

MAINE STATE LEGISLATURE

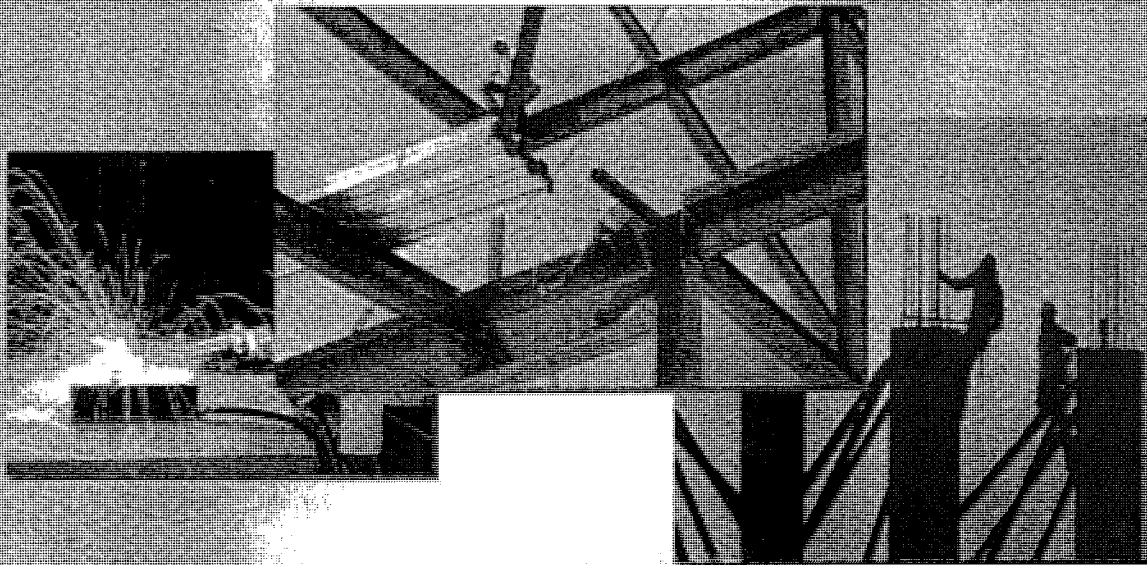
The following document is provided by the
LAW AND LEGISLATIVE DIGITAL LIBRARY
at the Maine State Law and Legislative Reference Library
<http://legislature.maine.gov/lawlib>



Reproduced from electronic originals
(may include minor formatting differences from printed original)

ALTERNATIVE
PROJECT
DELIVERY
METHODS

for School Construction



A Report Submitted to

**The Joint Standing Committee on
Education and Cultural Affairs**

*Pursuant to Public Law 787 entitled
"An Act to Implement the Recommendations of
the Governor's Commission on School Facilities"*

January 30, 1999

PREFACE

The design and construction industry is changing at a rapid pace, driven over the past ten years by the owners' desire for lower costs, faster schedules, and greater innovation. As a result, the options for project delivery have multiplied and overlapped, adjusting to the needs of clients and the ability of project teams to deliver changes in a building. The search for economy, the needs for specialized service, the need for accountability, liability issues and the complexity of buildings themselves have further accelerated the evolution of new project delivery methods.

Maine law, as it relates to project delivery methods for tax-supported projects, essentially restricts projects to the traditional design-bid-build approach. This is true of all state supported school construction, and this traditional approach is an integral part of the school construction approval process as carried out by the State Department of Education and the State Board of Education.

An awareness of the changing context within the building industry, recommendations included in the 1998 *Report of the Governor's Commission on School Facilities*, an interest in different approaches to construction on the part of some Maine school administrative units and the lack of reliable information about project delivery systems led the 118th Legislature to call upon the Department of Education and the Bureau of General Services to review the issue of alternative delivery systems as related to school construction. The work was to be accomplished through a stakeholder group with representation from the Department of Education and the Bureau of General Services, and individuals with expertise in education, architecture, construction, and engineering. This report, based on a study by the stakeholders group, is in response to that call.

BACKGROUND

Chapter 787, an Act to Implement the Recommendations of the Governor's Commission on School Facilities, enacted by the 118th Legislature, instructed the Department of Education and the Department of Financial and Administrative Services, Bureau of General Services to establish a stakeholder group to "review and discuss alternative delivery systems for school construction." Discussion was to include, but not be limited to:

1. Defining the circumstances under which alternative delivery systems would be applicable to school construction projects with clear definitions of each circumstance;
2. Establishing clear rules for each of the circumstances described in 1, above;
3. Ensuring adequate oversight of the alternative delivery system process from appropriate state agencies and;
4. Reviewing all issues surrounding appropriate errors and insurance levels.

In accordance with this legislation, the stakeholders group was composed of representatives from the Department of Education, the State Board of Education, the Maine Education Association, and the Bureau of General Services, as well as legislators, a school superintendent, a school principal, a school business manager, a school board member, architects, contractors, and engineers. The Chair of the State Board of Education, James E. Rier, Jr., chaired the group.

STAKEHOLDERS GROUP

James E. Rier, Jr., Chair
Chair, State Board of Education
21 North St.
Machias

Allen Bancroft
Contractor
Bancroft Contracting Corporation
South Paris

John Butts
Executive Director
Associated Constructors of Maine
Augusta

Jude Cyr
Business Manager
Auburn School Department
Auburn

Richard Hartford
Engineer
Carpenter Associates
Bangor

Jack Kelley
Contractor
Nickerson & O'Day Inc.
Bangor

Elinor Multer
State Board of Education
P.O. Box 68
Orrs Island

Stephen Rich, AIA
Architect
WBRC Architects/Engineers
Bangor

William Stoddard
Chief Engineer
Bureau of General Services
Augusta

James Banks
Maine School Boards Association
21 Chesley Avenue
Portland

Rodney Boynton, AIA
Architect
Herriman Associates
Auburn

Steve Crouse
Maine Education Association
35 Community Drive
Augusta

Thomas Deschaine
Principal
Auburn School Department
Auburn

Charles Jacobs
Deputy Commissioner
Dept. of Adm. & Financial Services
Augusta

Wesley Kennedy
Superintendent
MSAD # 35
Elliot

Senator Peggy Pendleton
Maine State Senate
110 Holmes Road
Scarborough

Representative Shirley Richard
Maine House of Representatives
210 Main St.
Madison

ALTERNATIVE PROJECT DELIVERY METHODS FOR SCHOOL CONSTRUCTION

EXECUTIVE SUMMARY

OVERVIEW

Today, there are several ways of approaching the design and construction of such publicly owned facilities as schools, government buildings, bridges, etc. Whatever approach is selected for the project, it will include the following three major phases of a construction project:

PROJECT DEFINITION— Encompasses identifying and analyzing the project and its requirements, describing the project and the plan, and estimating costs and time lines.

DESIGN — Includes all the aspects of design from schematics through the development of construction drawings and specifications.

CONSTRUCTION - Includes shop drawings, delivery and assembly of all components and site construction and installation.

There are three general types of project delivery methods now in common use: traditional or design-bid-build, design-build, and construction management. These three types vary in the ways in which the owner, designer, and builder relate to each other and in the ways in which they organize their participation and responsibilities during the three phases of a construction project described above. A brief description of each method, as outlined by the American Institute of Architects, is presented below. An organizational schematic of each method is attached as Appendix A.

TRADITIONAL

This is the most common form of project delivery known as design-bid-build. It is characterized by its three phases and by independent contracts between the architect and owner/client, and between the contractor and owner/client and also by the linear sequencing of the work. The typical process involves three stages: First, the owner engages an architect to design and prepare construction documents for the project. Second, those documents are used for construction bidding. Third, the owner hires a contractor to complete the project.

DESIGN-BUILD

Design-build is a form of project delivery in which the owner contracts with a single entity, the designer-builder, to provide both design and construction services. The designer-builder may be a single firm or a consortium of experts. A design-build team typically consists of an architect and a contractor who may be equal partners in the project, or one may be a subcontractor to the other. Principal advantages of design-build are the single point of responsibility and the saving of time for the project completion by combining certain phases of the work. Other advantages include the clearly defined role of each party, and the high level of coordination between the designer and builder.

CONSTRUCTION MANAGEMENT

Construction management is a term used to cover a variety of construction delivery scenarios. A construction manager is part of the building team with oversight for such elements as schedule, cost, construction, technology, or project management. A construction manager may be someone specially trained in that field, or it could be an architect, an engineer or contractor. Construction management is appropriate for projects that are relatively complex and those requiring extensive coordination of subcontractors and consultants. The construction manager may act as an advisor or agent for the owner. The authority of the construction manager may vary, from serving as an advisor on a single phase of a project to acting as an agent of the owner in all matters relating to project completion. Construction managers are generally paid on a fee basis. The project designer and contractor generally maintain their conventional roles. The advantage for the owner is a single point of contact, encompassing both design and construction concerns, during completion of the project.

RECOMMENDATIONS

The stakeholders group issues the following recommendations:

- A. Alternative delivery methods should be made available for school construction projects but should be initially limited to projects of a well-defined size and scope and should occur in a controlled atmosphere that will provide guidance, expertise, and an opportunity for all players to learn. The option should be available to any small project that does not exceed \$2.5 Million in estimated total project cost. The option should be available for a limited evaluation or pilot period of up to five years. Additionally, in order to promote a broad and meaningful experience, up to four projects (two design-build and two construction management) should be allowed, each of which do not exceed \$10 Million in estimated total project cost. By the end of the five-year pilot period, an evaluation should be conducted to determine the effectiveness to date as well as the appropriateness of the recommended process and whether its availability should be expanded and/or extended.
- B. A school administrative unit seeking to employ an alternative delivery method for a school construction project must make an application to the Department of Education and the Bureau of General Services and receive approval from an alternative delivery Review Panel prior to commencing the project. The Review Panel would define the required elements for the delivery method and include guidelines for liability and indemnity insurance. The Department of Education should create the Review Panel composed of representatives of the Department of Education and Bureau of General Services, and other individuals with expertise in education, architecture, construction, and engineering.
- C. Current Maine law, as it relates to school construction, should be revised to provide that the project delivery method therein is the traditional design-bid-build method and that the use of other delivery methods would be limited to and only available as defined in recommendations A and B.
- D. The traditional design-bid-build delivery method for state supported school construction projects should be restructured to require a construction project manager on projects with an estimated total cost greater than \$10 Million. The manager would be employed from concept design through the completion of construction. The role of the project manager would be to oversee value, schedule, and costs as well as to conserve and protect the interests of the State of Maine and school administrative unit. Funds for the employment of the project manager should be included in the state-supported line of the project budget.

- E. A stakeholders group under the direction of the Department of Education should continue to study the use of alternative delivery methods and monitor the process and initial projects that are approved during the pilot period. This group should also facilitate appropriate opportunities for educating the school and design / construction communities about alternative delivery methods, how they are administered and when it might be appropriate to use them.

- F. The stakeholders group called for in recommendation E. should also examine the State's existing bidding and qualifications process for administering school construction projects and make recommendations for greater clarity and other improvements.

DISCUSSION

RECOMMENDATION A. Alternative delivery methods should be made available for school construction projects but should be initially limited to projects of a well-defined size and scope, and should occur in a controlled atmosphere that will provide guidance, expertise, and an opportunity for all players to learn. The option should be available to any small project that does not exceed \$2.5 Million in estimated total project cost. The option should be available for a limited evaluation or pilot period of up to five years. Additionally, in order to promote a broad and meaningful experience, up to four projects (two design-build and two construction management) should be allowed, each of which does not exceed \$10 Million in estimated total project cost. By the end of the five-year pilot period an evaluation should be conducted to determine the effectiveness to date, as well as the appropriateness of the recommended process and whether its availability should be expanded and/or extended.

The stakeholders group studied the history and use of alternative delivery methods across the nation and worldwide. The use of alternative delivery systems has grown significantly in the last ten years especially in the private sector. In public supported construction projects owners/clients, architects, engineers, and constructors have grown accustomed to the traditional design-bid-build process of designing and constructing projects because it has been able to align itself most clearly with the competitive bidding process necessary when expending public funds. In recent years, however, there is growing dissatisfaction with the results achieved through the traditional process. Given their dissatisfaction owners have turned to alternative delivery methods in search of a better process. Other states have begun to allow alternative delivery methods for some public supported projects. The availability is not widespread nor consistent and in most cases is allowed only in very controlled or specific situations. In Maine recently special legislation is allowing the design and construction of the Bath – Woolwich bridge project to be accomplished through a design-build delivery method. Florida is one of only a few states that allows alternative delivery methods for school construction projects, and then only with a very detailed process and strict guidelines to insure a competitive process. It was with a keen sense of this progress in other states that the stakeholders began to structure a process for Maine.

It was decided that the most effective way to provide for alternative delivery methods would be through a trial or pilot period of up to five years, and for a limited number of projects, relatively small in size and scope, to gain experience. The process would need to provide a background for change

and a methodology that could be closely monitored and conducive to good management decisions. The process must be able to provide guidance, expertise, and an opportunity for all players to learn.

During the trial period any small project with a total estimated project cost of \$2.5 Million or less would be eligible to apply for the use of an alternative delivery method. While the size is somewhat arbitrary it is intended to define a manageable number of projects from which to learn and provide guidance. Since research indicated that our experience might be limited without some larger projects, especially with the design-build delivery method, it was decided to allow a very limited number of projects during the pilot period with total estimated project costs that do not exceed \$10 Million. The recommended process would allow up to four (two design-build and two construction management) each of which does not exceed \$10 million in estimated total project cost.

RECOMMENDATION B: A school administrative unit seeking to employ an alternative delivery method for a school construction project must make an application to the Department of Education and the Bureau of General Services and receive approval from an alternative delivery Review Panel prior to commencing the project. The Review Panel would define the required elements for the delivery method and include guidelines for liability and indemnity insurance. The Department of Education should create the Review Panel composed of representatives of the Department of Education and the Bureau of General Services, and other individuals with expertise in education, architecture, construction, and engineering.

The stakeholders group sought to develop an application process that would allow the use of alternative delivery methods that would be responsive to the needs of a school administrative unit, can be integrated effectively into the traditional construction approval process, and will provide expertise and guidance for a successful project completion.

A school administrative unit seeking to employ an alternative project delivery method would prepare an application with an overview of the proposed project and how it would be served through the use of the requested delivery process. In order to be eligible the project would have to meet the criteria defined in recommendation A and provide the details required on the application. For a state supported school construction project the alternative delivery application would be prepared concurrently with the application for a new construction/renovation project. For a locally funded school construction project, the alternate delivery application would be submitted during the project definition phase of the proposed project.

The application for an alternative delivery method would be submitted to the Department of Education and the Bureau of General Services where it would be jointly reviewed for eligibility and completeness. The application would then be forwarded to an alternative delivery Review Panel for review and approval. See attached Appendix B "Integration of an alternate delivery process with the traditional process" for details. The Panel would provide guidance and the required elements for the approved method. The required elements would include but not be limited to pre-qualification and selection criteria as well as guidelines for liability and indemnity insurance. See attached Appendix C for details of the required elements.

The alternative delivery Review Panel would be created jointly by the Department of Education and the Bureau of General Services and would be composed of individuals representing the Department of Education and Bureau of General

Services and others with expertise in education, architecture, construction, and engineering.

The Review Panel would be responsible for the review and approval of an alternative delivery process, but should also be charged with supporting a process that educates, informs, and facilitates rather than obstructs. Their role will be critical to our ability to continue and expand the availability of alternative delivery methods beyond the initial pilot period.

Once an approval for an alternative delivery method has been granted, the Department of Education in collaboration with the Bureau of General Services, would monitor the elements spelled out by the Review Panel to insure a successful project completion and to provide feedback to inform and improve future projects.

RECOMMENDATION C: Current Maine law, as it relates to school construction, should be revised to provide that the project delivery method therein is the traditional "design-bid-build" method and that the use of other delivery methods would be limited to and only available as defined in recommendation A and B.

The stakeholders group attempted to clarify whether current Maine law allows or prohibits any or all alternative delivery methods for school construction. That study included both an analysis of at least two recent locally funded school projects which were delivered using variations of the construction management method and an analysis of the state statute by representatives of the Maine Attorney General's Office. The analysis was not conclusive. Assuming that alternative methods of project delivery might be allowed under current law, certain requirements still need to be met. Those requirements, however, are not clear or consistent when specifically applied to various delivery methods.

Although there are a number of issues in the statute that require clarification, insuring a "competitive bidding" process is the most critical. Because there is no specific guidance in the statute or regulations on the elements of competitive bidding for construction of a school building, school administrative units have been very cautious about using any non-traditional delivery methods. To date, the approval process for state supported school construction projects has not allowed any non-traditional delivery methods. Arguably the statute does not expressly restrict the competitive bid process to only the traditional "design-bid-build" method or prohibit alternative delivery methods such as "design-build" or "construction management". The Bureau of General Services, moreover, does not have regulations that further describe the process for competitive bidding. Given that the term "competitive bidding" is not specifically defined for school construction purposes under 5 M.R.S.A. § 1743-A, and that the school construction rules do not explicitly require the traditional design-bid-build method; other alternative delivery methods may not necessarily be unlawful.

To clearly meet the requirements and intent for competitive bidding, however, the stakeholders group determined that a specific process should be implemented for alternative delivery methods that would provide attributes usually associated with competitive bidding such as notice to potential bidders, specifications for bids sought, announced criteria for ranking projects, rationale for selection, etc., and meet the other specific requirements under § 1743-A. The pilot process outlined in recommendations A and B would create a controlled atmosphere to insure current statute intent and requirements are met and will provide guidance and expertise to maximize the opportunity for a successful project.

RECOMMENDATION D The traditional design-bid-build delivery method for state-supported school construction projects should be restructured to require a construction project manager on projects with an estimated total cost greater than \$10 Million. The manager would be employed from concept design through the completion of construction. The role of the project manager would be to oversee value, schedule, and costs and to conserve and protect the interests of the State of Maine and the school administrative unit. Funds for the employment of the project manager should be included in the state-supported line of the project budget.

In the process of researching alternative project delivery systems, the group studied every aspect of the design and construction of a building project. That analysis included a detailed look at a number of recent traditional (design-bid-build) delivered school construction projects in order to assess the effectiveness of alternative delivery methods. Many of the elements and players involved in alternative delivery methods are and must be specific to those non-traditional systems. One player, the construction manager (advisor), provides a very much needed high level of expertise integral with that process that might be able to be integrated effectively into the traditional delivery method. This is especially true on larger projects.

The burden of managing a school construction usually falls on the school superintendent or business manager both of whom have many other responsibilities, and neither of whom may have any expertise in construction project management. Overseeing a large construction project is demanding and requires extensive knowledge and experience with the design and construction industry. The stakes are high, from the financial implications and issues of timing, to the quality of the finished product; a safe, durable, and effective learning environment for students and staff.

The addition of a project manager to the traditional design-bid-build delivery method would enhance the process with a minimal of other changes. The Department of Education and the Bureau of General Services should define the role of a project manager that should include guidance and oversight from concept design through the completion of construction. The responsibilities of the project manager should include value engineering, constructibility, bid document details, submitted bid analysis, etc. The cost of the project manager should be included in the state-supported line of the project budget. The role of the "clerk of the works" and the "owners representative" should be assessed and redefined as appropriate when a project manager is part of the process.

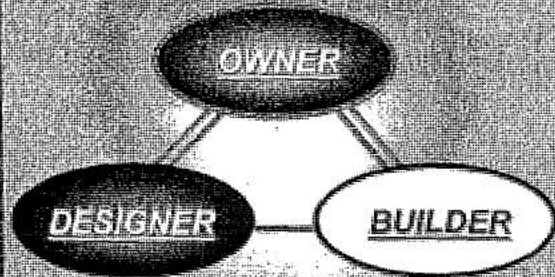
Setting the level of project cost which should include a project manager was again somewhat arbitrary but came from a consensus of the group based on their experience. A project manager would be cost effective and enhance a project of greater than \$10 Million.

RECOMMENDATION E: A stakeholders group under the direction of the Department of Education should continue to study the use of alternative project delivery methods and monitor the process and the initial projects that are approved during the pilot period. This group should also facilitate appropriate opportunities for educating the school and design / construction communities about alternative delivery methods, how they are administered and when it might be appropriate to use them.

RECOMMENDATION F: The Stakeholders Group called for in recommendation E should also examine the State's existing bidding and qualifications process for administering school construction projects and make recommendations for clarity and other improvements.

PROJECT DELIVERY METHODS

TRADITIONAL DESIGN-BID-BUILD



CHARACTERISTICS

THREE Prime Players:
OWNER, DESIGNER, BUILDER

TWO Separate Contracts:
OWNER TO DESIGNER AND
OWNER TO BUILDER

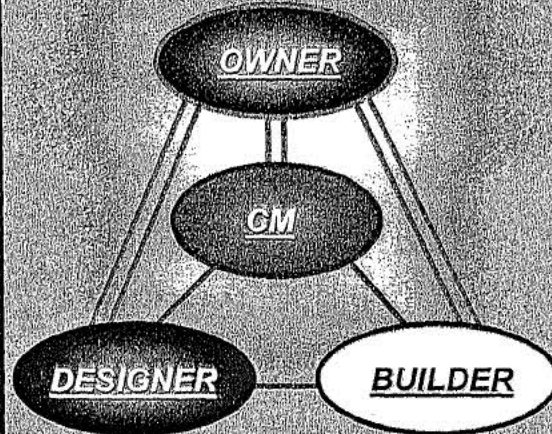
RESPONSIBILITIES

- Owner: PROGRAM & FINANCE
- Designer: ALL DESIGN SERVICES
- Builder: PRIME & SUB CONSTRUCTION

SELECTION PROCESS

- Manager: N/A
- Designer: QUALIFICATIONS
- Builder: LOWEST RESPONSIBLE BID

CONSTRUCTION MANAGEMENT



CHARACTERISTICS

FOUR Prime Players:
OWNER, CM-AGENT, DESIGNER, BUILDER

THREE Separate Contracts:
OWNER TO CM, OWNER TO
DESIGNER & OWNER TO BUILDER

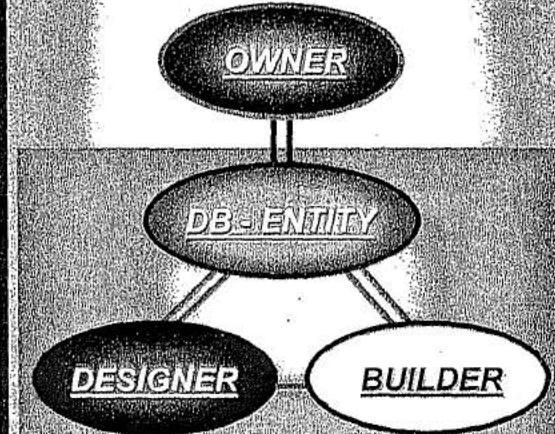
RESPONSIBILITIES

- Owner: PROGRAM & FINANCE
- CM-Mgr: COORD. DESIGNER & BUILDER
- Designer: ALL DESIGN SERVICES
- Builder: PRIME & SUB CONSTRUCTION

SELECTION PROCESS

- CM-Manager: QUALIFICATIONS
- Designer: QUALIFICATIONS
- Builder: LOWEST RESPONSIBLE BID

DESIGN - BUILD



CHARACTERISTICS

TWO Prime Players:
OWNER AND DESIGN-BUILD ENTITY

ONE Separate Contract:
OWNER TO DESIGN-BUILD ENTITY

RESPONSIBILITIES

- Owner: PROGRAM & FINANCE
- DB Entity: DESIGN & CONSTRUCTION
- Designer: D-B SPECIAL SERVICES
- Builder: D-B PRIME & SUB CONSTR

SELECTION PROCESS

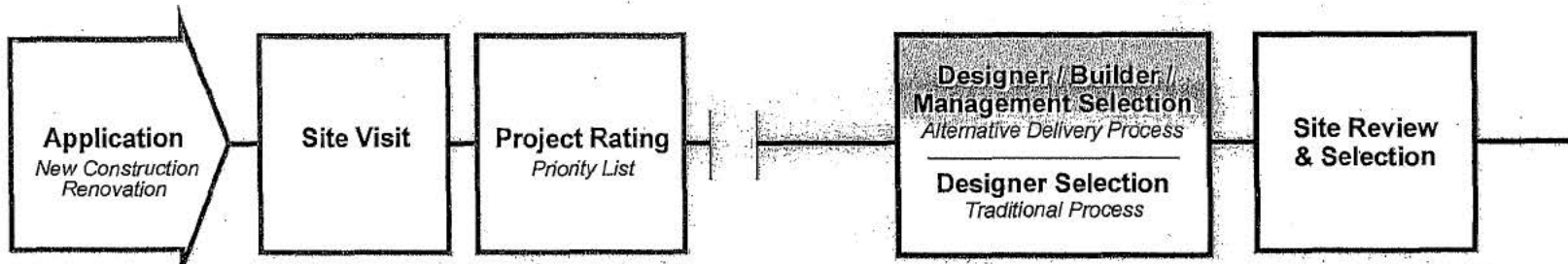
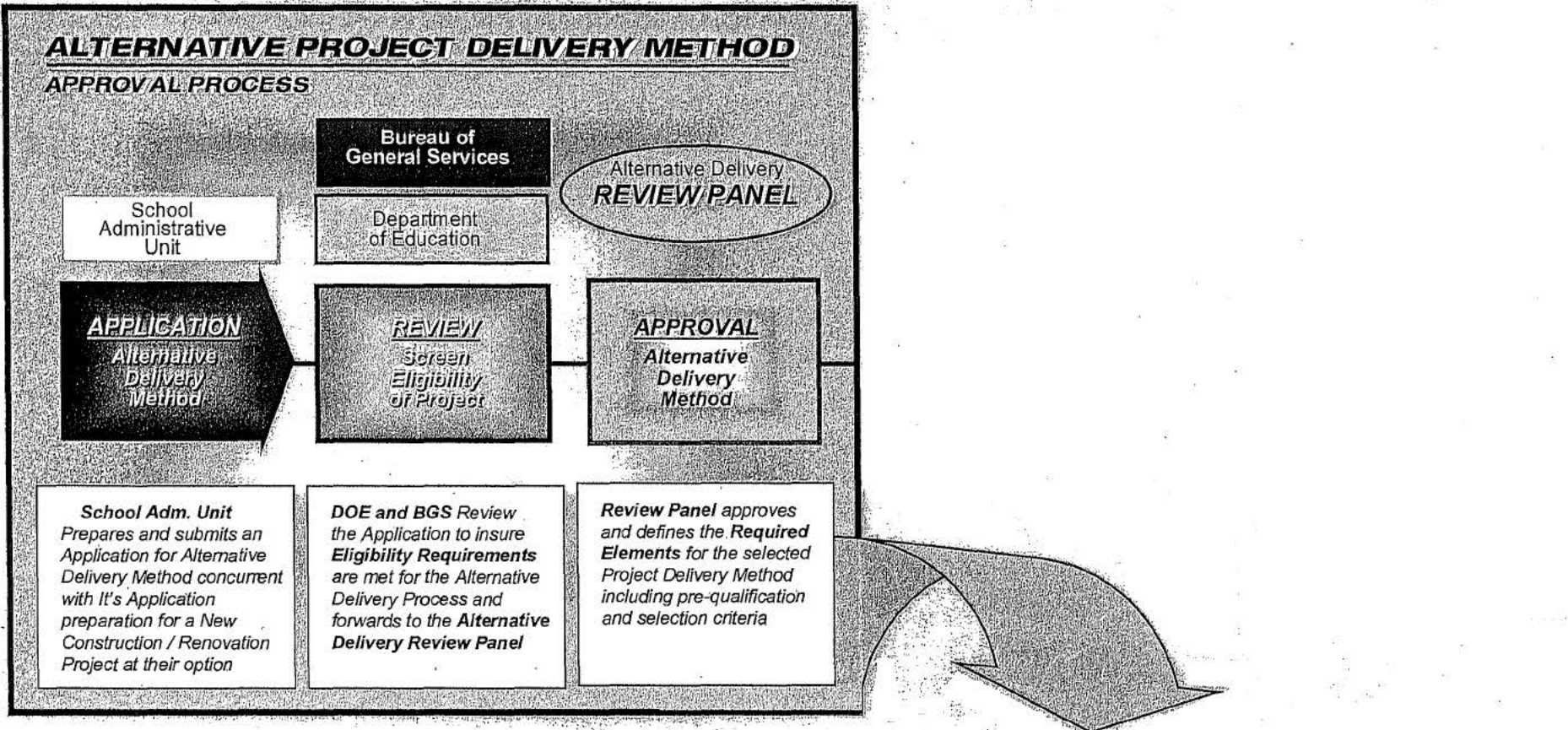
- DB Entity: QUALIFICATIONS
- Designer: QUALIF / NEGOTIATIONS
- Builder: LOW BID OR NEGOTIATIONS

MAINE'S SCHOOL CONSTRUCTION PROCESS

Integration of an Alternative Delivery Process With the Traditional Process

ALTERNATIVE PROJECT DELIVERY METHOD

APPROVAL PROCESS



Traditional Facilities Application and Approval Process

ALTERNATIVE DELIVERY

REVIEW PANEL REQUIREMENTS

DESIGN- BUILD

PROJECT DEFINITION

- Program
- Scope of Work

PRE-QUALIFICATION OF APPLICANTS

- Ability to perform
- Past performance
- Financial capability
- Interview

SELECTION PROCESS

- Basis for design-build selection (Qualifications, low-bid, or design competition)
- Compensation / stipend (where applicable)
- Elements of evaluation
- Insurance provisions
- Jury panel
- Builder selection process
- Oversight of selection by D.O.E. and B.G.S.

CONSTRUCTION MANAGEMENT

PROJECT DEFINITION

- Program
- Scope of Work

PRE-QUALIFICATION OF APPLICANTS

- Ability to Perform
- Past Performance
- Financial capacity
- Interview

SELECTION PROCESS

- Qualifications of construction manager
- Compensation
- Elements of evaluation
- Qualifications of designer
- Insurance provisions
- Jury Panel
- Low-bid selection process for builder
- Oversight of selection by D.O.E. and B.G.S.

ACKNOWLEDGMENTS

The Alternative Delivery Stakeholders Group sought the advice and expertise of many individuals and organizations in the developing the recommendations presented in this report. The group would like to thank the following individuals for their guidance and contributions to this work.

Paula Hamilton, AAI, CPIW, Clark Associates Insurance
Daniel Moynihan, PE, Construction consultant

Maine Attorney General's Office
Dennis Doiron, Esq., Assistant Attorney General

Maine Department of Education
Greg Scott, Legislative Liaison
Judith Malcolm, Education Policy Director/Team Leader
Suzan Cameron, School Finance Consultant
William Millar, Construction/Transportation Specialist
Scott Brown, AIA, Construction Specialist