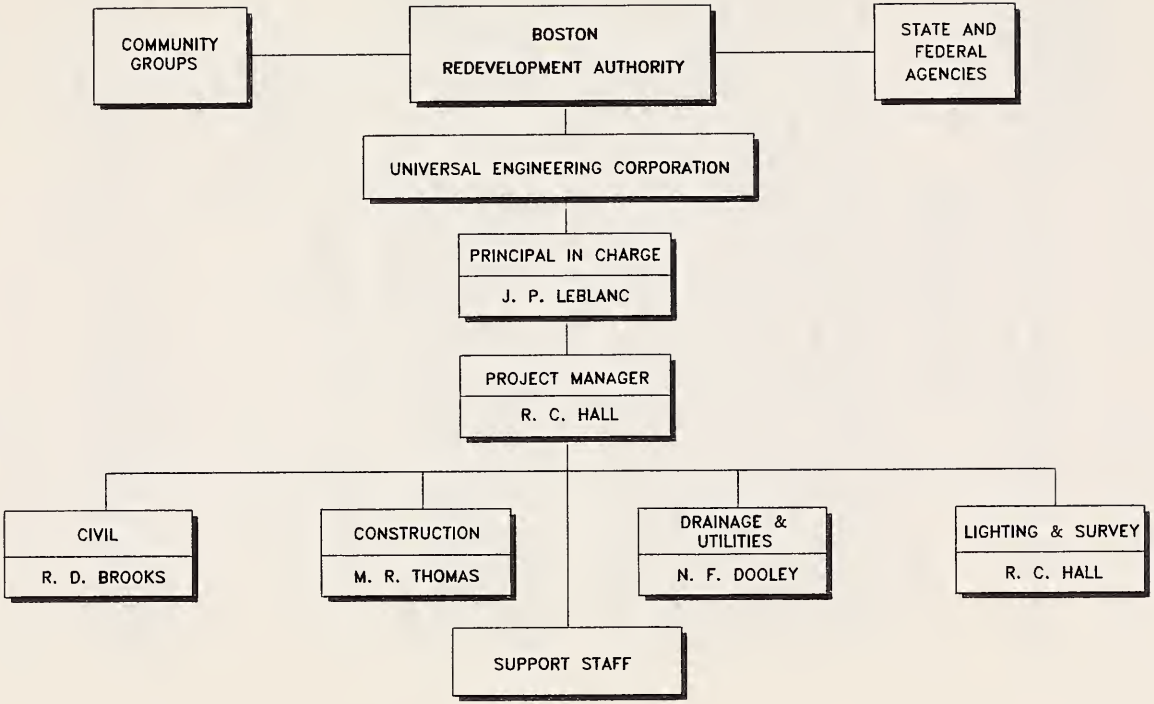
To assist Mr. Hall in the Urban planning and utility assessment effort will be Mr. Norman F. Dooley, P.E. and Mr. Robert D. Brooks, P.E., respectfully. Mr. Dooley is of particular note for his work with the Transportation Research Board on "Social Characteristics of Neighborhoods as Indications on the Effects of Highway Improvements".

The Construction Inspection/Resident Engineering Division is headed by Mr. Mark Thomas, P.E., who is also a Licensed Construction Superintendent in Massachusetts. Working under Mr. Thomas' direction, Mr. Edward Taylor will be assigned as resident engineer on the project. Mr. Taylor has extensive BRA resident engineering experience and is fully qualified to supervise field operations.

Computer Technology

Universal Engineering has continually strived to keep up with the latest advancements in computer technology today. Our office currently utilizes ten IBM compatible computers for engineering functions. We have four computer-aided design and drafting CAD Stations, which utilize the latest in 80386 computer chip advancements. Each CAD station has a full size plan digitizer and is networked into a Hewlett Packard 7585B plan plotter. We are able to produce full size contract drawings as each project dictates.

Our Traffic and Transportation software library utilizes the University of Florida McTrans Library of Software Programs, and we are able to customize almost any program to our clients needs.



673-BRA

PROJECT ORGANIZATION

Project Monitoring

The proposed project will be monitored, controlled, and documented using three standard management tools:

- o manhour utilization
- o project flow chart
- o correspondence/documentation database

Budgets for each technical discipline will be established as part of the proposal process. Those budgets will be refined and finalized during final contract negotiations. The utilization of budgeted manhours will be tracked weekly by the project manager, with formal monthly reports prepared for review by the Principal-in-Charge. These monthly reports are available for client review. The monthly report will include total hours expended to date by each engineering discipline and calculated percentage used of total budget. The project reports will include a short evaluation of the project progress with a projection of any project overrun or underrun, explanation for such, and plans for corrective activity to restore project to budget.

All pertinent information received during telephone conversations and meetings will be documented by memo and/or minutes of meeting. These documents in combination with all correspondence shall be logged into a computerized database management system. This system is intended to provide easy retrieval of important project information. Each document record shall include fields for:

- o type of correspondence: letter, telecon, memo
- o date of correspondence
- o initiator
- o receiver
- o primary issue
- o secondary issue
- o comment

A summary of project issues will be provided and expanded throughout the project. These issue listings will enable rapid file search for all pertinent correspondence that relates to specific issues.

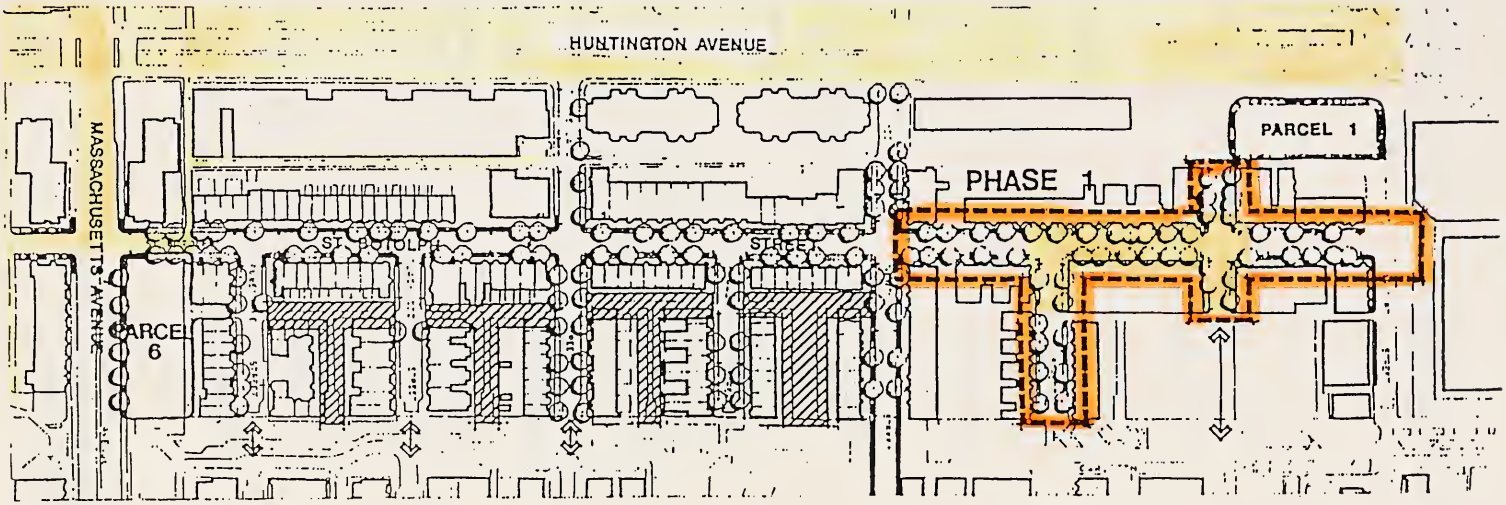
UNIVERSAL

URBAN RENEWAL

PROJECTS DESIGNED AND CONSTRUCTED UNDER UNIVERSAL'S SUPERVISION

ST. BOTOLPH STREET IMPROVEMENT PLAN

PROJECT AREA



BOSTON REDEVELOPMENT AUTHORITY

CONCEPTUAL PLAN

JANUARY 1988

ILLUSTRATION B

REFERENCES

Massachusetts Department of Public Works

Mr. Carl Cote Bridge R&R Projects Director	973-7875

Boston Redevelopment Authority

Mr. Wallace B. Orpin Director of Engineering	722-4300
Mr. John Tomasz Project Coordinator	722-4300

City of Boston, Massachusetts

Mr. Joseph F. Casazza, P.E. Commissioner, Public Works Department	725-4900

City of Newton, Massachusetts

Mr. Paul Giunta, P.E. City Engineer	552-7096
Mr. Juris Alksnitis Deputy Director of Community Development	552-7135

Town of Duxbury, Massachusetts

Mr. Gilbert Burns Engineering Assistant	934-6586
Mr. Abdulkader Hamadeh, P.E. Chairman, Bridge Committee	268-1560

Massachusetts Land Bank

Mr. Michael Schaaf Project Manager	727-8257

Narragansett Bay Commission, Rhode Island

Mr. Paul Pinault, P.E. Associate Director for Construction	401-277-6780

UNIVERSAL

URBAN RENEWAL

MINORITY EMPLOYMENT POLICY

Although our company has a staff of fewer than 100 employees, we are following a voluntary compliance program to respect and adhere to the provisions of the Civil Rights Act of 1964, the Equal Pay Act of 1963, the Equal Employment Act of 1972 and Executive Order #11246.

Our policy is to seek and employ, to upgrade, promote, train, and transfer the best qualified personnel in all departments and at all levels of employment, providing equal employment opportunity in a manner which will not discriminate against any individual because of race, color, creed, sex, age or national origin and to take affirmative action to insure equal employment opportunity without regard to race, color, creed, sex, age or national origin, in the treatment of all applicants and employees during their employment including, but not limited to, recruitment practices and employment advertising practices, rates of pay and other forms of compensation, layoff and termination practices, employee development, promotion, recreational programs and other policies and practices of the Corporation.

We have always supported the various laws covering employment of minorities, women, handicapped and older employees and have never discriminated against such categories in the handling of the recruiting, hiring, training, promoting or discharging activities.

As conditions may change and additions to the staff become more numerous, we incorporate procedures to insure that we are all continuing to practice an Affirmative Action Program. We have a company policy, supervisory knowledge of the policy, and current practices to attract and retain the classes under discussion. We have instituted periodic statistical summaries to indicate by job categories what the composition is among the various minority groups as a guide to the specified areas requiring special attention.

Aggressive action is encouraged on the part of all supervisory and staff personnel by means of discussions, notices, information on interviewing techniques and stressing the need for equal treatment.

ST. BOTOLPH STREET
BOSTON REDEVELOPMENT AUTHORITY

MINORITY EMPLOYMENT POLICY

As in the case of other engineering firms, recruitment presents the more difficult challenge because of the relatively small supply of experienced minority personnel. However, we have found in most cases that minority personnel prove their competence and have been promoted in both salary grade and level of responsibility but such individuals have occasionally left our employ for better paying opportunities in other companies and we are now striving to be more competitive in this respect.

We have found it advisable to hire minority personnel through specialized sub-contractors, when our own staff is inadequate. It is our intent to assign an appreciable amount of work to MBE consultants or suppliers. In addition, we are conscious of the need and desirability to hire inexpereineced minorities of all types to be trained for better to positions.

OUR ORGANIZATION

UNIVERSAL ENGINEERING CORPORATION was organized in May 1953 with offices in Boston, Massachusetts. Since then we have furnished consulting engineering services for federal, state, and local governments and private industry on projects of various types and sizes. These projects include:

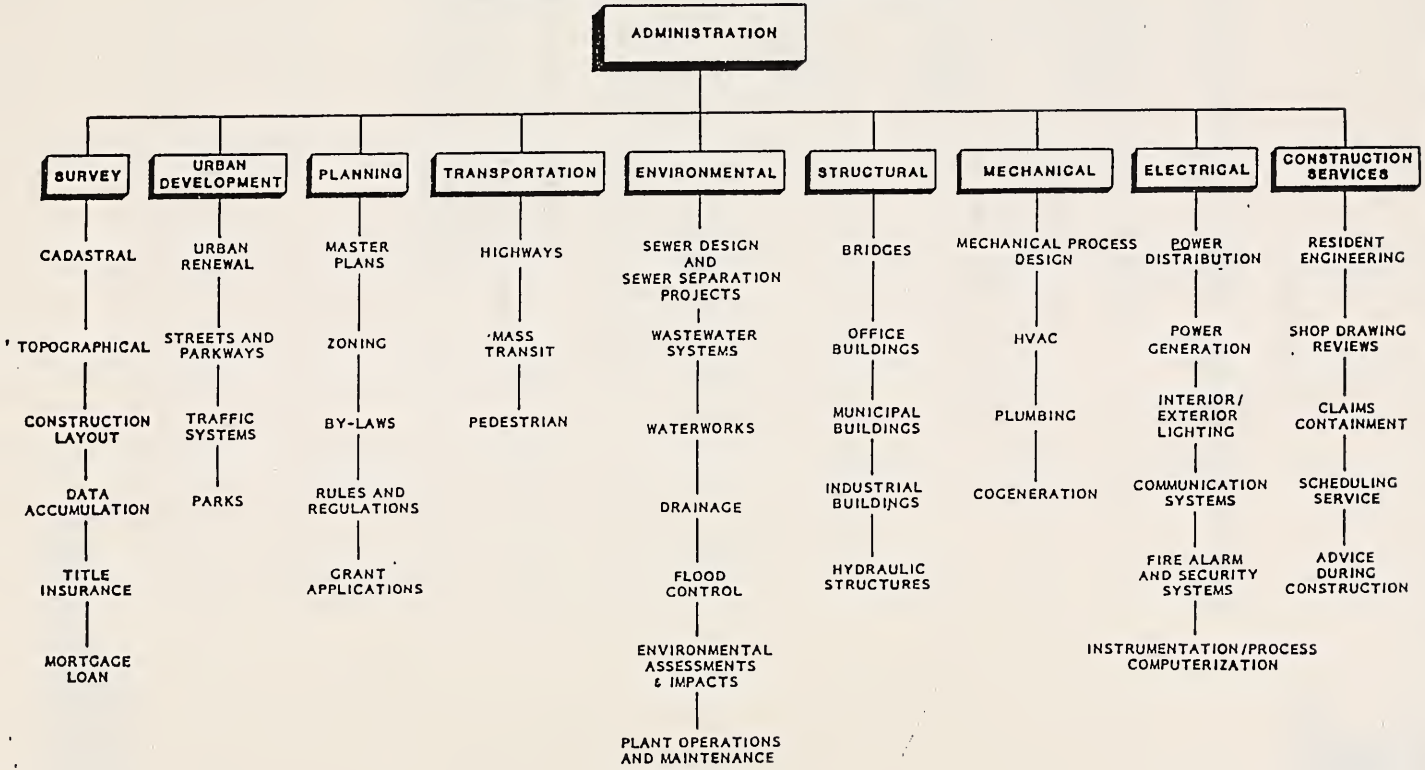
Urban Renewal	Sewerage Facilities
Municipal Utility Projects	Wastewater Treatment Facilities
Highways & Bridges	Waterworks
Waterfront Facilities	Drainage
Industrial Development	Flood and Erosion Control
Buildings and Structures	Environmental Studies
Demolition and Renovation	

The officers and key personnel of Universal Engineering Corporation are experienced engineers who have been in responsible charge of many large and difficult engineering projects. They are professionally qualified to carry on consultations, investigations, reports, and designs of uncommon and complex engineering problems.

Universal Engineering Corporation has undertaken projects of various sizes in New England and across the nation. The main office is at 100 Boylston Street, Boston, Massachusetts. We have affiliated offices in Charleston, South Carolina and Greenwood, South Carolina.

We are organized into six divisions including civil, structural, environmental, electrical, mechanical, and construction engineering. The firm is comprised of about 50 engineers, technicians, drafters and support personnel. Our professional staff includes civil, electrical, mechanical, sanitary and structural engineers as well as professional land surveyors. Technical support services include drafting, computer applications, in-house printing, and word processing.

UNIVERSAL ENGINEERING CORPORATION



PRINCIPALS

The officers and owners of Universal Engineering Corporation are as follows:

Stanley D. Elkerton, P.E., President
100 Boylston Street
Boston, MA 02116
Registered in: MA, IL, MN, RI, NY, CN

Thomas R. Parello, P.E., Senior Vice President
100 Boylston Street
Boston, MA 02116
Registered in: MA

J. Preston LeBlanc, P.E., P.L.S., Senior Vice President
100 Boylston Street
Boston, MA 02116
Registered in: MA, NH

Emmett I. Davis, P.E., Vice President
1319 Reynolds Street
Greenwood, S.C. 29648
Registered in: SC, GA, TN, AL, MS, KY

Additional officers include:

Mark R. Thomas, P.E., Vice President
Richard Buell, P.E., Associate
W. Peter Evans, P.E., Associate
P. Norrman Park, P.E., Associate

FIELDS OF COMPETENCE

UNIVERSAL ENGINEERING CORPORATION has applied its various services to many fields of development activities:

URBAN RENEWAL - Project and site improvements such as streets, sewers, drains, water mains, lighting, mass transit facilities, parks, and landscaping.

TRANSPORTATION _ Traffic forecasting, circulation studies, impact reports, traffic signal design, intersection and roadway safety improvement projects.

MUNICIPAL PLANNING - Comprehensive plans and general environmental and planning consulting to New England communities.

HIGHWAYS - City streets, bypass roads, reconstruction and upgrading State and Interstate highways including multiple use and joint development.

ENVIRONMENTAL REPORTS - Environmental Impact Statements (EIS), Environmental Assessment Statements (EAS), and Environmental Information Document (EID) preparation; development of local environmental management procedures.

DRAINAGE - Areawide drainage studies; structural and non-structural solutions to drainage, erosion, and sedimentation control problems.

WATERWORKS - Water system master plans; supply, transmission, storage, treatment, and distribution system designs and construction.

BRIDGES - Rehabilitation and reconstruction of existing bridges, design and construction of all types of fixed and moveable bridges. Bridge rating.

WATERFRONT FACILITIES - Development and redevelopment including piers, docks, bulkheads, breakwaters, utilities, and recreation facilities.

WASTEWATER - All requirements under the Clean Water Act; lateral and interceptor sewers, pumping stations and siphons; primary, secondary, and tertiary treatment facilities; sludge treatment and disposal.

FIELDS OF COMPETENCE

WASTEWATER TREATMENT PLANT OPERATIONS & MAINTENANCE - Cost recovery reports; value engineering studies; operations and maintenance advice; operational and technical design reviews; plant startup and operations; troubleshooting; training and advice for plant operators.

STRUCTURES - Space use alteration and renovation of educational, hospital, public facilities and court house structures. Structural investigations and repairs. Demolition design and site redesign.

INDUSTRIAL DEVELOPMENT - Industrial development studies; design and construction management of publicly and privately funded industrial parks including site development and structures.

ELECTRICAL - Power distribution and generation, indoor/outdoor lighting, telephone/intercom communication, fire alarm and security systems, energy conservation and management.

PROCESS INSTRUMENTATION AND COMPUTERIZATION - Control room design; distributed digital control systems; supervisory control systems; telemetering; control panel design; facilities support; data highway and networks design; uninterruptable power supply; primary instrumentation and metering.

SPECIAL PROBLEMS - Jet engine test cells and instrumentation; dam condition and rehabilitation studies; classified studies for U.S. Air Force.

MECHANICAL PROCESS - Energy management, audits and analysis in the following areas; buildings, production systems, fans, pumps, boilers, chillers, heat exchangers, fuel, piping, ducting, coding towers, waste heat recovery systems, incineration.

HVAC - Solar Energy, Energy Recovery Systems, air cleaning and odor control systems, vibration and noise control. Building and facilities services.

PLUMBING - Fire protection systems, boiler waste treatment systems, fuel storage and distributions systems. Building and facilities services.

TYPES OF SERVICES

UNIVERSAL ENGINEERING CORPORATION offers a wide range of engineering services from concept development, planning, and design through project financing methods and construction supervision.

STUDIES AND REPORTS - Comprehensive reporting of problem definition, alternative solutions, costs and recommendations for each planning, environmental, or engineering project. Included for larger projects are draft and preliminary reports for client review. Close liaison is maintained with the appropriate local, State, and Federal agencies.

DESIGN SERVICES - Preparation of concept, preliminary, and detailed design plans, specifications and cost estimates. On larger projects, progress submissions and periodic reviews are customarily made with the client to assure that the project output meets the client's requirements.

CONSTRUCTION SERVICES - Evaluation of contractors' estimates and shop drawings, construction inspection for workmanship, materials and conformance to plans. Construction progress reports are prepared for clients' authorization of payments to contractors.

PLANT OPERATIONS AND MAINTENANCE - Preparation of detailed operation and maintenance manuals for water and wastewater treatment facilities. Also, facilities start-up, training, and operations advice for optimum performance.

FINANCING METHODS - Grant application, processing and administration, cost allocation and recovery systems, rate studies to operate facilities on a paying basis.

SPECIAL SERVICES - Expert testimony on behalf of a client; field testing of facilities operation, such as fire flow tests, infiltration and inflow tests; planning, environmental and engineering field services.

OUR APPROACH

UNIVERSAL ENGINEERING CORPORATION practices multidisciplinary application of civil, structural, and environmental design principles. Each project team is carefully selected, and may draw upon the complete range of expertise within the overall corporation as necessary to meet specific project requirements. Engineers, planners, designers, and technical specialists from more than one specialty engineer each project so that a broad spectrum of design and application expertise is represented.

The engineering staff is well balanced. Experience ranges from engineers of a few years to veteran engineers of more than thirty years experience, and Universal Engineering Corporation has become recognized for designs that are both innovative and cost-effective for our clients.

Our approach to each project involves:

1) becoming familiar with the client's specific needs and analyzing the project at hand;

2) formulating the project team and detailing individual as well as study and design task assignments;

3) establishing and maintaining coordination procedures with the client and funding or regulatory agency;

4) developing and presenting preliminary findings and alternatives to in-house design juries;

5) refining and reducing or expanding the findings and alternatives, as the case may be, for client and agency review;

6) incorporating feedback from the various review steps into the study or design process;

7) preparing and presenting recommendations and final designs for client and agency approval;

8) detailing steps for implementation of the measures recommended.

UNIVERSAL URBAN RENEWAL

REPRESENTATIVE LIST OF CLIENTS

FEDERAL GOVERNMENT:

Department of the Air Force
Department of the Navy
Corps of Engineers
General Services Administration

AUTHORITIES:

Boston Public Works Department
Boston Redevelopment Authority
Massachusetts Port Authority
Massachusetts Turnpike Authority
Lowell City Development Authority
Narragansett Bay Water Quality Management District Commission (Rhode Island)

STATE AGENCIES:

Massachusetts Department of Capital Planning and Operation
Massachusetts Department of Public Works
Massachusetts Department of Community Affairs
Massachusetts National Guard
Massachusetts Board of Regents
Massachusetts Government Land Bank
New Hampshire Department of Public Works and Highways

COMMUNITIES:

Massachusetts

Acton	Hampden	Southborough
Athol	Hanover	Stow
Berlin	Hanson	Sudbury
Bolton	Hudson	Topsfield
Boston	Lowell	Upton
Boxborough	Lunenburg	Wenham
Burlington	Marlborough	West Newberry
Chicopee	Maynard	Weymouth
Danvers	Needham	Whitman
Duxbury	Newton	Williamsburg
East Bridgewater	North Reading	Williamstown
Fall River	Princeton	Wilmington
Freetown	Quincy	Worcester
Georgetown	Reading	
Gloucester	Rowley	
Grafton	Sharon	

Rhode Island

Cranston
Narragansett Bay Commission

Vermont

Burlington

PRIVATE AND INSTITUTIONAL:

Boston & Maine Railroad, Boston, MA
Boston Mutual Life Company, Canton, MA
David Nassif Associates, Washington, DC
David Nassif Company, Boston, MA
Digital Equipment Corporation, Marlborough, MA
Flatley Corporation
General Electric Company, Lynn and Everett, MA
George B.H. Macomber Company, Boston, MA
Great American Insurance Company, Boston, MA
Harvard University, Cambridge, MA
Lewis and Zimmerman Assoc., Rockville, MD
Mark Development Corporation
Marshall Kaplan, Gans and Kahn, San Francisco, CA
Massachusetts Federation of Planning Boards, Braintree, MA
Metcalf & Eddy, Inc., Boston, MA
New Haven Railroad, Boston, MA
St. George's Syrian Orthodox Church, Boston, MA
St. Mary's Orthodox Catholic Church, Boston, MA
Suffolk Properties, Fairfax, VA
The Rouse Company, Columbia, MD
Unicorn Park Corporation, Woburn, MA

J. PRESTON LEBLANC, P.E., P.L.S.
SENIOR VICE PRESIDENT
CIVIL ENGINEERING

EDUCATION:
Cornell University
Northeastern University, A.S.C.E.

PROFESSIONAL REGISTRATIONS:
Registered Professional Engineer: Massachusetts and New Hampshire
Professional Land Surveyor, Massachusetts

PROFESSIONAL AFFILIATIONS:
American and Boston Societies of Civil Engineers
National and Massachusetts Societies of Professional Engineers
Eastern Massachusetts Association of Land Surveyors Incorporated
American Congress on Surveying and Mapping

PROFESSIONAL EXPERIENCE:
Mr. LeBlanc has been with Universal Engineering since 1955. He has been responsible for the plans, studies and design of many major highway projects for the Massachusetts Department of Public Works, the State of New Hampshire and the Massachusetts Turnpike Authority. He has also been responsible for other types of projects such as commercial and industrial site development in Marlborough, Woburn and Newton, Massachusetts; Urban Renewal Street Systems for the Boston Redevelopment Authority as well as park and playground rehabilitation and development in Boston. As Senior Vice President for Civil Engineering, his duties include departmental administration, preparation of proposals and contracts and client liaison.

Most recent Highway design projects under his supervision include Route 1 in Revere, Malden and Saugus, Massachusetts; Route 146 in Uxbridge and Millville, Massachusetts; Reconstructed Route I-290 from Auburn to Marlborough, Massachusetts; Routes I-290 and I-190 Interchange in Worcester, Massachusetts; Route I-190 from Sterling to Leominster, Massachusetts; Route 2 in Arlington and Belmont, Massachusetts; and Urban Renewal Street System Projects under his supervision include Fenway and Park Plaza in Boston and Columbia Point in Dorchester, Massachusetts.

ROBERT C. HALL
SENIOR CIVIL ENGINEER

EDUCATION:
Wentworth Institute, A.S.C.E.

PROFESSIONAL EXPERIENCE:
Mr. Hall has been with Universal Engineering since 1969 and has over 21 years of professional experience in the study, design and supervision of municipal projects, city streets improvements, urban renewal projects, public and private developments, street and highway lighting, utilities, drainage and site development.

Mr. Hall specializes in utility investigation, design and coordination. He maintains up-to-date files and is familiar with street drainage, sewer, water, street lighting, gas, steam, electric, telephone, fire alarm/police and cable systems.

Selected projects in which Mr. Hall has been involved are:

The Fenway, Columbia Point and Park Plaza Urban Renewal Project for the City of Boston BRA.

City of Quincy - Neighborhood Public Works Improvement Project - report and recommendations for improvements to 40 streets.

City of Gloucester, Community Development Department, Right-of-Way Improvement Program - report and recommendations for improvements to 90 streets.

Huntington Avenue, Southeast Expressway, Northeast Expressway, East Boston Expressway and Fitzgerald Expressway in Boston; Route I-290, Worcester, Massachusetts; and Route 146, Uxbridge, Massachusetts - lighting design, contract documents and specifications.

Route I-190, Sterling to Lancaster, Massachusetts - preliminary highway design and specifications.

ROBERT D. BROOKS, P.E.
SENIOR CIVIL ENGINEER

EDUCATION:
Northeastern University, B.S.C.E.

PROFESSIONAL REGISTRATION:
Connecticut

PROFESSIONAL AFFILIATIONS:
Institute of Transportation Engineers - Member
University of Florida (Mctrans)
Transportation Research Center - Member

PROFESSIONAL EXPERIENCE:
Mr. Brooks has over eighteen years professional experience in urban transportation planning and design. His expertise covers urban street systems, streetscape, design, traffic and parking assessments, pedestrian circulation, site development work, and rapid transit planning and design. He has been a resident engineer on numerous construction projects.

Mr. Brooks is currently Project Manager on the Columbia Point Redevelopment Project for the Boston Redevelopment Authority. The project involves the redesign of two major signalized intersections adjacent to the Bayside Exposition Center and full depth street reconstruction with all landscape amenities for 3200 linear feet of Mt. Vernon Street.

Mr. Brooks has been involved with the BRA on the re-alignment of Summer Street, the South Station Bus Terminal, Dorchester Ave. Street Reconstruction and the South Station Transportation Center.

Mr. Brooks has also designed numerous small intersection improvement projects, most recently the School St./Main St. intersection in Lowell, the Langley Rd./Boylston St. (Rte. 9) intersection in Newton and the Beacon St./Somerville Ave. intersection in Somerville.

NORMAN F. DOOLEY, P.E.
SENIOR CIVIL ENGINEER

EDUCATION:
Franklin Technical Institute, Mechanical Engineering Certificate

PROFESSIONAL REGISTRATION:
Maine and New Hampshire

PROFESSIONAL AFFILIATION
Transportation Research Board

PROFESSIONAL EXPERIENCE:
Mr. Dooley has been with Universal Engineering Corporation since 1966. In this time he has been a Project Engineer and Planner on many major projects. The most recent projects in which he served in these capacities are: Columbia Point Urban Renewal Project, the Fenway Urban Renewal Project, the reconstruction of Huntington Avenue, a major arterial highway and streetcar corridor in Boston, Massachusetts; the reconstruction of the East Boston Expressway; and a bridge deck replacement and traffic management study for the East Boston Expressway, the Northeast Expressway, the Fitzgerald Expressway, and the Southeast Expressway. Additional projects include Route 111, Nashua/Hudson, New Hampshire; Circumferential Highway, Nashua/Hudson, New Hampshire; Basic Design Study - Route 2, Belmont/ Arlington/Cambridge, Massachusetts; Basic Design Study, Route 9, Worcester-Shrewsbury, Massachusetts; and Route 190, Sterling/Lancaster/ Leominster, Massachusetts.

Mr. Dooley was also responsible for the civil engineering aspects of a U.S. Department of Transportation research project entitled "Social Characteristics of Neighborhoods as Indicators of the Effects of Highway Improvement", and the planning of an 800-acre residential/light industry site in Cranston, Rhode Island.

MARK R. THOMAS, P.E.
VICE PRESIDENT
CONSTRUCTION SERVICES

EDUCATION:
Northeastern University, Graduate School of Engineering
Norwich University, B.S.C.E.

PROFESSIONAL REGISTRATIONS:
Rhode Island, Maine
Licensed Construction Superintendent, Massachusetts

PROFESSIONAL EXPERIENCE:
Mr. Thomas is Chief of the Construction Division at Universal Engineering Corporation and is responsible for overseeing all of Universal's field operations. His duties include providing the lead in bidability/buildability reviews; supervising field office operation, procedures and standards; and providing expert advice in construction matters. Mr. Thomas has also served as Resident Engineer for the construction of the $35 million Field's Point Wastewater Treatment Facility improvements, since joining Universal Engineering in 1982.

Previously, Mr. Thomas was employed by Metcalf and Eddy, Inc., where his experience included the following: a resident representative on four water main reconstruction projects for the Boston Water and Sewer Commission which included the preparation of a construction manual; resident representative on various sewer and pump station projects in Massachusetts, Rhode Island, Connecticut, and New York; a resident representative for the construction of a water pollution control facility in Scituate, Massachusetts; a resident representative on multiple projects in Warren, Rhode Island; an engineer on the design of a wastewater force main, pressure sewer, and subaqueous harbor crossing for Marblehead, Massachusetts; and an engineer on various tasks including writing and editing contract specifications, performing engineers' construction estimates, and working on miscellaneous engineering reports.

EDWARD F. TAYLOR
CONSTRUCTION INSPECTOR

PROFESSIONAL EXPERIENCE:
For the Boston Redevelopment Authority, Mr. Taylor was resident inspector for the cement relining of the existing water lines in the Fenway Area on Massachusetts Avenue, Haviland Street, and Boylston Street, and along Huntington Avenue in Roxbury from Northeastern University west to just beyond Brigham Circle. Most recently for the BRA, Mr. Taylor was resident engineer on the Massachusetts Avenue sidewalk reconstruction project.

As a construction inspector, Mr. Taylor was responsible for the reinforcing placement in approach slabs, bridge abutments, piers, decks, and roadways at the Neponset River Bridge in Quincy and Boston, Massachusetts.

As a resident inspector, Mr. Taylor was responsible for the layout and installation of the 8" water, 12" V.C. sewer, and the 24" storm drain lines at the Walden Square Project (low income and elderly high-rise apartments) in Cambridge. He was involved in the finishing of a sewer line project in the Woodland Section of the City of Cranston, Rhode Island; the layout of a 10" transit sewer line on Montvale Avenue in Woburn, Massachusetts, from the Abergona River east to the entrance to the Unicorn Industrial Park; and the layout and grading of the drainage, water, and sewer lines in the park starting from Montvale Avenue.

For the Town of Stoughton, Massachusetts, Mr. Taylor was responsible for the inspection of the layout and grading of sewer lines, for ledge and trench computations along the sewer lines for the monthly requisitions.

ST. GERMAIN STREET
BOSTON, MASSACHUSETTS

Saint Germain Street is a small portion of the Boston Redevelopment Authority's Fenway Urban Renewal Project. The street design was developed to blend with the rehabilitated brick townhouses in order to depict a Gay Nineties atmosphere. The project consisted of the complete reconstruction of the roadway, installation of a water system, a drainage system, brick sidewalks, trees and electrified gas lamps.

The water system improvements called for construction of a new 12-inch watermain, replacement of individual service lines, pressure testing, and line disinfection. Universal Engineering has been involved in the replacement, cleaning, and cement relining of watermains which are up to 100 years old and which have ranged in size from 8 to 42 inches in diameter as part of the ongoing consulting services which we provide to the Boston Redevelopment Authority.

Universal Engineering provided a full range of services for the Saint Germain Street Project, from surveying and design through construction supervision.

UNIVERSAL

URBAN RENEWAL

FENWAY URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

Client Boston Redevelopment Authority

References: Mr. Stephen F. Coyle, Director
Mr. Wallace B. Orpin, Director of Engineering

The Fenway Project encompasses 530 acres in the Back Bay and Fens area of the City of Boston. Universal Engineering has served as engineering consultant to the Boston Redevelopment Authority for this project since its beginning. We have provided a full range of engineering services including: master plan studies, project budgets, planning, preliminary design, engineering design, preparation of construction contract documents, property and street widening surveys and plans, construction contracts, resident engineering and administration.

The work also includes review and coordination of developers' plans with the Urban Renewal Plan and coordination of project improvement requirements with the appropriate city, state and federal agencies.

The total project improvement budget is $14,000,000. Project improvements consist of street construction, street and park lighting, water distribution systems, sanitary sewer and storm drain systems, parks and traffic signal control. The following streets in the Fenway Area has been reviewed by Universal Engineering over the years.

Agassiz Rd.	Forsyth Park
Autumn St.	Forsyth Way
Avenue Louis Pasteur	Gainsborough St.
Belvidere St.	Haviland St.
Binney St.	Hemenway St.
Boylston St.	Huntington Ave.
Brookline Ave.	Ipswich St.
Burbank St.	Longwood Ave.
Cumberland St.	Mass. Ave.
Dalton St.	Norway St.
Deaconess Rd.	Opera Place
Edgar St.	Palace Rd.
Edgerly Rd.	Parker St.

ST. BOTOLPH STREET
BOSTON REDEVELOPMENT AUTHORITY

FENWAY URBAN RENEWAL PROJECT (Continued)

The list of streets which Universal Engineering has reviewed under the Fenway Urban Renewal Project.

Pilgrim Rd.	Ruggles St.
Public Alley No.	St. Botolph St.
807	St. Cecilia St.
809	St. Stephen St.
810	Scotia St.
811	Short St.
816	Stoneholm St.
817	Symphony Rd.
818	Vacouver St.
819	Westland Ave.
820	
821	
822	
823	
901	
903	
904	
907	
401	
402	
403	
404	
405	

SAINT BOTOLPH STREET ELDERLY HOUSING PROJECT
BOSTON, MASSACHUSETTS

Client: Boston Redevelopment Authority

References: Mr. Stephen F. Coyle, Director
Mr. Wallace B. Orpin, Director of Engineering

The Saint Botolph Street Elderly Housing Project encompassed one City block in the Back Bay of Boston.

Universal Engineering provided a full range of planning and engineering services for this project which included property line, topographical and detail field surveys and plans, master planning studies, landtaking and street layout plans, preliminary and final design for street and utility construction, preparation of bid documents and resident engineering inspection.

The total construction cost was approximately $200,000.

CENTER CITY PEDESTRIANWAY
CITY DEVELOPMENT AUTHORITY
LOWELL, MASSACHUSETTS

Client: City Development Authority, Lowell, Massachusetts

References: Mr. James F. Silk, Executive Administrator
Mr. Frank Keefe, Project Coordinator

The Center City Pedestrianway encompassed the central business area. We provided a full range of engineering services including store front aesthetics, preliminary and final design for reconstructing sidewalks, construction bid documents and administration and construction inspection.

HUNTINGTON AVENUE
URBAN SYSTEMS PROJECT
BOSTON, MASSACHUSETTS

Client: Massachusetts Department of Public Works

Reference: Mr. Robert H. Johnson, Chief Engineer

The Huntington Avenue Urban Systems project in Boston is an unusual project for its variety of planning/architectural/engineering aspects involving an urban systems roadway, an MBTA trolley line, and a subway station kiosk. Huntington Avenue is the principal transportation artery serving the medical-educational-cultural section of Boston. The project extends for 1.6 miles from Fenwood Road near Brigham Circle, northeasterly to the Massachusetts Turnpike at Prudential Center. The Avenue had an unusually high frequency of accidents and was regularly congested with traffic during commuting hours.

During the project study and design stages the public participated in the design process through a two part formal public hearing, informational meetings held in the neighborhood, and a design advisory group made up of representatives from such diverse organizations as the Museum of Fine Arts, Northeastern University, Harvard University, Boston Symphony Hall, Horticultural Hall, Prudential Center, and the St. Botolph Citizen's Committee. The general tone of this interaction was one of mutual assistance and cooperation.

The project was divided into two construction contracts. The first contract from Prudential Center to Northeastern University was completed in 1978. The second construction contract was completed in 1982.

Key elements of the project include:

- The roadway was widened on each side of a widened Massachusetts Bay Transportation Authority Reservation which varies in width from 25 to 40 feet. Sidewalks were widened to 12 feet where space permitted.

- Reconstructed and widened surface trolley station passenger platforms were provided with passenger shelters, seating areas, lighting and signing,

thus offering a safe, convenient and attractive refuge for the transit patron. Station platforms are designed to accommodate the new Light Rail Vehicles.

- Synchronized interconnected traffic signals were installed at 14 local cross-street intersections along Huntington Avenue. The signal system was designed for future control by the City's traffic responsive computer located at City Hall.

- Signalized pedestrian crossings were installed at all signalized intersections. Pedestrian crossings from one sidewalk to the other and to MBTA platforms is enhanced by reduced vehicular/pedestrian interference. There is also a reduction in the number of trolley stops. The improvements have provided a faster and safer street car operation.

- The inbound MBTA trolley track near Northeastern University was relocated to within the median. It was located on the inbound roadway.

- The bridge at Massachusetts Avenue was widened, providing greater intersection capacity and safety and more effective U-turn lanes.

- At the Prudential Center Subway Station, a new kiosk, stairway and escalator has been constructed in front of the Colonnade Hotel for replacement of the existing southerly kiosk which was removed to allow for the street widening.

- New architectural style street lights were installed throughout the length of the project.

- Trees (4" to 6" caliper) were planted in sidewalk areas and elsewhere as space permitted.

This project has required an unusually high degree of coordination by our staff with public agencies and departments, major institutions, private property owners, businessmen and private utility companies. In sum, it constitutes one of the most complex, challenging and interested assignments our firm has accomplished.

The project construction cost was approximately $13,000,000.

COLUMBIA POINT URBAN RENEWAL PROJECT
BOSTON REDEVELOPMENT AUTHORITY

Client: Boston Redevelopment Authority

References: Mr. Stephen F. Coyle, Director
Mr. Wallace B. Orpin, Director of Engineering

Universal Engineering is general consultant to the Boston Redevelopment Authority (BRA) on the Columbia Point Redevelopment Project. The project area encompasses about 350 acres of land in the Dorchester area of Boston. Under a 20 million dollar U-DAG Grant, Universal is required to provide master plan studies, capital improvement budgets, field survey, traffic and parking assessments, bus route planning, pedestrian circulation, property investigation, recreational space utilization, landscape analysis and shoreline protection.

Upon approval of the master plan, preliminary and final plans for construction will be prepared including roadway reconstruction, traffic signalization, informational signing, streetscape treatment, utility relocations, landscaping, shoreline improvements and park design.

Special emphasis is directed toward creating a new atmosphere for the Columbia Point Penninsula.

The Coordination effect is monumental with input for the Columbia Point Community adjoining communities, state agencies, such as the MDC, DEM, MBTA, BW&SC, University of Massachusetts, etc. and for the local residents which includes the JFK Library, State Archives Building, U-Mass. Boston Campus, Bayside Expo Center, Boston College High School, Bank of Boston Computer Center, St. Christopher's Church Complex, the Dever Grammar School, the McCormack Middle School, the Boston Globe, Channel 56 and the other industries located on the point.

PARK PLAZA PROJECT
BOSTON, MASSACHUSETTS

Client: Boston Redevelopment Authority

References: Mr. Stephen F. Coyle, Director
Mr. Wallace B. Orpin, Director of Engineering

The Park Plaza Project encompasses 35 acres adjacent to the Back Bay, the Public Garden, the Boston Common and the Downtown Theater District and is contiguous with the Downtown Central Business District.

Park Plaza is a major element in the City's plan for revitalization of the Downtown Central Business District and Downtown Theater District.

The project included the construction of a $60 million Massachusetts Transportation Headquarters Building which houses all State transportation agencies, as well as public plazas, auto restricted zones, an outdoor performance shelter, high rise commercial buildings, hotels and parking garages.

Current parts of this project include the relocation of existing roadways and utilities; the major detouring of traffic around construction; and inspection testing and evaluation of existing sewer, drain, and water systems.

Vehicular and pedestrian flow evaluations are being made to provide for a more efficient movement throughout the project area. Street lighting and landscaping are a major part of the improvements within the project together with improvements to streets, water, sanitary, traffic control and public open space areas.

The work also includes close coordination with citizen advisory and preservation committees, developers and appropriate City, State and Federal agencies.

The total project improvement budget is $8,000,000.

RIGHT OF WAY IMPROVEMENT PROGRAM
CITY OF GLOUCESTER, MASSACHUSETTS

Client: City of Gloucester, Community Development Department

Reference: Mr. John A. Destino. Executive Director

The City of Gloucester Community Development Department retained Universal Engineering Corporation as consultants to prepare a Right-of-Way Improvement Program Report for 90 streets within the City. Out of this report various streets and intersections were designated for reconstruction in order of need.

Universal Engineering developed a database which classified each roadway, listed existing information on length, ROW width, and utility breakdown, and documented ownership whether public or private.

The proposed improvement work included complete reconstruction of streets and sidewalks, installation of new water mains and rehabilitation of drainage systems. All work was broken down into categories with associated costs and all streets were prioritized as to need.

A sample breakdown is shown on the following page.

PREPARED BY:
UNIVERSAL ENGINEERING CORP.
BOSTON, MASS.

RIGHT OF WAY IMPROVEMENT PROGRAM
COST SUMMARY

PREPARED FOR:
CITY OF GLOUCESTER
COMMUNITY DEVELOPMENT DEPARTMENT

STREET NAME	ROADWAY CLASS.			EXISTING DATA							COST IN THOUSANDS			TOTAL ESTIMATED IMPROVEMENT COST IN THOUSANDS FOR PUBLIC STREETS					TOTAL ESTIMATED IMPROVEMENT COST IN THOUSANDS FOR PRIVATE STREETS			REMARKS
	LOCAL	COLLECTOR	DEAD END	PUBLIC	PRIVATE	ROADWAY LENGTH	R.O.W. WIDTH	WATER	DRAIN	SEWER	ROADWAY WORK	SEWER & DRAINAGE WORK	WATER WORK	PRIORITY 1	PRIORITY 2	PRIORITY 3	PRIORITY 4	PRIORITY 5	PRIORITY *3	PRIORITY 4	PRIORITY 5	
SMITH ST.	X			X		240	33	X	X	X	4	-	-				4					
SPRINGFIELD ST.	X			X		415	40	X	X	X	18	18	-					36				
STANLEY CT.			X	X		300	15	X		X	12	13	14					41				
STATEN ST.	X			X		290	24	X	X	X	8	-	-				8					
TAYLOR ST.	X			X		1375	33-40	X	X	X	85	-	38					123				
TRASK ST.	X		X	X		1170	40	X	X	X	70	28	32		45			130				
WASHINGTON SQ.	X			X		850	30	X	X	X	47	-	70				63					
WASHINGTON ST.-100 FT BOTH SIDES OF WHITTEMORE		X		X		250	40-60	X	X	X	24	5	-		29							
WASHINGTON ST. - 100 FT BOTH SIDES OF CENTENNIAL		X		X		250	50-60	X	X	X	24	5	-		29							
WASHINGTON ST. MIDDLE TO MAIN		X		X		275	50	X	X	X	21	5	-		26							
WESTERN AVENUE		X		X		1333	50	X	X	X	226	-	-		226							From the Bridge to "The Tavern"
WHITTEMORE ST.	X			X		1300	33	X		X	21	83	-			86						
WILLOW ST.	X			X		375	30-40	X	X	X	32	-	27					79				
Sheet Total											608	141	131	-	310	86	75	408	-	-	-	
GRAND TOTAL											3803	1812	1863	321	1947	515	1704	1743	-	497	551	

* PRIORITY 1,2,3 - NOT APPLICABLE

WOBURN STREET BYPASS
WILMINGTON, MASSACHUSETTS

Client: Wilmington Planning Board

Reference: Arthur Harding, Chairman

The developing industrial district in the southeastern quadrant of the Town of Wilmington adjacent to Interstate Route 93 and straddling a Boston and Maine Railroad freight line was adding to the traffic congestion on Woburn Street, a major local street. The Planning Board had studied the need for a bypass route and found it to be evident. The report prepared by Universal Engineering examined a 914 acre area of mostly industrial and industrial zoned land and furnished the Board with a basic design and layout, traffic data, soils, hydrology and drainage investigations, and identified possible environmental impacts. Land acquisition and final design were to be subsequent steps in this particular project.

NEIGHBORHOOD PUBLIC WORKS IMPROVEMENTS
QUINCY, MASSACHUSETTS

Client: City of Quincy

Reference: Paul N. Anderson, Commissioner of Public Works

The Neighborhood Public Works Improvement Project consisted of field condition investigation and report on some 40 streets within various sections of Quincy. Also, engineering design services were provided for 30 of the 40 streets, which included contract documents and periodic field inspection.

The project construction cost was about $230,000.

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