

**DOWNTOWN BUSINESS LEADERSHIP AND THE DEPRESSION
OF THE CENTRAL ARTERY**

by

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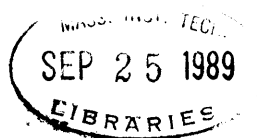
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ABSTRACT

This paper will address the potential impacts of the Central Artery depression to downtown Boston in broad terms. My objective is to explore selected mechanisms and strategies utilized by local business leadership in advocating for the protection of business interests over the life of this project.

As planning for the project continues, construction is not likely to begin until late 1990-early 1991. A conclusive evaluation of the effectiveness of business leadership is only possible some years in the future, as artery-related development is completed and design and technology choices are tested. However, an interim evaluation of tactical methods employed by the business community may illuminate the role assumed by key players in defending their interests and identify important benefits or weaknesses brought to the project by their involvement.

The Central Artery/Third Harbor Tunnel has been extensively covered in the local press. A review of this coverage since 1986 was supplemented by interviews with representatives of the Project Team, Chamber of Commerce and Artery Business Committee, as well as a review of minutes from DPW-sponsored Community Meetings. The Environmental Impact Study, 1985 and the Supplemental Environmental Impact Study, 1989, compiled by the Executive Office of Transportation and Construction in fulfillment of Federal funding requirements was the main source of project-related facts.

This research indicated that the participation of the business community is critical to public acceptance of a major public works project of this type. Business leadership results in a better informed business community as well as public audience and provides a forum for the evaluation of the spectrum of public and private perspectives. It also indicates that public interests aided by business involvement are those related to construction mitigation while those related to project design and land planning are often in conflict with positions supported by the business community.

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CHAPTER ONE
WHY DEPRESS THE ARTERY?

TRAFFIC LOAD AND ACCIDENT RATE

Boston's Central Artery is the North and South gateway into the downtown retail and financial district. The Central Artery was built in the 50's to carry 75,000 vehicles per day. It currently carries over 190,000 vehicles per day. It's design flaws and congestion are responsible for an accident rate 2 1/2 times the national highway average. By 1999, planners project 14 hours of gridlock per day as the highway struggles to serve the increasing volume.¹

Projections of traffic increases 20 years from now reinforce the urgent need for increased capacity. The following projections were made public by Bechtel-Parsons Brinkerhoff, consultants managing the design and construction of the Central Artery/Third Harbor Tunnel project. Daily traffic on the Massachusetts Turnpike extension will increase from 86,000 to 109,500, on the downtown section of the Central Artery from 183,320 to 187,200 and on Interstate 93 north of the Central Artery from 117,000 to 153,700. The number of car trips per day into the financial district/downtown area is expected to grow 42 percent by the year 2010.²

ECONOMIC IMPACT

Megaprojects planned for the City in the 1990s such as Boston Crossing, the Fan Pier, the cleanup of the Boston Harbor, and phase two of International Place have reinforced the feeling that the downtown may be unable to accommodate future economic development because of the increased load of workers and shoppers these projects would introduce. Current projects, at or near completion, are expected to deliver much more vehicular and pedestrian traffic to the downtown as they lease up. Without adequate transportation infrastructure, growth may be redirected to suburban locations where competitive space, parking facilities and road networks are already in place.

The price to be paid for assuring that future growth may be accommodated downtown is a 2.6 to 5 percent drop in retail business, largely due to people limiting travel to downtown during construction. Also, an estimated 131 businesses employing 4,400 people will have to relocate. However, the construction is expected to create 7,700 jobs over the 10 year period and generate in excess of \$4 billion worth of economic benefits.³

PROPOSED SOLUTION

The new highway will double existing north-south capacity through the city. It will take the form of an underground, eight to ten lane expressway carrying regional traffic, and six lanes of surface highway carrying local traffic between North and South stations. Construction of the underground highway is to be

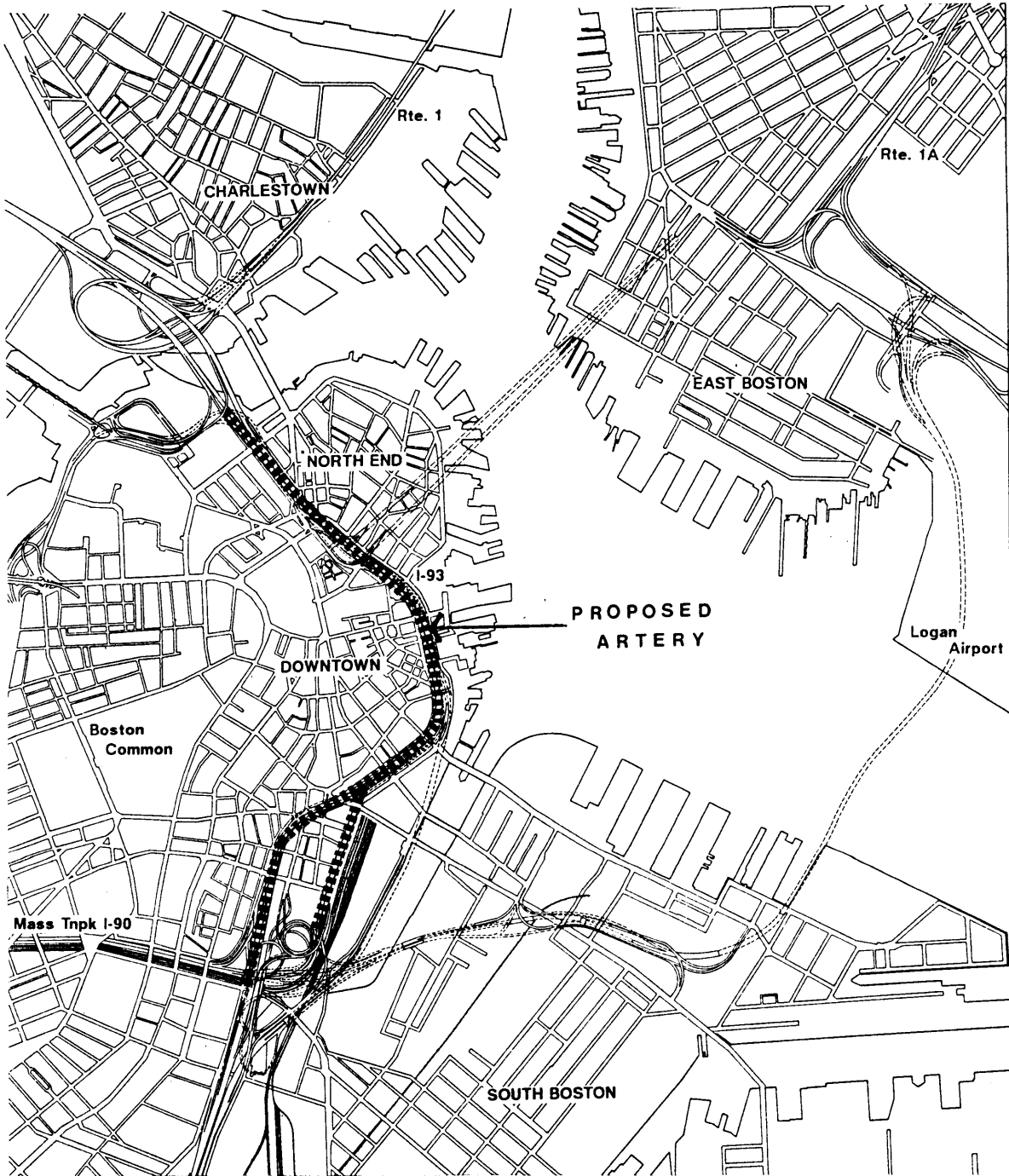
completed prior to the demolition of the existing structure, allowing continuous access to downtown over the life of the project. The new highway generally follows the alignment of the current Central Artery elevated highway which separates the North End community from the city, bisects the financial district and alienates downtown Boston from the Boston Harbor. Safety will be enhanced by the introduction of acceleration and deceleration lanes servicing more evenly spaced on- and off-ramps.

The existing structure is badly deteriorated. Reconstruction of the elevated highway is needed even if no improvements were incorporated into the project. Such a plan would by necessity close lanes during the reconstruction effort and bring current or future traffic unacceptably low levels of service.

EXHIBIT 1

PLAN OF PROPOSED CENTRAL ARTERY IMPROVEMENTS

Source: Mass. Dept. of Public Works



Notes to Chapter One

¹Mass. Dept. of Public Works, "Now You See It", insert to Boston Globe, 1989, p.5.

²Peter J. Howe, "Artery Project Seen Easing Road Woes - For A While", Boston Globe, May 22,1988, p.37.

³Peter J. Howe, "Artery Depression and Tunnel Vision", Boston Globe Magazine, July 31,1988.

CHAPTER TWO
SCOPE AND MANAGEMENT OF THE PROJECT

MAJOR COMPONENTS OF ARTERY DEPRESSION PROPOSAL

The sequence of construction operations currently planned are outlined here.¹

Construction will begin in 1990 with the relocation of utilities along the Central Artery tunnel alignment including water, power, and telephone lines.

Eighty foot deep reinforced concrete walls will be poured along either side of the existing highway. These will bear steel beams which span their width and support the artery above while the tunnel is excavated below.

Decking will be placed over the beams at grade to allow continuous vehicular and pedestrian circulation during tunnel construction.

The removal of excavate from the tunnel is the project's premier environmental issue. Disposal of the spoil is a serious concern since it's salinity and soil instability makes it unacceptable for landfill. Also, the projected quantity of material is expected to double the size of Spectacle Island², its likely destination. Truck removal would be slow, dirty and congest downtown streets. Removal by barge is thought to offer the best alternative.

At the completion of the underground artery construction, traffic will be diverted to the new underground road. Demolition of the existing artery will proceed as the new surface roadway, including rejoining many of the cross streets previously cut off by the elevated artery. Approximately 22 acres of developable land will remain.

KEY PLAYERS

The Federal Highway Administration (FHWA) is the committed source of 90% of the project funding for the third harbor tunnel and interchange improvements at the Massachusetts Turnpike and Rt.1 in Charlestown. The depression of the Artery is also eligible for federal highway funding, but those funds are not yet committed. Federal design and construction standards are followed as documented in the Environmental Impact Study(1985) and its supplement(1989).

The Dukakis administration Governor's Office was the first to support both the Artery depression and the third harbor tunnel. Dukakis has continued to support the project, despite the artery's future cost to the state and the current economic necessity of balancing the budget through cuts of nearly \$500 million or an increase in taxes.

The Executive Office of Transportation and Construction (EOTC) supervises the planning, design, construction and maintenance of public transit services, general aviation

programs, and the state and local highway network. EOTC is the overseer of all Department of Public Works operations and reports directly to the Federal Highway Administration. Secretary of Transportation Frederick Salvucci is the long-time champion of the project, which is characterized by many as his personal crusade. Salvucci was the key player in mobilizing the business and political communities for the Congressional lobbying effort to gain federal funding.

The Massachusetts Department of Public Works (DPW) reports to EOTC and is responsible for implementing the design and construction of all highway improvements in Massachusetts. In addition, DPW works with local agencies and community representatives to disseminate project-related information and interpret feedback to assist the design process, especially in the design of mitigation procedures.

Bechtel/Parsons Brinckerhoff (B/PB) is the management consultant for design and construction and reports to DPW. B/PB is a joint venture of Bechtel Civil Inc., San Francisco, and Parsons Brinckerhoff Quade & Douglas Inc., New York City. The firms share extensive experience in underground construction of transportation projects, such as the San Francisco subway system.

The Mayor's Office of Raymond Flynn was an early supporter. Flynn has recently criticized state officials for failing to address city concerns on questions related to the

number and placement of access/exit ramps, the extermination of thousands of rats that the project is expected to displace, guarantees of construction jobs for Boston residents and local contributions to current planning for several parcels of developable land to remain after Artery construction is complete. Mayor Flynn, in a 1988 Globe article stated, "the city is adamant about maintaining all development rights" on the 22 acres of land that will be created..Although the land will not become available until 1998 at the earliest, Flynn criticized the state for "failing to yet provide guarantees."³

The Flynn administration has struggled to maintain a voice in the planning of this project. The supplement to the EIS proposes a joint process led by the city for the planning and development of 50 acres of developable land remaining after the Third Harbor Tunnel/Artery depression is complete. The city believes the integration of this project's goals and effects with past and future planning and development projects is to be assured only by direct municipal involvement in the planning and management of the project. Frequent Flynn administration criticism of the state's management of the project, particularly the rat control and job guarantee issues, has threatened to unravel public support.

During the spring of 1988, the city offered Spectacle Island to the Massachusetts Water Resources Authority as a possible site for a 220 ton a day sludge processing facility. This was widely

seen as a political tactic aimed at the Artery tunnel project. Spectacle Island had been targeted by the State as the only feasible destination for the 7 million yards of fill to be removed for the tunnel construction.⁴

The Boston Transportation Department (BTD) is charged with all transportation planning for the city and acts as the Mayor's coordinator for the city's response to the project. Transportation Commissioner Dimino states "the city is identifying both solutions and problems, and we're advocating timely answers, substantive answers, because the answers to those questions relate directly to the quality of life in our neighborhoods and the current and future economy of our city."

As the planning agency for the city, the Boston Redevelopment Authority (BRA) contributes the design and planning strategy for surface parcels created or altered by the new highway. State planners have also recommended land use plans for the developable air rights. A resolution to the overlap of authority is not yet resolved.

PROJECT FINANCING

The entire Central Artery/Third Harbor Tunnel project is eligible for federal highway funding as legislated by Congress in 1987. \$4.4 billion in Federal Interstate Completion funds have been appropriated to date. However, the section between High and Causeway Streets was declared ineligible for Interstate Completion funding in the same legislation. This has led to the widespread belief that the depression of the Central Artery between North and South stations is unfunded. Financial concerns are exacerbated by the fact that preliminary estimates for this segment are assumed to be \$625-860 million⁵, likely to grow to \$1 billion by the time all tasks have been properly identified and scheduled.⁶

DPW points out that Federal Interstate Completion funds are not the only Federal Highway funds available. The section between High and Causeway Streets is eligible for 90/10 funding from two additional programs, the Interstate 4-R program for maintenance and repair and the Interstate Discretionary program. Nationally only two projects have been identified as eligible for Federal Interstate Completion funding, the Third Harbor Tunnel and a highway project in the state of Maryland. At the completion of these two projects DPW believes the surplus Interstate Completion budget will be returned to the Interstate 4-R pool where the increment to be distributed to Massachusetts will then be allocated to funding the artery. DPW considers a recent federal decision to allow Interstate 4-R funds to be used

to construct North End replacement parking and retail space along with the stacks and pumps venting the State-Causeway underground roadway to lend support to this approach.⁷

Notes to Chapter Two

¹Mass. Dept. of Public Works, "Now You See It", insert to Boston Globe, 1989, pp.10-11.

²Peter Green, "Money Flows Through Boston Aorta", Engineering News Record, July 21,1988, p.22.

³Peter J. Howe and Brian C. Mooney, "Dukakis Seeks To Mollify Flynn On Artery Project", Boston Globe, May 22,1988, Metro p.37.

⁴Ibid.

⁵Peter J. Howe, "City Business Leaders Move To Ease Fears About Central Artery Project", Boston Globe, November 17,1988, Metro p.52.

⁶James Sullivan, Boston Chamber of Commerce, Interview, July 18,1989.

⁷Joseph Sgarano, Mass. Dept. of Public Works, Interview, July 10,1989.

CHAPTER THREE
IMPACT ON DOWNTOWN COMMUNITIES

OVERVIEW

During construction Boston's downtown business and residential districts will be affected by the rerouting of existing traffic patterns for utility relocation, slurry wall construction, excavation and removal of 7 million cubic yards of fill, all generating construction noise and dirt.

Proposed ramp locations are likely to create the following changes in traffic pattern. The existing artery services downtown traffic with a network of 18 on- and off-ramps while the proposed artery is scheduled to open with 22 newly located downtown ramps.¹ The biggest changes to existing traffic patterns are as follows. A state-funded underpass carrying eastbound Storrow Drive traffic under Leverett Circle should solve one of the city's worst traffic bottlenecks. Existing Dock Square and Haymarket off-ramps for southbound traffic will be eliminated making the Leverett Circle off-ramp one of the busiest for those entering downtown from the north. Traffic otherwise exiting in the Haymarket area will now be forced onto local roads in the Downtown North community. Similarly, northbound traffic entering the city will find no off-ramps into the financial district between Kneeland Street at Chinatown, and North Street just past Quincy Market. Chinatown's Lincoln Street will likely become a

key conduit to the financial district without the addition of new off-ramps within the financial district. It is also projected that traffic volume will double on Marginal Street along Chinatown's southern boundary without Massachusetts Turnpike improvements.² This traffic is of special concern as it passes two schools and major housing complexes.

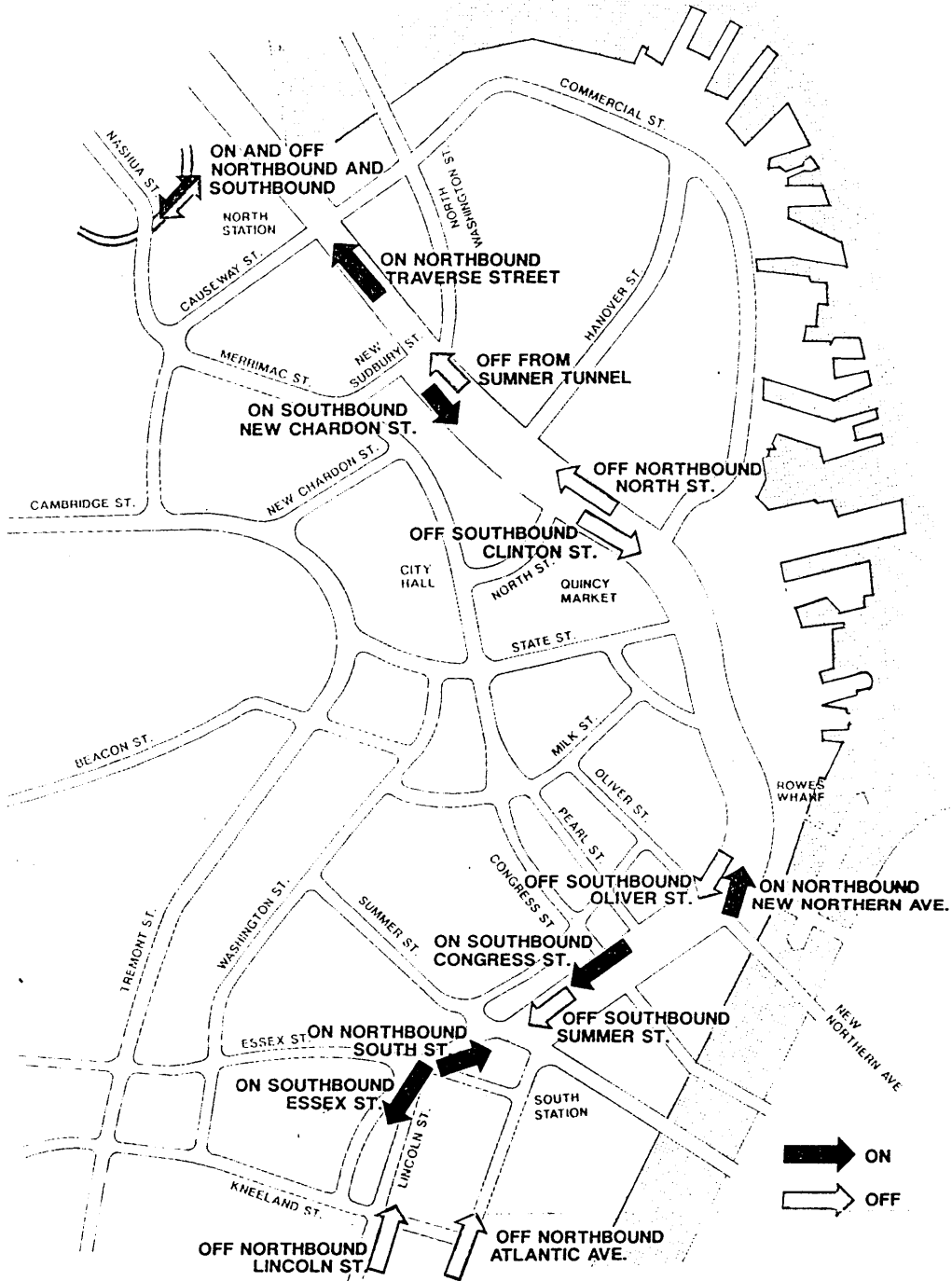
Sections of 173 major utility lines will have to be realigned to clear the construction zone prior to any artery development. The estimated 26 miles of new gas, telephone, electric, water and sewer lines will extend the construction period, periodically disrupt existing service and potentially disturb underground rat populations.³ State rat control experts will institute extermination procedures tailored to the needs of each community. Proposed rat control measures are dependent on tested baiting and poisoning programs, yet some exposure exists in the program's inability to predict where poisoned rats may die.⁴

The digging and removal of 7 million cubic yards of material from the artery presents several impacts. Conveyance along the Artery alignment to loading sites is certain to generate considerable dirt and noise at street level. Trucking between the loading sites and the waterfront for barge removal will congest and soil waterfront streets.

EXHIBIT 2

PROPOSED RAMP LOCATION DIAGRAM

Source: Mass. Dept of Public Works



Stacks ventilating the new tunnel will present some air quality deterioration by releasing high levels of carbon dioxide into the atmosphere of adjacent communities. Ventilation stacks will release tunnel air at elevations of just under 100 feet. DEQE monitored modeling indicates the plume is likely to rise even further from the stack before being dispersed by prevailing winds. However, these stacks are to be located in such densely populated areas that the concern exists that those communities in the path of prevailing winds will be the recipients of the bulk of artery pollution.⁵ Two ventilation stacks are planned. The first is located at Parcel 7, Congress and Hanover Streets, serving the artery north of State St, and the second is to be located between North Avenue and Congress Street on Atlantic Avenue.

RESIDENTIAL CONCERNS

While the focus of this paper is the response of the business community to change brought about by the depression of the Central Artery, it is useful to also briefly examine related developments within the residential community. This will shed some light on the environment in which the business community's programs unfold. An assessment of residential concerns is facilitated by public records maintained by the Massachusetts Department of Public Works, which uses a structured program to educate the public and to solicit their concerns and support regarding the Artery design, construction and ultimate development plan. The Manager for Community Participation meets

monthly with the local political leadership to keep them apprised of Artery planning and progress. In addition, a regular schedule of Community Leaders meetings updates representatives of neighborhood organizations and other community activists. Community meetings, open to all community residents will continue through the completion of the project and provide a forum for publicly addressing the concerns of the community. These meetings are supported by staffed exhibits on the project and project videos which are available to any interested group or individual.⁶

I have chosen the North End as representative of the concerns of downtown residents. North End residents suffered the loss of homes and neighborhood boundary in the development of the existing Artery in the '50s. Many felt that the wall created by the new elevated highway would bring only one significant benefit to their community - the prevention of downtown encroachment on the North End. This benefit did not materialize as urban renewal programs triggered development of the long-neglected waterfront area and led to the rehabilitation, and later the condominium conversion, of many newly discovered properties well sited within view of Boston Harbor. Hundreds of affordable housing units were lost to the gentrification of the North End. Development of affordable housing on the air rights over the depressed artery in the vicinity of the North End is encouraged by the community and supported by state planners. In response to community concerns, the reintegration of the North End with the rest of the city is

planned to be accomplished via the following strategies.

First, a major project goal is to reconnect as many north-south streets as possible, allowing vehicular and pedestrian movement along local streets to the North End. While the location of these streets is tentative until exact ramp locations are fixed, it is anticipated that Hanover and Salem Streets will be reconnected through Congress Street. The second component of the state's plan to reintegrate the community is through its proposed development of Parcel 7, at Congress and Hanover Streets. Currently a city owned parking lot, Parcel 7 will be used to extend the boundary of the North End to Government Plaza. It will house a ground floor retail facility for North End shopowners approximately equal to the main building at Fanueil Hall, office space, garage parking to replace existing lots under the Artery and the ventilation stack for the northern half of the artery tunnel. The community is supportive of these plans yet short-term, construction-related issues remain.

These short-term issues revolve around access and quality of life. A thriving restaurant and tourism trade is dependent on maintenance or expansion of the existing, limited pedestrian access points from Quincy Market under the Artery to the North End. When construction moves or closes these connections, will pedestrian traffic still find its way to the North End? Concern over the demolition of existing parking lots under and along the Artery resulted in a state commitment to develop the replacement

parking at Parcel 7 prior to the removal of existing spaces. The community has also sought reassurance regarding the amount of truck traffic through the neighborhood, the allowable operating hours of the construction crews and the types of construction equipment they should anticipate having to deal with.⁷

BUSINESS CONCERNS

Two groups, the Chamber of Commerce and the Artery Business Committee, are introduced here to demonstrate the range of local business response to the Artery project. These groups represent many of the largest business organizations in downtown Boston. Although they cannot claim to advocate for all issues of concern to the Boston business community, it is fair to assume they reflect the mainstream concerns.

The Chamber of Commerce represents over 3,000 businesses, large and small, located across the city of Boston. It addresses those issues of concern to its constituency, primarily via direct communication with elected representatives and the press. While supportive of the plan to depress the Artery, the Chamber questions the "prudence" of not revealing the financial plan for the project well in advance of construction.

James L. Sullivan, Executive Director of the Chamber, explains Chamber support goes back to 1983 when the political and business communities, among others, united to back the original Environmental Impact Study (EIS) required to obtain federal

highway funds. While an EIS is the legal explanation of what the state plans to build, most thought alternatives to the documented approach would be evaluated after the funding was secured. Three billion dollars in federal highway funding was approved in 1987, but the legislation included a compromise. The federal government would finance the third harbor tunnel and all other improvements except the depression of the Artery. This segment, between High and Causeway, would be financed by the state. Frederick Salvucci, Secretary of Transportation, disagrees that the state agreed to pay for the depression of the Artery or that alternative schemes were to be evaluated after funding was obtained.

Still, the Chamber is concerned that sufficient federal funds simply do not exist to cover the costs of the Artery. 1983 cost estimates of \$850 million were updated to \$860 million in late 1988 without detailed design being done to support the estimate. Current estimates are between \$1.2-2 billion for the Artery. If 90% of the costs are covered by a federal highway fund allocation as anticipated the state is still responsible for \$120-200 million. Assuming the state finances that cost, the bulk of the Massachusetts allocation of Interstate 4R funds would be required to pay off the loan to the detriment of the rest of the Massachusetts highway system.⁸

While the Chamber agrees that the Artery project is eligible for Interstate 4R funds, it notes these funds are allocated

according to a formula based on the number of miles and number of lanes of roadway in each state. Assumptions concerning increases to the Massachusetts allocation of \$31 million per year must also acknowledge that all other states would first have to receive a proportional increase. Congressional sentiment currently favors increasing the national Interstate 4R budget but, in light of the near complete status of the federal highway system, a change in the formula for allocation is anticipated. Mr. Sullivan believes congressional leadership would like to see something more like a 50/50 federal/state split in the future.

Interstate Discretionary funds total \$300 million per year for the nation, hardly enough to substantially contribute to the roughly \$2 billion in Artery cost.

In summary, the Chamber of Commerce is concerned about the adequacy of federal funding available and the state's potential to obtain a significant share of the available resources. Assuming the state will only have to support 10% of the project costs, where is a \$400 million appropriation likely to go? To the Artery or to Massachusetts cities and towns who appear headed for drastic cuts in state funding? Sullivan believes the financial plan should be articulated well in advance of construction if the business community is to be expected to mobilize support for the project.

By contrast, the Artery Business Committee (ABC), assembled in March of 1989, is a business group concerned solely with the demands of the Artery depression proposal. Its objectives center around assuring access to the downtown business district over the life of the project and marketing the City of Boston as a wonderful place to visit, do business in or invest in.

excerpts from ABC Mission Statement

...In recognition of its (Central Artery Project) importance to the future of the city and to the health of its economy, we have come together to provide Business Leadership for the Artery Project. We aim to create a vehicle for Business to articulate its interests and to communicate them to the Artery Project Management Team.

We seek to participate in a constructive fashion in the planning, design and construction of the Project and to support the vast effort required for its successful completion.

...goals include preserving the economic base of the City of Boston, and communicating a positive perspective on conducting business in the city for the duration of the Project...

We bring to the discussion table our expertise--drawn from our roles as business owners and employers, retailers, landlords, operators of parking garages and hotels--to inform and interact with the Project Team about the needs and interests of the city's businesses. We are committed to a candid exchange about how to address these needs at each stage of the Project.

A more detailed discussion of the goals and activities of the Artery Business Committee follows.

Notes to Chapter 3

¹Mass. Dept. of Public Works, "Project's Design Process Moves Into Final Phase", ACCESS, Fall 1988, Volume 2, Number 4, p.1.

²Tom Piper, consultant to the Boston Redevelopment Authority, Interview, June 26, 1989.

³Peter J. Howe, "The Artery Project: Quite A Number", Boston Globe, March 27, 1988, p.44.

⁴Joseph Sgarano, Mass. Dept. of Public Works, Interview, July 10, 1989.

⁵Mass. Dept. of Public Works, Parcel 7 Workshop Notes, February 10, 1988.

⁶Joseph Sgarano, Mass. Dept. of Public Works, Interview, July 10, 1989

⁷Ibid.

⁸James Sullivan, Boston Chamber of Commerce, Interview, July 18, 1989.

CHAPTER FOUR

A SELECTED RESPONSE: THE ARTERY BUSINESS COMMITTEE

WHY ABC?

William B. Coughlin, Executive Director of the Artery Business Committee, characterizes the Central Artery project as "a development project that needed a client" to complement the state role as builder. The project's construction schedule, expected to span over ten years, and its scope presented two challenges. There was no mediator for potential conflict or overlap between private institutional interests and those of the public agencies as well as for conflict between agencies, notably city and state. Equally significant was the problem of continuity presented by a project of this magnitude. The number of consultants and contractors expected to be involved will contribute to substantial turnover during the life of the project. How will expertise gained in the early years pass to those involved later without duplicating earlier decision-making processes?

Other business organizations, such as the Vault or the Chamber of Commerce, have also been actively involved in review of the state's proposal. In most other cases these are existing organizations having an existing mandate. They are involved in many projects other than that of providing leadership for the Central Artery project and their ability to substantially

contribute to the planning and management of the project is hampered by the unfunded or volunteer nature of their staff. Their structures lend themselves to single- or limited-issue involvement. Also, many of these organizations are constrained by trade-specific or geographically disperse membership.

ABC directs its energies primarily to those areas not staked out by existing business organizations; design, construction and management issues. For example, with the Vault taking the lead on the issue of project financing, less than 5% of ABC time is spent reviewing this issue, however, Mr. Coughlin is certain ABC would become "aggressively supportive" of any legislative lobbying effort pursuing federal financing. In meeting its role of "client" for the project, ABC has structured itself for strategic operational oversight of the project, funding the ongoing activities of specialized committees and sub-committees who work in tandem with the public and private sector and funnel their recommendations through a single representative group (Board of Directors) for further action.

MEMBERSHIP

Members of the Artery Business Committee were chosen based on the nature of their business and its location. Boston's financial district and, to a lesser extent, its downtown retail district constitutes the downtown business community most effected by the proposed project. Representation by the area's largest employers in finance, development, retail, utilities and

service industries was sought.¹ Thirty of these organizations are now represented on the Board of the Committee, each having committed a \$25,000 annual contribution to create the initial funding of ABC efforts. A second class of membership at \$10,000 per year also exists for smaller organizations. Membership represents a two year commitment, easily allowing ABC to sunset its activities at the point their objectives are realized.²

This initial criteria of location, size and business activity assures ABC of an ability to consistently determine the concerns of the downtown business community. Membership is also contingent on high level commitment to the activities of the Board of Directors. Board membership is restricted to CEOs. The Board meets regularly, receiving reports and recommendations from the Committees and subcommittees of ABC via the Executive Committee. At the acceptance of Committee recommendations, Board members take action by initiating further study, meeting with State and/or City officials or lobbying for acceptance of their proposals.

EXHIBIT 3

ABC BOARD MEMBERSHIP

<u>ORGANIZATION</u>	<u>BOARD MEMBER</u>
Bank of Boston	Bill Brown
Bank of New England	Richard Driscoll
The Beacon Companies	Norman Leventhal
The Beacon Companies	Ed Sidman
Beal Companies	Bob Beal
Blue Cross/Blue Shield	John Larkin Thompson
Boston Edison	Stephen J. Sweeney
Boston Properties	Ed Linde
Cabot, Cabot & Forbes	Ferdinand Colloredo-Mansfield
Chiofaro Company	Don Chiofaro
Coopers & Lybrand	William K. O'Brien
DiCara, Selig, Sawyer & Holt	Lawrence S. DiCara
Equitable	C.J. Harwood
Federal Reserve	Richard Syron
Fidelity Investments	Edward C. Johnson III
Fidelity Investments	James C. Curvey
Harvard Community Health	Thomas Pyle
Hexalon Real Estate	Martin Hoek
Jordan Marsh	Elliot Stone
Jung/Brannen Assoc., Inc.	Robert Brannen
Leggat & McCall	Bill McCall

George B.H.Macomber Co.	George Macomber
McCourt Company	Frank H. McCourt
Meredith & Grew	Tom Hynes
New England Medical	Jerome Grossman
New England Telephone	Paul O'Brien
Prudential Realty	Bob Walsh
Rose Associates	Dan Rose
Shawmut Bank	John Hamill
Urban Investment and Development Company	Frank Keefe
<u>Ex-Officio</u>	
Chamber of Commerce	Bill Connell
Coordinating Committee	Harold Hestnes

Staff work is accomplished for the Board by three Committees, the Operations Committee, the Design and Engineering Committee, and the Marketing and Communications Committee. These committees, discussed in greater detail below, have been assembled by the Executive Director of ABC with a goal of achieving a mix of 50% technical expertise and 50% business managers. Where possible, staff has been drawn from the experienced ranks of member organizations and include architects, engineers, marketing consultants and construction experts. Representatives from relevant industry groups and state and city agencies also participate in Committee activities.³

TARGETED ISSUES

A number of specific issues requiring diligent attention were identified by a 1989 ABC study of major transportation projects completed in cities across the country including Atlanta, San Francisco, Seattle and Washington. These issues fell into two categories.

The first is the necessity of organizing the business community into a cohesive, supportive, and articulate group. Day to day involvement is critical to the success of these projects. This presence allows the business community to respond to changes in design, construction management and technology, and scheduling which affect their interests while monitoring public perceptions of convenience and accessibility. The second category is the design of construction contracts. It was found that construction

conditions must be outlined in construction documents and contracts in order to legally bind contractors to protect the environment of employees, visitors, and shoppers in a manner which supports uninterrupted business activity. The area of construction mitigation was found to be the most critical to public perception. The public often questions how they will survive the construction activity and how public agencies will manage to keep their city open. Their support requires keeping them informed on mitigation measures.⁴

The activities of the Artery Business Committee are clearly focused on these areas yet ABC restricts its activities to those aspects of the depression of the Central Artery which impact access to and from the downtown business district. There is no analysis of work proposed for East Boston, South Boston, or Charlestown unless some impact on access to downtown is quantified.

Specific examples of ABC activities are discussed here to more clearly articulate the manner in which the Committee influences the Project Team's decision-making process. All committees seek "to ensure that decisions are made in the long term interests of the businesses located in central Boston, and the people who patronize and work in them".⁵

DESIGN COMMITTEE

The Design and Engineering Committee addresses long-range

issues pertaining to the configuration of ramps, improvements to the local street system and the realization of joint development opportunities supportive of current patterns of activity downtown. Attention is focused on the section of the project extending from the proposed Charles River bridge to the new I93/I90 interchange.⁶

Current mainline issues being addressed by the committee all relate to an evaluation of proposed ramp locations and configuration. Mainline issues result from an ABC analysis of ramps proposed in the state's Supplemental Environmental Impact Study or positions taken by city agencies. The city's position is brought to ABC analysis by presentations to the Committee or the Board by representatives from the Boston Transportation Department and the Boston Redevelopment Authority. For example, Stephen Coyle, Director of the BRA, addressed the Board May 31 regarding design of the Artery corridor. Additionally, a BRA designer and a BRA development consultant bring the city's ear to D&E activities through their committee membership. The state also contributes to ABC activities. A recent example is the review and summary of the State's position on these mainline issues by State Undersecretary of Transportation, Matthew Coogan.

An additional southbound ramp at Causeway Street has been proposed by the city. It is opposed by the state due to concerns related to increased traffic in the area. ABC's Design Committee reviewed the proposal and found that while the ramp would provide

"additional choices for traffic destined to the Bullfinch Triangle and Government Center areas, ... the benefits are outweighed by the high costs, disruption of current developments in the North Station area, negative impacts on pedestrian and vehicle flows on Causeway Street, and additional width of coverage of the Charles River by structure. At the same time, ABC recognizes the need for efficient flows of traffic to the area between North Station and City Hall, and it urges MDPW to carefully consider traffic movement at City Square, along North Washington Street, and in the Nashua-Merrimack corridor to ensure that flows of vehicles are as unimpeded as possible."

A basis for the position is given which presents an analysis of the state-proposed routes into the Bullfinch Triangle-Government Center area, as well as an analysis of the additional off-ramp, in light of present conditions and future development projects such as the Boston Garden complex. This position was voted by the Design Committee on June 6th, approved by the Executive Committee on June 8th and subsequently approved by the Board of Directors on June 14th.⁷

Analysis of the remaining ramps are in varying stages of completion. An abbreviated summary of ABC positions taken on these ramps is included to clarify the character of the group's concerns and the scope of their analysis.

A proposed southbound on-ramp at New Chardon near Government Center is to provide access to both the Callahan Tunnel and the depressed Artery. The city has proposed separating the single access point into two single destination ramps, one at New Chardon and one at Sudbury. This would avoid introducing a dangerous "weave" within the ramp as traffic sorts itself by

destination and prevents the likelihood of ramp traffic backing up to Congress St. ABC concurs with the city position and urges the BRA to prepare plans for the adjacent development parcels to ensure coordination of ramp design with future development. The state was requested to provide more engineering information to support this process.

An additional ramp in the I90/I93 Interchange is strongly recommended to allow vehicles travelling west from the new harbor tunnel and Massport haul road to reach the northbound Central Artery without using local city streets. ABC feels it is "essential" to minimize through traffic, particularly trucks, in the Fort Point district to heighten its potential for development.

A "relief valve" for central area traffic is proposed in the form of improvements to the Massachusetts Turnpike and adjacent local roads. These improvements should go far in relieving traffic impacts on Chinatown and Back Bay/South End local roads. The first component is a new westbound off-ramp from the Turnpike to Berkeley Street, allowing Back Bay traffic to exit closer to its destination rather than travelling local roads adjacent to Chinatown. The second component is an extension of Herald Street by viaduct to Clarendon. Back Bay traffic to I90/I93 could then travel adjacent to the Turnpike rather than through neighborhood streets to the Storrow Drive or Massachusetts Avenue interchange. The third component is an eastbound on-ramp to the Turnpike from

Arlington Street. These improvements are recommended for completion prior to construction of the Artery to both relieve central area traffic and ensure good access to the emerging Back Bay office, retail and convention center district from the east, south and north.⁸

OPERATIONS COMMITTEE

The Construction and Operations Committee will track the ten year construction process evaluating and making recommendations regarding technology choices, construction management systems and traffic management plans. They are specifically requested to ensure that

- the construction systems chosen are appropriate, and minimize impacts on adjacent properties,
- the contracting strategies and control systems are likely to lead to completion of the project within the resources available and on the adopted timetable,
- the scheduling of work crews and the movement of construction materials causes the minimum practical disruption,
- the rerouting of traffic and vehicles destined to central Boston is well planned and effectively managed,
- construction is coordinated with other major public and private projects occurring during the same period, and that
- the dislocation of parking and other uses for construction staging is carefully considered.

The definition of priority issues and subcommittee membership is currently being finalized, the second meeting of the Operations Committee having been held June 15, 1989.⁹ One proposed subcommittee, Means and Methods of Construction, is

actively evaluating a State proposal for removing excavate from the tunnel site.

The proposal is to employ a conveyer disposal system to crush and carry material cut from the tunnel to sites along the Artery offering the easiest access to the Harbor. (Material is to be carried to Spectacle Island by barge from these harborside locations.) The proposal eliminates a substantial amount of truck traffic downtown, a major concern of the downtown community as well as planners involved in the project. Issues identified by the Means and Methods Committee and currently being pursued with DPW include the necessity of bringing the equipment to Boston for a test.

The proposed crusher has never before been used on soils having the plasticity of Boston blue clay. It is known that the clay is sensitive to temperature and moisture. What effect will the plasticity have on the machine's effectiveness? It is also known that the material to be excavated is not uniform. If the system is adjusted to handle clay properly, what impact will these revisions have on its ability to handle other soils?

Secondary issues relate to the location of loading points along the Artery, the impact of the disposal system on the production efficiency of excavation activities and means of informing the bid process to explicitly define the contractors' responsibilities.¹⁰ Good information is a deterrent to the

practice of contractor overbidding as a protection against unforeseen responsibilities.

MARKETING COMMITTEE

The Marketing and Communications Committee is the last committee to be implemented, having held its first meeting June 13th. This committee will articulate the concerns and priorities of the business community over the life of the project. Its immediate task is to develop a 36 month plan for marketing the city of Boston to existing businesses and to members of the Fortune 1500 who are considering locating in downtown Boston. The plan will also market the city to the general public as a place to work, live, visit, and invest. Construction mitigation measures derived from the findings of the Design and Engineering Committee and the Operations Committee inform the development of this plan.¹¹

Prior to convening the full Marketing Committee in October, a smaller group will identify ABC's audience, a thematic context for the City and the Project, a detailed series of marketing strategies, and an agenda for the full Marketing Committee.¹²

In summary, each working committee is equipped with financial resources for its activities as well as the technical and political resources, and business management skill possessed by its members which enable it to identify strong, achievable alternatives in support of ABC objectives.

ORGANIZATIONAL STRUCTURE

The Artery Business Committee was organized by Norman Leventhal, Chairman of The Beacon Companies, in March of 1989.¹³ The exposures to the firm's business activities are evident as over 1 million square feet of The Beacon Companies most noteworthy developments are located in the financial district, some adjacent to the Central Artery. These include One Post Office Square, the Meridien Hotel, Rowes Wharf and 75 State Street. Mr. Leventhal has been able to draw on his stature in the business community to form a strategic alliance of influential and often competitive downtown firms who have found themselves in similar straits. These include most of the largest employers in the financial district.

Board members of the Artery Business Committee, all CEOs by design, have committed their time and the resources of their staffs to developing a unified "voice" for the downtown business community with which to inform the Artery decision-making process. The participation of these CEOs brings credibility to the Committee and assures City and State officials of a high-level audience for their message. Participation at Board and staff levels is said to be nearly 100% at all meetings.¹⁴

The commitment of ABC membership is attributed to the goals and organization of the Committee. The Committee is positioned to review and recommend policy and procedure on a day-to-day basis.¹⁵ The Design, Operations and Marketing Committees are

designed to perform thorough staff level review of complex DPW and B/PD construction and policy documents, preparing summaries and analysis for further action by an Executive Committee and subsequently, the Board of Directors. Staff level membership is drawn from the public and private sector, is not limited to the staff of member organizations and is by invitation on a pro bono basis. This specialized structure supports the ABC goal of providing strategic operational oversight.

An example of an earlier Leventhal-led strategic alliance is the Friends of Post Office Square. Here Leventhal organized the abutters of an outdated and extremely unattractive parking garage at Post Office Square to acquire the site by eminent domain (after a failed negotiation effort with the owner), develop a larger parking facility completely underground, and replace the existing eyesore with a 1.5 acre landscaped park. The membership was united by a desire to upgrade a key parcel in the center of the financial district that suppressed the property values of abutters and complicated traffic circulation. The parcel also carried a threat. As the last parcel in the heart of the financial district to be developed, pressure existed for high-rise office construction on the site. The interests of the city and the business community coincided as the city wanted open space and the abutters wanted to avoid the impacts of high-rise construction.

Here also Board membership was limited to CEOs, the

membership fee created the initial funding of Friends research and design development, solutions were developed in tandem with the city, and staff was primarily solicited from member organizations.

Notes to Chapter Four

¹William B. Coughlin, Artery Business Committee, Interview, July 20, 1989.

²Mary Fifield, ABC, Interview, July 21, 1989.

³William B. Coughlin, ABC, Interview, July 20, 1989.

⁴Mary Fifield, ABC, Interview, July 21, 1989.

⁵Ibid.

⁶Artery Business Committee, "Working Committees", July 11, 1989.

⁷Artery Business Committee, report for meeting of the Design Committee, June 6, 1989.

⁸Ibid.

⁹Artery Business Committee, "Working Committees", July 11, 1989

¹⁰Artery Business Committee, report for meeting of the Operations Committee, July 6, 1989.

¹¹Mary Fifield, ABC, Interview, July 21, 1989.

¹²Artery Business Committee, "Working Committees", July 11, 1989.

¹³Gary Hack, Carr Lynch Associates, Inc., Cambridge, Mass., Interview, June 22, 1989.

¹⁴William B. Coughlin, ABC, Interview, July 20, 1989.

¹⁵Ibid.

CHAPTER FIVE CONCLUSION

Boston's transportation crisis necessitates this major public works project. It is somewhat hampered by past transportation planning decisions such as the elevation of the existing Artery and the North End takings. These events have undermined public confidence in DPW management ability. For residents this lack of confidence often means anxiety concerning displacement, loss of property values, and safety. The residential community seeks and gets a significant amount of information on planning and construction management decisions affecting their community yet this group rarely possesses the combination of technical and political skills necessary to guide an independent evaluation of viable alternatives.

State officials are best prepared to protect the interests of residents by mitigating construction impacts to these communities in a priority established by residents themselves. Yet concerns that may be characterized as strictly residential, such as changing property values and traffic on local streets, typically find their solutions in design. Residents are ill-prepared to analyze and influence the design of ramps or the alignment of the highway. Engineering complexity and sensitive coordinations between public agencies and consultants combine to hamper the transfer of any more direct participation by the residential community in the design process. Is the business community better prepared to defend its interests?

The business community is motivated to support sound financing strategy, shortest construction schedule, least disruptive technology, and most flexible design solution to the transportation problem. The Artery Business Committee will be used as a proxy in this analysis since they well represent downtown business interests in each area noted above.

The depression of the Central Artery presents valuable opportunities to an involved business community. Improved access to downtown, especially from the airport, convention center and Turnpike, enhances the prospects for continued urban growth and the market position of existing investment. The post-construction value of real estate adjacent to the Artery is increased with great certainty. There is also the still unresolved issue of new development on 22 acres of prime downtown land to remain after artery construction is completed. Many parameters controlling the disposition of these parcels will be defined by the engineering and design of the artery. Early involvement by interested parties will, at a minimum, inform the conceptualization of development strategy by familiarizing the players with the ground rules. These are the interests ABC seeks to protect.

It is much better prepared than the residential community to protect its interests, utilizing certain methods refined over time which strengthen its hand in negotiation with public officials. One of the most effective methods employed by ABC is to frame their interests to coincide with those of the public good.

Boston's workers, shoppers and visitors are the employees and customers of the downtown business community. Their continued patronage of the City of Boston is a product of their perceptions of access, pedestrian comfort and safety, and official concern for their welfare. Clearly the business community plays an important role in this regard. They are a critical resource in managing change. Their ability to communicate directly, and with credibility, to their employees and customers goes far in educating and guiding the public through the construction cycle. Their contribution is evident in their efforts to support vanpooling, publicize alternate parking sites, and suggest alternate routes to their locations. They are potentially responsible for establishing the acceptance level of the public by interpreting the day-to-day impact of the changes for the average citizen. This work is a great support to public officials as well as to the private citizen.

The education process tends to move both ways. Public officials benefit from ABC involvement by having their policies and programs well understood by the business community as well as the public. This education early in the process means they can then expect the business community to communicate with the public or the media in a way that reflects a fair representation of state and city initiatives. It also means elected officials have far fewer problems with educating a major constituency or resolving differences in perception from one organization to another. All members have access to the work and recommendations of the committees, which results in these members communicating the same message to their employees and customers. Problematic issues may then be addressed from a position of common understanding.

This "educational" role is supported by the fact that ABC staff reviews the plans and strategy of the city as well as the State. They create a forum for objective review of all perspectives that would not otherwise exist.

Another effective strategy of ABC is the identification of a solid common ground on which to seek consensus among a group of powerful, often competitive executives. By limiting the geographic area of interest to the financial district and the issues to be addressed to problems of access and public acceptance, focus and control can be exercised over a tribe of chiefs with no "indians". All agree on the problems to be addressed and, I assume, all agree to accept the majority vote on the final recommendations. This reinforces the consistency of public messages originating from ABC's member organizations

but perhaps more importantly, the united front is key to good communication with the state. Consensus and consistency within an important representative group allows the state a vehicle for ironing out problems early. The concerns of the group are understood more easily by the state allowing its responses to be framed in the most relevant way.

The positive by-product of business involvement is a better educated and prepared community and better protection of public interests through leveraging the strength of the public opinion in support of interests shared by the business community. The ability of the private sector to create a forum where all perspectives may be evaluated also serves to define the common ground between state and city authorities. What are the negative by-products of business involvement?

While the Central Artery project is not far enough along to offer a definitive answer to this question, we may assume the existence of a set of issues which set certain interests of the public against certain interests of the business community. Presumably these are related to long-term design impacts, in which the direction of movement in future property values and the allocation of development rights are determined.

Spacing and cost constraints may preclude the opportunity for a ramp in a residential area poorly serviced by highway infrastructure if a ramp is added in a nearby business district. Ramps added to the proposed scheme to facilitate movement to and from the business district add significant costs which are not paid by the beneficiaries but by the taxpayers. Ways of diverting burdensome traffic from the development opportunities of Fort Point Channel have been identified while dangerous Marginal St. traffic, which skirts Chinatown schools and residences, would be diverted only in the interest of speeding commuters to the Back Bay business district. When public interests are in conflict with private business interests, what is the likely result? Private political savvy, technical and economic resource, organization and early involvement win out.

ABC has effectively identified a methodology for defining and responding to problems presented by the depression of the Central Artery. They have gained the ear of public decision makers thereby establishing a path to negotiation. Their resources allow them to address both short and long-term interests. Their alliance with many issues of public concern leverage the strength of public opinion to assist many of their objectives. ABC's effectiveness is not characterized by carte-blanche acceptance of their recommendations by the Project Team, but rather by the consistent and credible voice of the business community they have come to represent.

SOURCES CONSULTED

- Ackerman, Jerry. "Big Push Begins For Artery Project". Boston Globe, February 11, 1989, Business, p.7.
- Ackerman, Jerry. "Report Says New Artery, Tunnel May Not Relieve Traffic Congestion". Boston Globe, January 11, 1989, p.1.
- Anzalone, Joanne Prevost. "Impact of Construction Concerns The North End". Boston Globe, July 19, 1988, Letters to the Editor, p.14.
- Campbell, Robert. "Is Parkland Really Best For The Central Artery?". Boston Globe, Sunday Focus, p.91.
- Coogan, Matthew. Executive Office of Transportation and Construction. Boston, Massachusetts. Interview, July 25, 1989.
- Coughlin, Bill. Artery Business Committee. Boston, Massachusetts. Interview, July 20, 1989.
- Dimino, Richard A. "City Wants State To Be Responsive On Project". Boston Globe, April 13, 1988, Letters to the Editor, p.18.
- Fifield, Mary. Artery Business Committee. Boston, Massachusetts. Interview, July 21, 1989.
- Green, Peter. "Money Flows Through Boston Aorta". ENR Magazine, July 21, 1988, pp.22-23.
- Hack, Gary. Carr Lynch Associates, Inc. Cambridge, Massachusetts. Interview, June 22, 1989.
- Howe, Peter J. "Artery Depression and Tunnel Vision". Boston Globe Magazine, July 31, 1988.
- Howe, Peter J. "City, State Feud Over Rat War". Boston Globe, March 24, 1989, Metro, p.15.
- Howe, Peter J. "DPW Granted Key City Parcel For Artery Work". Boston Globe, December 23, 1988, Metro, p.55.
- Howe, Peter J. "Specialists Smell A Rat On Artery Proposal". Boston Globe, February 8, 1989, Metro, p.17.
- Howe, Peter J. and Mooney, Brian C. "Dukakis Seeks To Mollify Flynn On Artery Project". Boston Globe, May 22, 1988, Sunday Metro, p.37.
- Howe, Peter J. "Poll Shows Broad Support For Tunnel-Artery Plan". Boston Globe, November 1, 1987, Metro, p.30.

Howe, Peter J. "New Artery Group Includes A Critic As Committee Voices Business Concerns". Boston Globe, December 22,1988, Metro, p.43.

Howe, Peter J. "City, Business Leaders Move To Ease Fears About Central Artery Project". Boston Globe, November 17,1988, Metro, p.52.

Howe, Peter J. "Fresh Doubts Plague Artery-Tunnel Project". Boston Globe, November 13,1988, Focus, p.86.

Howe, Peter J. "The Artery Project: Quite A Number". Boston Globe, March 27,1989, p.46.

Howe, Peter J. "State, City OK Design For Artery". Boston Globe, November 18,1988, p.1.

King, John. "Different Visions For Artery Land". Boston Globe, May 24, 1988, Metro, p.17.

King, John. "City Is Wary About State Plans For Garage". Boston Globe, November 15,1987, Metro, p.51.

Lee, Tunney. Massachusetts Institute of Technology. Cambridge, Massachusetts. Interview, June 16,1989.

Levine, Karen. Artery Business Committee. Boston, Massachusetts. Interview, July 21,1989.

Mallows, Anthony. Jung/Brannen Associates, Inc. Boston, Massachusetts. Interview, June 8,1989.

State of Massachusetts. Supplemental Environmental Impact Statement. June 1989.

"Mastering Megaprojects". Boston Globe, October 8,1987, Editorial, p.18.

Menzies, Ian. University of Massachusetts, Boston. Boston, Massachusetts. Interview, June 15,1989.

Piper, Tom. Development consultant to Boston Redevelopment Authority. Boston, Massachusetts. Interview, June 26,1989.

Radin, Charles A. "Major Highway Work, Now Set, Seen As A Push For Two Projects". Boston Globe, April 6,1987, Metro, p.30.

Sgarano, Joseph. Department of Public Works. Boston, Massachusetts. Interview, July 10,1989.

Sullivan, James. Boston Chamber of Commerce. Boston, Massachusetts. Interview, July 18,1989.

"Support Is Voiced For Artery Project". Boston Globe,
December 2, 1988, Metro, p.2.

Vennochi, Joan. "Fred Salvucci Is A True Believer". Boston Globe,
April 13, 1987, p.10.