Project Delivery Method Handbook

State of Alaska - Department of Education & Early Development
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Introduction

In 1978, the Department of Education & Early Development (DEED) began regulating school capital projects following passage of legislation amending then existing statutes to include a requirement to:

> *. . . review plans for construction of new public elementary and secondary schools and for additions to and major rehabilitation of existing public elementary and secondary schools and . . . determine and approve the extent of eligibility for state aid of a school construction project . . . . [AS 14.07.020(11)]*

By 1981, DEED had taken over full responsibility for administering state aid for school capital projects from the Department of Transportation & Public Facilities. One of the key components in administering capital funding was to establish procedures for the procurement of construction services. By statute, political subdivisions of the state, including school districts in unorganized areas of the state, are exempt from the state's procurement code (ref. AS 14.08.101). Accordingly, and under its powers, DEED established some minimum provisions for the procurement of construction by regulation in 1983 (ref. 4 AAC 31.080).

These provisions reflect key elements of the state's procurement code, including:

- competitive sealed bids;
- minimum advertising and notice periods;
- processes for aggrieved bidders; and
- award to the low responsible bidder.

Although adequately advertised competitive sealed bids awarded to the low offeror form the basis of DEED's process, regulations included a provision to allow a school district to use a design/build contracting method with DEED approval and district compliance with any DEED directives.

DEED began to see an increasing interest in alternative construction delivery methods beginning with a project funded in July 1998 for an addition/renovation project in Buckland. Following that date and through mid-2003, the department acted on several requests for alternative construction delivery. In each case, under the provisions of regulations, DEED approved a request for a non-traditional delivery method with varying stipulations and under various titles such as CM/Multiple Prime, and Design Assist.

Prior to that time period, there was a series of design-build efforts in the Bering Strait School District. Primarily, these were accomplished on schools damaged or destroyed by fire and did not have direct state aid but were funded with insurance proceeds.

In addition to the Bering Strait experience, the Anchorage School District also has experience using the design-build delivery method on school projects. These projects include an elementary constructed with state aid (Williwaw Elementary - 1993) and several projects without any state aid (ABC Elementary, Russian Jack Elementary, and Government Hill Elementary).

Introduction (cont.)

The procurement results from solicitations of projects approved for alternative delivery methods raised significant questions regarding procedures, competition, and prices. This led the Facilities staff at DEED to seek a "moratorium" on alternative construction delivery. The moratorium, ultimately not implemented, was intended to provide time for DEED and its constituents to sort out issues, apply lessons learned and develop a more coordinated, defensible and effective approach to alternative delivery methods and their approval.

Following is a list of concerns brought to light over the course of the prior years of activity:

- DEED had approval authority for design-build but had granted approval ad-hoc for other construction delivery variants, some not recognizable within industry norms.
- Design-build approvals had been granted for projects where design completion ranged from 50% to 99% complete.
- Design-build criteria packages establishing an *Owner's* performance requirements were noticeably absent; partially complete detailed designs were the substitute document.
- Design-build approvals had been granted for projects in which the *Owner* directed the use of a specific team of design professionals.
- Bid solicitations on comparable projects had resulted in no fewer than four and as many as eight offerors, however, three projects approved for design-build had only two offerors; the same two for each project.
- Bid solicitations on comparable projects in the same time periods had resulted in construction awards up to 35% below (approx. 12% average) the estimated construction cost; however, projects approved for design-build had typically used all available design and construction funds.
- A project was approved for CM/GC where the proposed total construction cost was not a factor in the selection process.
- Factors not germane to the lowest cost to the state, or at best difficult to measure, were heavily influencing alternative project delivery procurement; primarily this related to the incorporation of local hire initiatives.
- Alternative delivery methods approved, which incorporated multiple prime contracts and *Owner*-procured materials, were fraught with expensive "corrections".

A 2003 workshop jointly conducted by DEED and the Alaska chapter of the Association For Learning Environments (A4LE—previously CEFPI) laid the groundwork for this publication. In the public sector, the central issue in moving from a low-bid process to any of the alternative project delivery methods is the shift in influence that the public entity wields in the selection process. In the low-bid process, where the only significant factor differentiating between offerors is price, the *Owner* is essentially "blind" to factors of experience, capacity, personnel, political ties, etc. While this can occasionally result in selection of a less desirable contractor, it always provides an arms-length separation between the *Owner* and contractor selection. It essentially removes the possibility of undue influence. A secondary effect of the exclusive focus on price is that offerors are forced to become price-competitive. This generally serves to drive the initial cost to the *Owner* to the lowest level.

Introduction (cont.)

A move to alternative project delivery methods is a move toward *Owner* influence and subjectivity in the procurement of construction. It also provides conditions in which the cost of the work is secondary and therefore potentially higher. However, the benefits to the *Owner* are numerous and are best summarized with the term "best value". All factors considered—cost, quality, experience, schedule, etc.—*Owners* are more likely to receive a product that meets all of their objectives using a project delivery method that incorporates both qualifications and cost.

For DEED, and other public entities, the need is to establish the proper balance between complete control of *Owners* to choose a "most favored" contractor and the complete lack of control by *Owners* with the choice made for them based on lowest initial cost. This handbook provides the guidance and provisions to meet those standards of care.

Ability to Use Alternative Project Delivery

Introduction

The Alaska Department of Education & Early Development strongly supports full and open competition among general and specialty contractors and their suppliers and service providers. The construction industry's health and integrity depends on every qualified firm having an equal opportunity to compete for work. Public owners must be diligent in honoring the public trust while searching for the most efficient and cost effective approaches to delivering construction projects. These efficiencies and cost effective methods are increasingly requiring innovation and flexibility. The public owners who choose alternative project delivery options must ensure the method chosen is properly and fairly used to serve the public interest and provides quality, cost-effective and timely construction. Whatever option is utilized, the selection process for both design services and construction should be consistent, open and competitive.

Of the delivery options discussed in this Handbook, none is prohibited by the laws of Alaska. However, given current state policy and statutory requirements, the "traditional" method of Design-Bid-Build will continue to be the method by which most construction will be performed in Alaska's school districts. This section of the handbook suggests that alternative project delivery options are appropriate for the public sector if the selection process is as open, fair, objective, cost-effective, and free of political influence as the traditional competitive bid method. Specific approval may be required for the use of an alternative delivery method on school projects incorporating state-aid. For instructions on how to get the necessary approvals, contact your agency procurement professionals or the State of Alaska, Department of Education & Early Development.

Alaska Statutes and Administrative Code

Alaska Statutes

Alaska statutes provide for innovative procurements under the state procurement code and include the provisions that such procurements be competitive and that they test best value.

> AS 36.30.308. Innovative procurements.
>
> (a) A contract may be awarded for supplies, services, professional services, or construction using an innovative procurement process, with or without competitive sealed bidding or competitive sealed proposals, in accordance with regulations adopted by the commissioner. A contract may be awarded under this section only when the chief procurement officer, or, for construction contracts or procurements of the state equipment fleet, the commissioner of transportation and public facilities, determines in writing that it is advantageous to the state to use an innovative **competitive procurement** process in the procurement of new or unique requirements of the state, new technologies, or to achieve **best value**.

Ability to Use Alternative Project Delivery (cont.)

Statutes acknowledge that all school districts, whether in political subdivisions of the state or in regional education attendance areas, are exempt from the state's procurement code (excepting a few areas such as prevailing wage requirements) and may develop their own procurement policies.

> AS 14.08.101. Powers. A regional school board may . . .
>
> (3) determine its own fiscal procedures, including but not limited to policies and procedures for the purchase of supplies and equipment; the regional school boards are exempt from AS 37.05 (Fiscal Procedures Act) and AS 36.30 (State Procurement Code)

Alaska Administrative Code

Notwithstanding that recipient entities of funding administered under AS 14.11 are exempt from the state procurement code, DEED has provided, through regulation, requirements for construction procurement. These requirements are based on those factors of procurement that are critical to a competitive process (e.g., advertising periods, bid protest periods, etc.). The regulations also establish that competitive sealed bids will be the normal procurement method but provide for other alternatives.

> 4 AAC 31.080. Construction and acquisition of public school facilities.
>
> (a) A school district shall construct a public educational facility with money provided through a grant under AS 14.11.011 - AS 14.11.020 or shall construct a public educational facility that is eligible for reimbursement under AS 14.11.100 under a written contract awarded on the basis of competitive sealed bids. If the estimated construction cost is less than $100,000 or if it is in the best interests of the state, the school district may, with the approval of the commissioner, construct the educational facility itself using its own employees.
>
> (b) The school district shall provide notice of its solicitation by advertisement in a newspaper of general circulation in this state at least three times before the opening of the offers. The first printing of the advertisement must occur at least 21 days before opening the offers. The department may approve a solicitation period shorter than 21 days when written justification submitted by the school district demonstrates that a shorter solicitation period is advantageous for a particular offer and will result in an adequate number of responses. A school district may provide additional notice by mailing its solicitation to contractors on any list it maintains, and any other means reasonably calculated to provide notice to prospective offerors.
>
> (c) The school district shall provide for the administrative review of a complaint filed by an aggrieved offeror that allows the offeror to file a bid protest, within 10 days after notice is provided of intent to award the contract, requesting a hearing for a determination and award of the contract in accordance with the law. The school district shall provide notice to all interested parties of the filing of the bid protest.
>
> (d) The award of a contract for the construction of an educational facility under this section must be made without regard to municipal ordinances or school board resolutions granting a preference to local offerors.
>
> (e) The department may deny or limit its participation in the costs of construction for a project eligible for reimbursement under AS 14.11.100 if the school district does not comply with the requirements of this section. A school district that enters into a

construction contract for a project authorized for construction under AS 14.11.020 that was awarded without competitive selection under this section may not receive money under its project agreement for the construction phase of the project.

(f) Nothing in this section precludes a school district from using an alternative construction delivery method as defined and described in the Project Delivery Method Handbook, current edition, adopted by reference, if the department approves the method in advance of any solicitation, the proposed method is in the state's best interest, and the school district concurs in any directives the department makes concerning the type of selection and award of the contract. The department may deny or suspend use of an alternative construction delivery method by a school district if the department concludes, based on substantial evidence, that use or repeated use of a delivery method by the school district has resulted or will result in limited competition or higher costs.

(g) A school district may, with prior approval by the department, purchase an existing facility for use as an education-related facility if

(1) a cost saving over new construction is achieved;

(2) the purchase price is arrived at through impartial negotiation and is supported by a real estate appraisal that meets accepted standards; and

(3) the purchase is in the best interests of the state and the school district.

(h) Notwithstanding (a) of this section, a school district may use any competitive procurement methodology for its solicitation for a public educational facility that is practicable under the circumstances to procure construction services that are estimated not to exceed $100,000, inclusive of labor and materials. A school district may not artificially divide or fragment a procurement so as to constitute a purchase under this subsection or to circumvent the selection procedures otherwise required by this section.

Overview of Project Delivery Options

Introduction

The purpose of this section is to establish a framework for understanding and selecting the appropriate project delivery option. It is critical to have consensus on a list of project delivery options and on the definition of each of the delivery options. Definitions of the options are discussed in this section and reiterated for quick reference in Appendix A. Understanding the differences in project delivery options requires an awareness of two independent factors, the structure of the *Owner's* prime contract(s) for the project and the provisions under which the selection of the project delivery entities (i.e., *Designer* and *Constructor*) are made. Each project delivery option is defined by a unique combination of *contract type* and *selection method*. Embedded in the definitions of each project delivery option, there are two basic terms that are used as selection-method differentiators for the alternative project delivery methods. These terms are *total construction cost* and *construction cost of work* (see sidebar).

Selection Differentiators

Construction Cost of Work is one of the three factors that comprise the Total Construction Cost:

Construction Cost of Work
+ General Conditions
+ Contractor's Fee

Total Construction Cost

It represents the "fixed" costs of labor and materials as provided for in the project scope. In addition to the Construction Cost of Work, the Total Construction Cost includes the contractor's General Conditions (i.e., its overhead—the cost of doing business) and the Contractor's Fee (i.e., its profit).

This handbook uses the definition of a "project delivery option" as a method of procurement by which the *Owner's* assignment of "delivery" risk and performance for design and construction has been transferred to another party or parties. These parties typically are a *Design* entity that takes responsibility for the design, and a *Construction* entity that takes responsibility for performance of construction. However, a key principle of alternative project delivery is that benefits are available to *Owners* when these traditionally distinct entities are strategically aligned or even merged. It is when these benefits outweigh the risks that an alternative project delivery method becomes advisable. The relationship between these parties and the *Owner* is the second determinant in establishing a project delivery option. While no further attempt to define the terms *designer* and *contractor* are necessary—the terms being well understood within the industry—the terms used to describe the alignment or merging of these entities is unique to the project delivery discourse. These terms (*Design-Build*, *CM/GC*, etc.) often become points of significant distraction when attempting to "debate" the merits of alternative project delivery. Fortunately, for the purposes of this handbook, the sole understanding of these terms need only occur within the context of how an *Owner* chooses to contract with the *Designer* and *Constructor* (see sidebar).

Contract Differentiators

Owner holds one contract for both Design & Construction = *Design-Build*
Owner holds separate contracts for Design & Construction = *CM/GC* or *Traditional*

Selection Method Factors

Another key aspect related to the use of any project delivery option is the procurement and selection process to be followed, particularly as it relates to the construction services. There are two basic public procurement processes: competitive sealed bid and competitive sealed proposal. Under *competitive sealed bids*, the selection is made solely based on price (which must be clearly defined), with the award going to the responsible and responsive bidder submitting the lowest price. *Competitive sealed proposals* on the other hand require the use of evaluation factors that may or may not include price elements (i.e., cost, fee, etc.) as part of the evaluation criteria.

Under the two basic procurement processes, there are three selection methods that may be followed with proposals and one for bids.

For proposals:

- Qualifications (excluding any cost factors)
- Qualifications and Costs Factors (excluding the *Construction Cost of Work*)
- Qualifications and *Construction Cost of Work*

For bids:

- *Total Construction Cost* (excluding any qualifications)

A Word About "Price"

To appreciate the explanation of the difference between Competitive Sealed Bids and the two types of Competitive Sealed Proposals (cost and qualifications), it is helpful to have an understanding of the Total Project Cost.

Total Construction Cost
+ Design Fees
Total Design & Construction Cost
+ Balance of Project Costs
Total Project Cost

It is recommended that caution be used any time the word "price" is used and further clarification be offered to better determine which of the element(s) of the Total Project Cost is being referred to when the word price is mentioned.

Contract Type Factors

The contract type component of the project delivery options is related to the number of primary contracts for design and construction, and the basic services provided. The three primary contract types are defined with their distinguishing characteristics as follows:

- *Designer & General Contractor* (two prime contracts, one with each entity, *Designer* and *Constructor* with the GC contract after design is complete).
- *Designer & Construction Manager/General Contractor* (two prime contracts, *CM/GC* contract may provide for design related management services (e.g., cost estimating, constructability review, etc.) prior to construction).
- *Designer/Constructor* (single contract for design and construction with one entity).

The Matrix: Selection Method and Contract Type

Conceivably, any contract type can be implemented with any selection method. However, some combinations may not be practical, desirable, or prudent in most circumstances. The dual decisions to (a) use a particular contractual arrangement, and (b) use any of the four selection methods should be made concurrently. As discussed in the following section, **Project Delivery Method Selection**

Criteria & Processes, the decision must also consider several *Owner* and project related critical factors such as:

- The desired contractual and working relationship between the parties
- The timing and scope of services to be provided
- The timing and extent of detailed project information available to support the procurement/selection process.

Given the above, the balance of this section of the handbook discusses those combinations of contract type and selection method that yield project delivery methods suitable for the public procurement arena and that are accepted by the Alaska Department of Education & Early Development. Also, for the sake of simplicity, titles for each project delivery option are introduced that most closely align industry terminology with the department's goals for each of the delivery options. For example, the traditional public sector delivery method of having separate design and construction contracts, and where the contractor is selected by evaluating the lowest *total construction cost* offered, is most commonly referred to as **Design-Bid-Build**.

The complete list of project delivery options treated in this handbook, along with the corresponding selection method is:

1. **Design-Bid-Build** – competitive sealed bids (D-B-B)
2. **Construction Management/General Contractor** – competitive best value of cost and qualifications (CM/GC BV)
3. **Construction Management/General Contractor** – competitive qualifications (CM/GC QBS)
4. **Design-Build** – competitive best value of cost and qualifications (D-B BV)
5. **Design-Build** – competitive qualifications (D-B QBS)
6. **Design-Build** – competitive sealed bids or proposals (D-B Bid)

Many who are primarily familiar with Design-Bid-Build think of Design-Build as the only "alternative" delivery option. Several states' attempts at legislating alternative project delivery have been very successful in adding one or two options to the traditional list of one (Design-Bid-Build). Few it seems, however, have included all the options very clearly.

Again, since there are no industry standard definitions, everyone has chosen a slightly different set of characteristics to define various delivery options. The **Project Delivery Option Matrix** (see following page) takes this to its simplest form and identifies the characteristics that this handbook uses to uniquely define each option. Each individual can take any delivery option, test it against these criteria, insert their own names and they will be able to align the name of their method with the names chosen for use by DEED for review and approval of project delivery options listed in the matrix. If a contract type and selection method cannot be categorized as a version of these six basic options, the reader is encouraged to contact DEED/Facilities for clarification and assistance.

The following discussion provides the definitions chosen for each of the project delivery options. In order to have a definition that works in as many situations as possible, DEED limited the number of characteristics used to define each option to three unique variables. By having a unique combination of these three defining variables, each delivery option is "uniquely" defined.

There are many "other" characteristics that apply to each of these options. Some of these "other" characteristics are typical characteristics of a particular delivery option but are not used in this handbook as a "unique" defining characteristic. The following example explains why:

> *Pre-construction Services*—work provided by a *Constructor* prior to construction start—are typically provided with the CM/GC project delivery option. Are preconstruction services essential to the definition of this delivery option? Could one use CM/GC, hiring a contractor based on criteria other than low price, after the design is already complete and the need for preconstruction services no longer required? Would this still be CM/GC? Based on the definition used in this handbook, the answer is yes.
>
> If pre-construction services were a "unique" characteristic, then you would have to have two types of CM/GC, one with and one without preconstruction services. This would not be right or wrong. The challenge would be where to stop. The more characteristics used to define a delivery option, the more "unique" combinations and thus, the more delivery options you would end up with on your list.

The goal was to keep the definitions used in this handbook as broad, as essential, as possible so they will work with most industry accepted definitions. Therefore, for purposes of this handbook, characteristics such as preconstruction services are considered to be one of the "other" characteristics (though typical) of CM/GC, but not a "unique" defining characteristic of CM/GC.

Finally, before describing in detail the consensus delivery methods being made available for school capital projects through this handbook, it is appropriate to acknowledge three other project variants. The first, Force Account, is an alternate delivery methods sometimes seen in Alaskan projects. The second, Multiple Prime Contracts, is a project strategy which, ultimately, will use one or more of the project delivery options described in this handbook. The third, Construction Management, has two common variations and is a project or program management strategy.

Force Account, sometimes referred to as In-House on projects with small scopes, is a project delivery method in which there is neither a solicitation nor a contract between parties performing design and construction. Under this delivery method, the *Owner* serves as the *Constructor* and uses labor from its own forces—or direct-hired to supplement its forces—to complete the work. Since, under this delivery method, all risk is borne by the *Owner*, it is best used only on low-risk projects. DEED regulations provide for approval of Force Account or In-House project execution if the estimated cost is less than $100,000, or if it is determined to be in the best interest of the state (ref. 4 AAC 31.080(a).

Multiple Prime Contracts is a project strategy that, in response to issues in the project environment, divides a project into discrete project elements or project phases and uses separate solicitations and contracts for each. Care must be taken to coordinate these contracts well. This project strategy can result in increased risk to the *Owner* when the work of one *Designer* or *Constructor* must be relied on by another to perform their work. DEED has no regulations prohibiting this project strategy but each work element must be procured in compliance with regulations. (See page 28 for additional discussion of this strategy.)

Overview of Project Delivery Options (cont.)

Construction Management is a project or program management strategy. Construction Management professionals—often also Architects and Engineers—serve Owners in managing individual projects or entire capital project programs. The two most common contract structures for construction management services are CM-Advisor and CM-At Risk. A CM-Advisor serves as the Owner's principal agent to advise or manage all process over the life of the project regardless of the delivery method used. Alaska statutes (AS 14.11.020) provide for construction management activity on school capital projects with state-aid and implement some restrictions on the cost of this service as a portion of the project's appropriation. Under a CM-At Risk contract, the Owner not only uses a construction manager in the project development phases but also assigns that CM a construction performance role—essentially making that CM the legal equivalent of a general contractor or *Constructor*. There is inadequate statutory and regulatory authorization for awarding a CM-At Risk contract that ensures fair, open, and competitive selection for construction elements of a school project or projects. **As such, CM-At Risk contracts are not permitted for use on projects with funding under AS 14.11.**

There are three Yes/No toggles in the delivery option determination matrix, three questions that when answered in the affirmative or negative, provide the project delivery options from which an Owner may select. The combination of factors combines to create six, and only six, options under which a school capital project may be delivered. The three questions are these—

1. Are the *Designer* and *Constructor* contracts combined (or separate)?
2. Is the *Construction Cost of Work* a selection criteria?
3. Is the *Total Construction Cost* the sole selection criteria?

The resulting delivery options are as shown in the following **Project Delivery Options Matrix**.

DEED Project Delivery Option Matrix

SELECTION	CONTRACT TYPES: DESIGNER & CONSTRUCTOR (w/SEPARATE CONTRACTS)	CONTRACT TYPES: DESIGNER/CONSTRUCTOR (ONE CONTRACT)
Competitive Sealed Bid (Low Bid) *Total Construction Cost* is sole criteria for selection	Design-Bid-Build	Design-Build-Bid
Competitive Cost Proposal (Best Value) *Total Construction Cost* weighted with other factors for selection	CM/GC Best Value (BV)	Design-Build Best Value (BV)
Competitive Qualifications Proposal (Qualifications Based Selection) *Total Construction Cost* is not a factor for selection	CM/GC QBS	Design-Build QBS

Overview of Project Delivery Options (cont.)

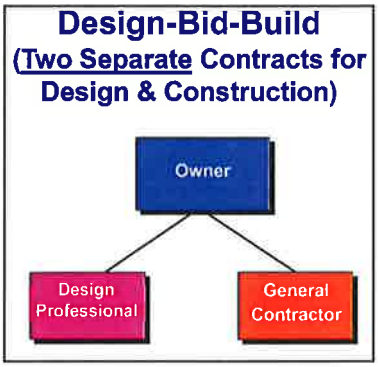
In the following discussion, the unique combination of characteristics is listed for each project delivery option along with some "other" characteristics that are typical of each option but not defining. An overview of the typical phases of each delivery option is also covered.

Defining Design-Bid-Build – Unique Characteristics of (D-B-B)
Design-Bid-Build is the most common project delivery option. It is often referred to as the "traditional" method. For school projects in Alaska with a state contribution, Design-Bid-Build is the default delivery method. All other project delivery options require a specified approval.

There are three prime players: *Owner*, *Designer*, and *Constructor* (general contractor)

The three-question test has the following result:

Are the *Designer* and *Constructor* contracts combined?	**NO**
Is the *Construction Cost of Work* a selection criteria?	**YES**
Is the *Total Construction Cost* the sole selection criteria?	**YES**



Contractor selection: Based on *Total Construction Cost* with the award going to the lowest responsible and responsive bidder.

Design-Bid-Build – Other Characteristics

- Relationship of Phases: linear sequencing of each of the project phases
- Ability to Bring *Constructor* on Board During Design: **No**
- Risk Allocation: Design risk (quality) allocated to *Designer*; Construction risk (cost and schedule) allocated to general contractor after design is complete and completion of bid and award phase; *Owner* is responsible for adequacy and completeness of design.

Phases – Design-Bid-Build

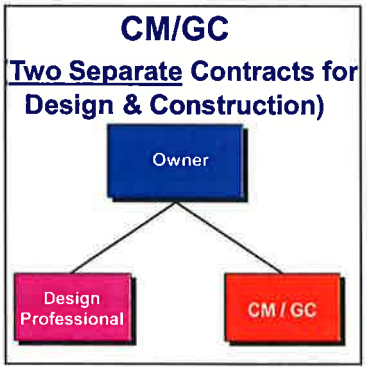
- Planning – The scope of the project and expectations of quality are established by the *Owner* and any consultants it may need. A delivery option is selected and corresponding budget and schedule are also established.
- Design – When the Planning has been completed, the *Owner* selects and engages the design team for the design and preparation of construction documents.
- Award – When design documents are complete, they are used for construction bidding. A *Constructor* is selected based on the lowest responsible and responsive price and construction cost commitments are made.
- Construction – The *Owner* contracts for construction with the general contractor and the project is built.
- Occupancy – After the construction of the entire project has been completed, the *Constructor* leaves the site to allow for move-in (installation of *Owner*-furnished equipment and furnishings) and occupancy. If arrangements are made in advance, certain areas of the project (partial occupancy) can be occupied prior to the completion of the entire project.

Defining Construction Manager/General Contractor Best Value – Unique Characteristics of CM/GC BV

There are three prime players: *Owner*, *Designer* and *Constructor* (manager-general contractor)

The three-question test has the following result:

Are the *Designer* and *Constructor* contracts combined?	**NO**
Is the *Construction Cost of Work* a selection criteria?	**YES**
Is the *Total Construction Cost* the sole selection criteria?	**NO**



CM/GC selection: Based on a best value weighting of *Total Construction Cost* with other factors; the award goes to the CM/GC that best meets the predefined qualifications and cost selection criteria.

CM/GC Best Value – Other Characteristics

- Relationship of Phases: can accommodate overlapping of each of the project phases
- Ability to Bring Constructor on Board During Design: **Yes**
- Risk Allocation: Design risk (quality) allocated to *Designer*; Construction risk (cost and schedule) allocated to CM/GC at the time of selection based on the design documents at the point in time of the selection. *Owner* is responsible for adequacy and completeness of design.

Phases – CM/GC Best Value

- Planning – The scope of the project and expectations of quality are established by the *Owner* and any consultants it may need. A delivery option is selected and corresponding budget and schedule are also established.
- Design – When the Planning has been completed, the *Owner* selects and engages the design team for the design and preparation of construction documents.
- Award – Generally prior to the completion of design documents, a CM/GC is selected based on a combination of price and qualifications and a guaranteed maximum price for construction is established at selection.
- Construction – The *Owner* contracts for construction with the CM/GC who then contracts with the various trade contractors using cost as the primary selection criteria. The CM/GC can be available during the final design phase to assist in constructability and budget reviews. Work can begin as soon as phased construction documents are completed.
- Occupancy – After the construction of the entire project has been completed, the *Constructor* leaves the site to allow for move-in (installation of *Owner*-furnished equipment and furnishings) and occupancy. If arrangements are made in advance, certain areas of the project (partial occupancy) can be occupied prior to the completion of the entire project.

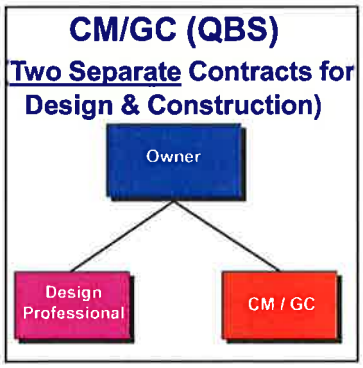
Overview of Project Delivery Options (cont.)

Defining Construction Manager/General Contractor Qualifications Based Selection – Unique Characteristics of CM/GC QBS

There are three prime players: *Owner*, *Designer* and *Constructor* (manager-general contractor)

The three-question test has the following result:

Are the *Designer* and *Constructor* contracts combined?	**NO**
Is the *Construction Cost of Work* a selection criteria?	**NO**
Is the *Total Construction Cost* the sole selection criteria?	**NO**



CM/GC selection: Qualifications based; does not incorporate any weighting for the *Construction Cost of Work*. Rather, selection is based on weighting of predefined criteria with the award going to the offeror that best meets the predefined criteria; selection criteria must include weighting of some cost factors at 50% unless otherwise approved by DEED. Typically these include *General Conditions* or *Fee* costs.

CM/GC QBS – Other Characteristics

- Relationship of Phases: can accommodate overlapping of each of the project phases
- Ability to Bring *Constructor* on Board During Design: **Yes**
- Risk Allocation: Design risk (quality) allocated to *Designer*; Construction risk (cost and schedule) allocated to CM/GC after design is complete enough to allow all parties to mutually agree. *Owner* is responsible for adequacy and completeness of design.

Phases – CM/GC QBS

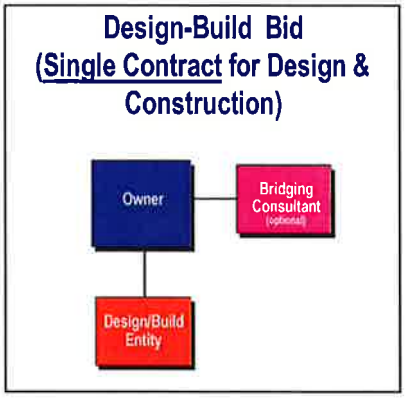
- Planning – The scope of the project and expectations of quality are established by the *Owner* and any consultants it may need. A delivery option is selected and a corresponding budget and schedule are also established.
- Design - When the Planning has been completed, the *Owner* engages the design team for the design and preparation of construction documents for the project.
- Award – Generally prior to the completion of the design documents, a CM/GC is selected based on the qualifications of the CM/GC. The cost of the CM/GC's *Fee* and *General Conditions* may also be a consideration.
- Construction – The *Owner* contracts for construction with the CM/GC who then contracts with the various trade contractors based on selection criteria agreed upon by the *Owner*. The CM/GC can be available during the final design phase to assist in constructability and budget reviews. Work can begin as soon as phased construction documents are completed. The establishment of the Guaranteed Maximum Price or Lump Sum can be postponed until more complete design and cost information is available.
- Occupancy – After the construction of the entire project has been completed, the *Constructor* leaves the site to allow for move-in (installation of *Owner*-furnished equipment and furnishings) and occupancy. If arrangements are made in advance, certain areas of the project (partial occupancy) can be occupied prior to the completion of the entire project.

Defining Design-Build Bid – Unique Characteristics

There are two prime players: The *Owner* and the *Design-Builder*. [The *Designer* (architect) and the *Constructor* (general contractor) are combined into one entity.]

The three-question test has the following result:

Are the *Designer* and *Constructor* contracts combined?	**YES**
Is the *Construction Cost of Work* a selection criteria?	**YES**
Is the *Total Construction Cost* the sole selection criteria?	**YES**



Design-Builder selection: Based on *Total Design and Construction Cost* with the award going to the lowest responsible and responsive bidder.

D-B Bid – Other Characteristics

- Relationship of Phases: Can accommodate overlapping of each of the project phases
- Ability to Bring *Constructor* on Board During Design: **Yes**
- Risk Allocation: Design risk (quality) and Construction risk (cost and schedule) allocated to *Design-Builder* at the time of selection based on design criteria at the point in time of the selection. *Design-Builder* is responsible for adequacy and completeness of design and subsequently the entire project; *Owner* is responsible for adequacy of design criteria.

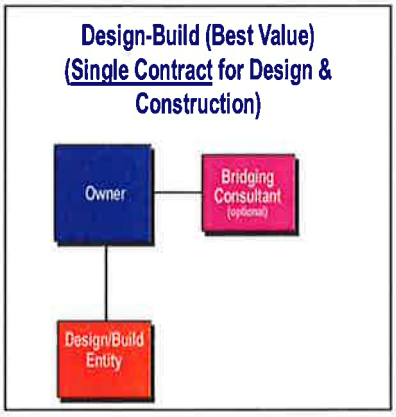
Phases – D-B Bid

- Planning – The scope of the project and expectations of quality are established by the *Owner* and any consultants it may need. A delivery option is selected and a corresponding budget and schedule are also established.
- Bridging - Hiring a consultant (optional) to assist in developing the design to some point without completing the final design, and then allowing another firm, usually a design-build entity, to complete the design is referred to as bridging. The initial design firm is often referred to as the "bridging architect" and the firm completing the design is the architect of record and assumes the liability for the design.
- Design – Based on a set of design criteria provided by the *Owner* (which should be extensive if using this option), *Design-Builder* prepares phased construction documents. *Constructor* component of the *Design-Builder* is available during this period for constructability and budget reviews.
- Award – Concurrent award of both the design and construction phases. Lump Sum is established at selection.
- Construction – *Design-Builder* selects trade contractors, usually with cost as the primary selection criteria. Construction can begin as soon as phased construction documents are available.
- Occupancy – After the construction of the entire project has been completed, the *Constructor* leaves the site to allow for move-in (installation of *Owner*-furnished equipment and furnishings) and occupancy. If arrangements are made in advance, certain areas of the project (partial occupancy) can be occupied prior to the completion of the entire project.

Overview of Project Delivery Options (cont.)

Defining Design-Build Best Value – Unique Characteristics of D-B BV

There are two prime players: The *Owner* and the *Design-Builder*. [The *Designer* (architect) and the *Constructor* (general contractor) are combined into one entity.]



The three-question test has the following result:

Are the *Designer* and *Constructor* contracts combined?	**YES**
Is the *Construction Cost of Work* a selection criteria?	**YES**
Is the *Total Construction Cost* the sole selection criteria?	**NO**

Design-Builder selection is based on some weighting of *Total Construction Cost* including the *Construction Cost of Work* with the award going to the Design/Builder that best meets the predefined qualifications and cost selection criteria.

Design-Build BV – Other Characteristics

- Relationship of Phases: Can accommodate overlapping of the project phases
- Ability to Bring *Constructor* on Board During Design: **Yes**
- Risk Allocation: Design risk (quality) and Construction risk (cost and schedule) allocated to *Design-Builder* at the time of selection based on design criteria and building requirements at the point in time of the selection. *Design-Builder* is responsible for adequacy and completeness of design and subsequently the entire project; *Owner* is responsible for adequacy of design criteria.

Phases – Design-Build BV

- Planning – The scope of the project and expectations of quality are established by the *Owner* and any consultants it may need. A delivery option is selected and a corresponding budget and schedule are also established.
- Bridging – Hiring a consultant (optional) to assist in developing the design to some point without completing the final design is referred to as bridging. The initial design firm is often referred to as the "bridging architect" and the firm completing the design is the architect of record and assumes the liability for the design.
- Design – Based on a set of design criteria provided by the *Owner*, *Design-Builder* prepares phased construction documents. *Constructor* component of the *Design-Builder* is available during this period for constructability and budget reviews.
- Award – Concurrent award of both the design and construction phases. Guaranteed Maximum Price is usually established at selection.
- Construction – *Design-Builder* selects trade contractors, usually with cost as the primary selection criteria. Construction can begin as soon as phased construction documents are available.
- Occupancy – After the construction of the entire project has been completed, the *Constructor* leaves the site to allow for move-in (installation of *Owner*-furnished equipment and furnishings) and occupancy. If arrangements are made in advance, certain areas of the project (partial occupancy) can be occupied prior to the completion of the entire project.

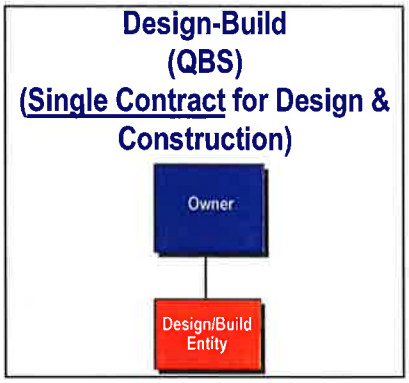
Overview of Project Delivery Options (cont.)

Defining Design-Build Qualifications Based Selection – Unique Characteristics of D-B QBS

There are two prime players: The *Owner* and the *Design-Builder*. [The *Designer* (architect) and the *Constructor* (general contractor) are combined into one entity.]

The three-question test has the following result:

Are the *Designer* and *Constructor* contracts combined?	**YES**
Is the *Construction Cost of Work* a selection criteria?	**NO**
Is the *Total Construction Cost* the sole selection criteria?	**NO**



Design-Builder selection is not based on any weighting of the *Construction Cost of Work*. Rather selection is based on weighting of predefined criteria, with the award going to the *Design-Builder* that best meets the predefined selection criteria. Selection criteria may include some weighing of *General Conditions Costs* and/or *Fee*.

Design/Build QBS – Other Characteristics

- Relationship of Phases: Can accommodate overlapping of the project phases.
- Ability to Bring *Constructor* on Board During Design: **Yes**
- Design risk (quality) and Construction risk (cost and schedule) allocated to *Design Builder* at the time of selection based on design criteria and building requirements at the point in time of the selection. *Design-Builder* is responsible for adequacy and completeness of design and subsequently the entire project; *Owner* is responsible for adequacy of design criteria.

Phases – Design-Build QBS

- Planning – The scope of the project and expectations of quality are established by the *Owner* and any consultants it may need. A corresponding budget and schedule are also established.
- Design – Based on a set of design criteria provided by the *Owner*, *Design-Builder* prepares phased construction documents. *Constructor* component of the *Design-Builder* is available during this period for constructability and budget reviews. *Owner* and review agencies can participate in the process.
- Award – Concurrent award of both the design and construction phases. Establishment of Guaranteed Maximum Price or Lump Sum can be postponed until more accurate scope and cost information are available.
- Construction – *Design-Builder* selects trade contractors, usually with *Owner* input. Construction can begin as soon as phased construction documents are available.
- Occupancy – After the construction of the entire project has been completed, the *Constructor* leaves the site to allow for move-in (installation of *Owner*-furnished equipment and furnishings) and occupancy. If arrangements are made in advance, certain areas of the project (partial occupancy) can be occupied prior to the completion of the entire project.

Delivery Method Selection Criteria & Processes

Introduction

Having established a project delivery method vocabulary, the next step is to determine which of the options is most appropriate for a particular project. While no project delivery option is perfect, one option may be better suited than another based on the unique requirements for a particular project. This handbook does not assume there is only one acceptable option for project delivery. The requirements for each project should be evaluated to determine which of the various options would most likely produce the best outcome for the state and the school district or municipality/borough.

Prior to starting the process to select the most appropriate project delivery method it would be advisable to review again, your entities' ability to choose among those listed in the previous section. Administrative code or policy within a given entity may also determine which project delivery options may be used. A review of pertinent laws, rules, regulations and policies early in the life of a project is also strongly recommended in order to allow time to obtain approval for use of an alternative project delivery method.

For example, regulations promulgated by the Department of Education & Early Development require that all contracts over $100,000 be awarded based on competitive sealed bids unless an alternative construction delivery method is approved and the department concurs in advance of any solicitation the proposed delivery method is in the state's best interest.

To be able to recommend the most appropriate option, experience in going through the thought-process of applying the factors outlined in this section is essential. It is even better, and widely considered to be good practice, to use the counsel of a group of trusted advisors who can help to ensure that all the factors and their interrelationships can be as fully evaluated as possible.

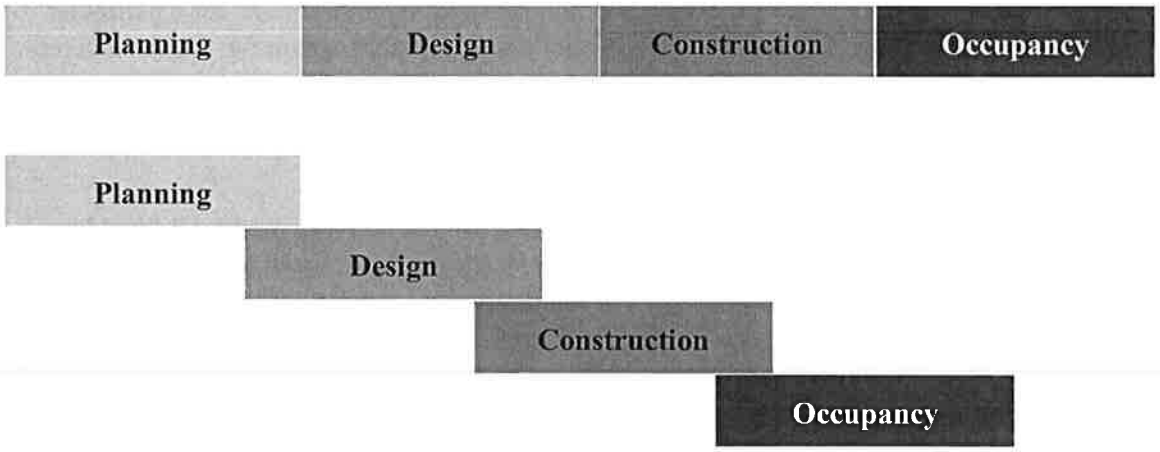
Trusted advisors should be experienced not only in going through the thought-process of applying the major factors, but ideally would be experienced with implementing all of the different delivery options. Everyone is biased based on his or her individual experiences. An advisor should be able to admit his or her prejudices based on their experiences and then set them aside to help evaluate which delivery option is in the best interest of a particular project.

The Project Environment

The recipient entity of state aid for school construction through DEED should consider the environment in which the project is taking place. It should assess the major factors influencing the project in question and then consider the requirements of the project in light of the unique characteristics of each of the identified project delivery options. By properly assessing these influences, the entity requesting approval from the department will not only be able request a specific delivery option, but will also be able to answer the question, "Why am I recommending this particular delivery option?"

Delivery Method Selection Criteria & Processes (cont.)

Every project occurs in the context of a unique environment, an environment consisting of a variety of both physical and philosophical factors. This environment bears greatly on the successful maturation of a project. That maturation occurs in four typical phases: planning, design, construction and occupancy. These can occur sequentially or may be overlapped (see illustration).



The main characteristics of a project's environment consist of: its schedule, the need and ability to establish and define its scope, the resources available to the project, the risks associated with the project, and the external constraints placed on the project.

Part of the project environment is the associated risks. The risks associated with the design and construction process are generally not affected by the chosen project delivery method. However, the timing and the allocation of the risk does vary depending on the project delivery method. Therefore, each delivery option provides a different approach to allocating the risks and typically will result in timing differences in transferring the various risks. Any first time user of any project delivery option is cautioned to be sure they understand these differences.

The degree of risk assumed by the *Designer* and/or *Constructor* should be directly proportional to the cost associated with the project. The risk(s) associated with a construction project should be allocated to the party with the best ability to control and manage that risk. The purchase and the requirement for purchase of insurance coverage is just one way in which *Owners*, *Designers*, and *Constructors* try to allocate and controls some of the risk.

In selecting the appropriate delivery method, a thorough review of the potential risks and their allocation should be performed. The *Owner* should evaluate its ability and willingness to assume the risk inherent to the option selected. To accomplish this, each of the relevant major factors should be reviewed and considered.

Although identifying and coping with the factors in a project's environment is both complex and an ongoing task until completion is achieved, the focus of this handbook is primarily project initiation not project execution. We will use the luxury of this focus to narrow our determination of primary factors from the overall project environment to those that bear most directly on

determining the "best" project delivery method. We are further assisted in this effort by one of the external factors for school construction projects receiving state aid. This external factor is that the Design-Bid-Build project delivery option is the standard project delivery method for school construction projects. However, we can recognize there are some primary factors affecting particular projects that might eliminate this delivery method or make it untenable without significantly increasing risk.

Establishing Determining Factors

This handbook groups the *Primary Factors* into five categories as shown in the table below:

Need Factors		Success Factors		
Schedule/ Necessity to Overlap Phases	**Ability to Define the Project Scope/Potential for Changes**	***Owner's* Internal Resources & Philosophy**	**Desire for a Single Contract or Separate Contracts**	**Regulatory/ Legal or Funding Constraints**
Tight Project Milestones or Deadlines	Scope Definition	Ability or Desire to Define and Verify Program & Design Content/Quality	Ability or Desire to Take Responsibility for Managing the Design	Regulatory and Statutory Requirements
Amount of Overlap of Design & Construction Phases	Potential for Changes During Construction	Experience with the Particular Delivery Method & Forms of Contracts	Ability or Desire to Eliminate Responsibility for Disputes Between Designer and Builder	State Budget and Funding Cycles
	Need/Desire for the Contractor's Input During Design	Ability to Participate in Multiple Trade Contractor/Supplier Evaluations		
	Flexibility to Make Design Changes After Construction Cost Commitments	Desired Contractual Relationship and Ability to Recoup Savings		

These are certainly not all that need to be considered but addressing these *Primary Factors* will guide the selection of the most appropriate delivery option. Furthermore, addressing these early in the project cycle will increase the chances for a successful project.

The first two categories are grouped as *Need Factors*. These factors determine the need to move away from the Design-Bid-Build delivery method established as the standard delivery method for projects administered by DEED. Entities requesting approval for an alternative project delivery method must "prove out" in these categories regardless of their desire or preference for a delivery method other than Design-Bid-Build. The remaining three categories are grouped as *Success Factors*. These are the elements of the project environment that can determine how likely a project is to succeed in using an alternative project delivery method and which of the delivery options is most appropriate. Many of these are tied to the *Owner's* ability to execute the project in a non-traditional method. Following an acceptance by DEED that a need to move away from the

a non-traditional method. Following an acceptance by DEED that a need to move away from the department's standard delivery method has been established, the requesting entity must demonstrate it both has chosen and that it has the ability to manage the factors of the project environment aligned with the successful implementation of the alternative delivery option being considered.

Selecting a Delivery Method

Although there are a number of factors in making a decision concerning which project delivery option to recommend, by the time a few *primary factors* are applied, it becomes apparent which options are least appropriate. By the process of elimination, the most appropriate option(s) can be determined.

For each factor, there is a *Critical Question* that should be considered. Grouped within the five categories, each *primary factor* is listed along with its critical question, appropriate commentary and the ramifications associated with the answer. *Need factors* are addressed first.

NEED FACTOR: Schedule/Necessity to Overlap Phases

Primary Factor: *Tight Project Milestones or Deadlines*

Critical Question: *Is overlap of design and construction phases necessary to meet schedule requirements?*

Discussion: Schedule is always a consideration on construction projects and will often drive the selection of the project delivery option. During the planning phase, a preliminary schedule should be developed. This master schedule will include an estimated duration for each phase of the project: needs assessment, project identification, planning, design, award, construction, and occupancy.

Simultaneously, the school district entity should evaluate their required date for occupancy. Comparing this date to the date generated from early versions of the preliminary master schedule will indicate whether any acceleration or overlapping of any of the phases may be required. "Traditional" Design-Bid-Build is inherently a linear, sequential process as opposed to Design-Build or CM/GC, each of which is capable of overlapping of the phases in the design and construction process.

Ramifications: If the project requires a schedule that can only be maintained by overlapping of the design and construction phases, then one of the alternative delivery options should be considered.

Primary Factor: *Amount of Overlap of Design and Construction Phases*

Critical Question: *Is there time to complete the Design Development stage of the design prior to starting construction?*

Discussion: Assuming it has already been determined that a traditional linear approach to the design and construction phases will not work, and some overlapping of the two phases is necessary, the next question is, "How much overlap of the design and construction is required?" If the construction start date is dictated by the construction completion date, and is required to be very early in the design process (e.g., during the Schematic or early Design Development stages), then the *Owner* should understand the additional responsibility and risk it may be taking by retaining the design responsibility and holding the design contract.

Other factors such as available resources to manage the design, experience with managing the aggressive decision making that will be required, and the possibility of being placed in between the *Designer* and the *Constructor* would all be closely related to the evaluation of this factor.

Ramifications: If the project requires that construction start early in the design process, then who is taking responsibility for managing the design and the timely completion of the design needs to be considered. Transferring the design risk to the party responsible for construction may be a reason to consider using Design-Build in lieu of CM/GC.

NEED FACTOR: Ability to Define the Project Scope/Potential for Changes

Primary Factor: Scope Definition

Critical Question: Is the scope of work difficult to define?

Discussion: Each District/Municipality is unique and will have special requirements that could have a major impact on determining the proper method of delivery. Similarly, the complexity of the project and the ability to fully define the scope, early in the process, could also have an impact on determining the appropriate project delivery option.

The three points in any project where the need to define the scope become critical are:

1. Prior to selection of a constructor
2. After selection of a constructor but prior to establishing quality, cost, and schedule
3. After establishing quality, cost, and schedule

Each delivery option will require different levels of scope definition at each of these critical points. The inability to fully define scope early in the process will have a direct impact upon the *Owner's* ability to manage scope and cost increases later in the project.

Ramifications: If it would be difficult to produce a set of drawings and specifications that will fully describe the work in question (e.g., a renovation of an existing building), then one of the qualifications based selection options should be considered.

Primary Factor: *Potential for Changes During Construction*

Critical Question: *Is there a significant potential for changes during the construction phase?*

Discussion: Whenever the scope is difficult to define or other issues tend to indicate that there is a high potential for changes during the construction phase, careful consideration should be given on how this will be handled. If one of the competitive cost delivery options (D-B-B, CM/GC BV, D-B BV) is used, as much of the work as possible should be quantified before a lump sum cost is agreed upon. In an environment of high uncertainty, one of the competitive qualifications options (CM/GC QBS, D-B QBS) should be considered.

Ramifications: If the scope of the project is likely to change during construction, then one of the qualifications based delivery options may be more appropriate. An example might be a project where the tenants are unknown or likely to change. In this example, the identification of the tenants may be a cause for required changes throughout all phases of the project including during the construction phase.

Primary Factor: *Need/Desire for the Contractor's Input During Design*

Critical Question: *Is input from a Constructor during design required or desired?*

Discussion: Throughout a project, the *Owner* will make decisions based on their definition of value. What varies from one project delivery option to another is who (which team member) is providing the information and when are they providing it during the project sequence.

This handbook looks at two broad types of information provided: 1) Design Solution and 2) Constructability (including cost and schedule review of design solutions). What differs with each delivery option is who is providing the information and when are they brought on board. Also, when the information is being provided, and whether the information is intended to be provided at specific points in time or continuously throughout the process will depend on which delivery option is chosen.

There are many times when the demands of the project are unique or difficult to quantify. In these instances, the option of having the *Constructor* on board during the design phase can be of value. The *Constructor* can assist in schedule development and monitoring, in constructability and budget reviews, in factoring in current market conditions, and in locating and procuring long lead equipment items and trade contractors necessary for the work.

If there are significant schedule, budget or constructability issues, it can be helpful for the decision maker to review these issues during the design phase. Many times the *Designer* does not have the range of experience in the actual construction of a project to adequately address these issues. However, it should be noted that it is possible to hire a consultant to perform these tasks that will leave the agency open to all of the delivery methods and enable management and development of the scheme prior to commitment to a *Constructor*.

Ramifications: If the assistance of the *Constructor* is desired during the design phase to assist in defining the scope, constructability reviews, schedule determination, or budget confirmation, then one of the alternative delivery options should be considered.

Primary Factor: *Flexibility to Make Design Changes After Construction Cost Commitments*

Critical Question: *Are your design and scope requirements fully defined?*

Discussion: The cost of making changes throughout a construction project increases as the project develops. In the worst case this would include needing to make changes to work already in place. In an ideal situation, the design should be developed to the point where the scope of works is known and the amount of changes can be reasonably predicted before commitment to a *Constructor*.

Where the design is used as the basis for selection of the *Constructor* in a competitive cost environment, its completeness will be a key factor in the successful cost management of the project once a commitment has been made to a contractor, regardless of whether construction has started.

Ramifications: It is important when selecting your project delivery method to consider how tightly the scope of work can be defined and review whether design flexibility is required during the construction process. If a significant amount of flexibility is required after commitment to a contractor, then a qualifications based selection method might be more appropriate than one of the competitive cost methods.

SUCCESS FACTOR: *Owner's* Internal Resources & Philosophy

Primary Factor: *Ability or Desire to Define and Verify Program and Design Content/Quality*

Critical Question: *Will the Owner utilize outside resources to verify quality?*

Discussion: The *Owner's* assurance that there is a responsible person designated to verify quality during construction will relate directly to the *Owner's* in-house resource availability, and to what party the *Owner* assigns the role of project management on each specific project. How much direct influence an *Owner* has on how the quality is defined and verified will be affected by the decision of which option is chosen.

The *Owner's* definition of quality must be identified and communicated for the record early in the process. The quality of a construction project can be characterized by the following:

- *Functional quality* – the ability of the facility space to meet the *Owner's* program requirements (as well as code and safety requirements)
- *Systems quality* – the ability of the various building systems to meet the *Owner's* defined needs
- *Aesthetic (scope) quality* – the level of design and finish as defined in the design documents
- *Workmanship quality* – the physical execution of the design

All of these are closely related. How they are defined and verified should be considered when determining which project delivery option to use.

In the standard Design-Bid-Build delivery option, the definition of quality is heavily dependent upon the architect's ability to understand and translate the *Owner's* needs. In the CM/GC delivery options, this task is still assigned to the architect, though with assistance from the contractor. In Design-Build the *Design-Builder* assumes these duties. Production of quality during the construction phase is, in every option, the primary responsibility of the *Constructor*, but the verification of that quality will vary between the options. The architect, as the *Owner's* representative, is responsible in Design-Bid-Build and CM/GC. The *Owner* assumes this role in Design-Build.

Ramifications: If in-house resources are not available, extra caution should be taken when using Design-Build. If Design-Build is desired and in-house resources are not available, outside resources should be engaged to assist in verifying that the quality desired by the *Owner* is incorporated.

Primary Factor: *Experience with the Particular Delivery Method and Forms of Contracts*

Critical Question: *Are agency in-house personnel experienced in alternative delivery options or, if not, will in-house personnel be augmented by other agency or contracted personnel?*

Discussion: The responsibility for success on every school construction project ultimately rests with the entity executing the project. Thus, the responsibility for overseeing and managing the entire process resides with the *Owner*. A "project manager" typically handles the process, whether formalized or not. For a typical school project, this responsibility can be fulfilled in one of several ways including:

1. In-house resources
2. Another state agency (i.e., DOT/PF)
3. A third-party consultant

One factor to consider is the level of expertise and experience of the *Owner* embarking on the construction project. In deciding which project delivery option and form of contract to recommend, the availability of *Owner* staff resources and experience is a major consideration. Some entities perform construction routinely and have capable and available staff to manage all phases of the project. Others seldom involve themselves in construction and thus will need to obtain experienced assistance.

Obtaining assistance for the *Owner* from a third party project or program manager in certain circumstances may be considered. There are unique requirements for the school construction process. This should be taken into consideration when evaluating the use of third-party resources.

Ramifications: Regardless of the delivery option selected, if the *Owner* is inexperienced in management of a capital outlay program, assistance should be obtained by contracting with an experienced professional or by making arrangements for assistance from another state agency that has that experience.

Primary Factor: *Ability to Participate in Multiple Trade Contractor/Supplier Evaluations*

Critical Question: *Does the Owner need the ability to participate in the selection and evaluation of trade contractors or suppliers?*

Discussion: There may be instances where the *Owner* has a direct interest in the selection and evaluation of subcontractors or suppliers for a portion or the majority of the work. For example, the *Owner* may have a complex security system within a building that will require development with a particular subcontractor.
Instances may also occur where many elements of the project scope require development, particularly in a fast track environment, and a relationship is required that offers a high degree of flexibility in choice and cost transparency from the subcontractor via the contractor.

Ramifications: Where the input required is limited to specific trades or suppliers it is important to ensure the *Owner's* bid documents are structured in such a way to allow control over individual elements, in which case any of the delivery options could suit the *Owner's* requirements. However, if the *Owner* requires a high degree of flexibility across many elements of the project, or the level of control is anticipated but unknown, then a competitive qualifications selection option will afford the *Owner* greater control and cost transparency.

Primary Factor: *Desired Contractual Relationship and Ability to Recoup Savings*

Critical Question: *Does the Owner wish to have a complete and timely access to all of the Contractor's Information?*

Discussion: How the *Owner* selects the construction entity and the resulting contractual relationship created will affect what information is required to be provided and when. For

example, whether or not the recipient entity and their consultants are participants in the specialty contractor and vendor selection process and the information shared during this process, will be a direct result of the contractual relationship created. Access to all available information may or may not be necessary or desired. The *Owner* should be aware that the selection of a project delivery option and the resulting contractual relationship would likely affect the manner in which information may be required to be provided.

Legally, a fiduciary relationship arises automatically in several situations, however the specific form of fiduciary relationship contemplated in this document is the one arising when a person or firm has a duty to act for another on matters falling within a contractual relationship. More specifically, a person or entity acting in a fiduciary relationship to the *Owner* owes the *Owner* the duties of good faith, trust, confidence, and candor, and must exercise a high standard of care in managing money and property.

A *Constructor* selection based solely on *Total Construction Cost* will generally result in a contractual relationship that is not a fiduciary one. This will affect the timing of the availability of information and the ability of the *Owner* to make use of that information. If the construction entity is not on board during the design (typical in Design-Bid-Build when cost is the only consideration), collaboration at this stage is not an issue. If, however, some contractor involvement during the design phase is needed, a *best value* selection that includes considerations other than *Total Construction Cost*, can be used in selecting the *CM/GC* or the *Design-Builder*. Nonetheless, the contractual relationship developed is generally very similar to Design-Bid-Build concerning access to information.

A *qualifications based selection* (i.e., the *Construction Cost of Work* not a factor at the time of selection) will create a fiduciary relationship. This also allows complete and timely access to the contractor's information. If the project scope is difficult to define, or matching the scope to the project budget is anticipated to be difficult, then having a collaborative process could prove to be advantageous. In such situations, a qualifications-based selection might be more appropriate.

Ramifications: If the project necessitates an open, collaborative relationship among the parties, then a *qualifications based selection* should be considered.

SUCCESS FACTOR: Desire for a Single Contract or Separate Contracts

Primary Factor: *Ability or Desire to Take Responsibility for Managing the Design*

Critical Question: *Does the Owner have in-house design resources qualified to oversee design professionals, and does the Owner have the ability to commit sufficient resources to design management?*

Discussion: Some recipient entities may have professional staff capable of providing quality oversight of design professionals for the *Owner*. The *Owner* must make an honest self-assessment, taking into account factors regarding complexity of the project and competing

obligations of in-house staff, to determine realistically whether the agency is capable of design management.

Given self-assurance in agency ability, the agency can then consider the practicality of any desire to take on the responsibility for providing design management. If the project is of such unique function that the *Owner* has greater knowledge of its design intent than the agency thinks could be translated reliably into a design without intimate involvement of the district or municipality's own staff, then the *Owner* should consider holding a separate contract with the design professional. However, if the desire exists, the *Owner* must consider its commitment to provide the necessary resources.

Ramifications: Ability and desire to manage the design of a project are both reasons to consider holding separate contracts for design and construction, and argue against Design-Build.

Primary Factor: *Ability or Desire to Eliminate Responsibility for Disputes Between Designer and Builder*

Critical Question: *Does the Owner desire to hold a single entity responsible for coordination, collaboration, and productivity for the entire project?*

Discussion: A completed project is the result of extensive coordination of talent and resources. The skill sets of the *Designer* are not the same as those of the *Constructor*. Viewpoints and interpretations differ, as do personalities, agendas, ethics, and levels of responsibility.

Although holding separate contracts allows the *Owner* to manage the project through the leverage of direct legal relationships with the *Designer* and with the *Constructor*, the *Owner* takes on the responsibility for resolving disputes between the other two parties. If the *Owner* has the greater desire to transfer that responsibility than to use his contractual leverage, its tool is the single contract with an integrated contractual delivery method—Design-Build.

Ramifications: The integrated nature of Design-Build, with its single contract, allows the *Owner* to hold a single entity responsible for the project and keeps disputes between the *Designer* and the *Constructor* in-house with the *Design-Builder*. The trade-off is the loss of *Owner* leverage penetrating separately to the differing skill sets and corresponding work products.

SUCCESS FACTOR: Regulatory/Legal or Funding Constraints

Primary Factor: *Regulatory and Statutory Requirements*

Critical Question: *Do laws, rules, regulations, etc., permit the use of an alternative project delivery method?*

Discussion: The statutory and regulatory basis for use of alternative project delivery methods on school construction projects has already been set out in an earlier portion of this publication.

The local requirements, under which a District/Municipal entity undertaking a project operates, may ultimately be the deciding factor in selecting the project delivery option. While the statutes, regulations and policies of the Departments of Administration (DOA) and Transportation & Public Facilities (DOT/PF) govern the procurement process for most State agencies, political subdivisions of the state may adopt their own laws, rules, regulations, and policies. While it is generally safe to say that the "standard" method of *Design-Bid-Build* is an acceptable method for all District/ Municipal entities, a review of the pertinent laws, rules, regulations, and policies early in the life of the project is strongly recommended in order to allow time to obtain approval for use of an alternative project delivery option. Regulations within a given locality may also determine which project delivery option can be used.

For school capital projects that incorporate state aid through the Department of Education & Early Development, regulations require that all contracts be awarded based on competitive sealed bids unless an alternative delivery option is approved by the commissioner. The commissioner will base a decision on the rationale provided by the requesting agency and the factors discussed in this handbook.

Ramifications: The decision on what delivery option is most appropriate must be made early in the planning phase of the project and properly documented so that sufficient time and justification can be prepared to gain approval for an alternative delivery option if that option is most appropriate.

Primary Factor: *State Budget and Funding Cycles*

Critical Question: *Is funding available for construction at initiation of design?*

Discussion: The State's budget and funding cycle could have an impact on the timing, sequencing and a subsequent recommendation of a project delivery option. There are three funding combinations for design and construction addressed by this handbook. One is complete project funding that would include design and construction funding all at one time. The second is phased project funding, which is one funding for design, and a second separate funding for construction. The third, is phased construction funding which is one funding for design and then funding of multiple components of construction each funded separately.

Ramifications: While any of the options will work with complete project funding, any phasing of the funding can have a major impact on the decision of which option to select. For example, without complete project funding, Design-Build is not feasible.

Summary

With a list of options and list of major factors to consider, the goal is to determine through a process of elimination, "Which project delivery options are least appropriate to recommend on my project?"

The order in which the *primary factors* are applied by DEED in the review and approval process is illustrated in the ***DEED Alternative Project Delivery Approval Flowchart*** shown in Appendix B. An assessment of the *Need Factors* is applied to the project, any one of which may drive the need to use an alternate project delivery method. Next, the *Success Factors* are applied. These factors reflect judgments that must be made regarding the ability of *Owners* to be successful in implementing a particular delivery method. You should consider the input of several advisers who have experience going through this process. This experience will enable the *Owner* to understand the consequences of managing the project under the various delivery options.

For example, the need to accelerate the schedule may be cited as one of the primary reasons Design-Bid-Build is not the best option. There are circumstances, however, where breaking the project into multiple prime bid packages, each being design-bid-build, is a perfectly reasonable option. Having someone with the experience and understanding of how to manage such a process, and the risks associated with it, could offer valuable guidance as to many of the pros and cons of delivering a specific project using the multiple prime contractor variant of the Design-Bid-Build project delivery method.

As the factors are considered, how they relate to the ***DEED Project Delivery Option Matrix*** (p. 12) demonstrates which options have been eliminated. Since every project is unique, which factors apply and the weight they need to be given is also unique on every project. A group of trusted advisers should be able to use the benefit of their experience to assist the *Owner* in determining which factors should carry the most weight and ultimately which of these six options is most appropriate for each particular project.

Implementing Project Delivery Methods

Introduction

Just selecting the "right" delivery option is not enough. There are numerous details to be addressed in order to ensure the desired results are achieved. Requests For Proposals (RFPs) that clearly spell out expectations and match the right selection criteria with the right project delivery option are examples of the type of issues that must be addressed when implementing any project delivery method. Entities looking for assistance with these issues will benefit from the following information.

Considerations for Solicitation and Award

Using the ***DEED Project Delivery Options Matrix***, *Primary Factors* and ***DEED Alternative Project Delivery Approval Flowchart***, entities requesting an approval of an alternative delivery method under 4 AAC 31.080(f) will need to provide the following evidence and supporting documents.

Concurrence Items (Required prior to approval of alternative project delivery method)

- Provide a resolution from the municipal/borough entity or school board authorizing the requested alternative project delivery method; if municipal/borough code allows the use of the requested delivery method, a copy of that code can substitute for a dedicated resolution.
- Provide a document supporting the requested alternative project delivery method as being in the best interest of the state; address:
  - How the alternative delivery method effort will result in lower project costs/increased value to the state (be specific);
  - How quality standards will be maintained; and
  - How unknown conditions will be accounted for.
- Provide the name and qualifications of the *Owner's* project manager for the alternative delivery method process (list specific experience in the requested delivery method).
- Describe the basic process leading up to the award of the alternative delivery method contract (establish how competitive selection will be achieved).

Upon approval of an alternative delivery method under 4 AAC 31.080(f), directives will be issued by the department applicable to each individual project. These directives will be based on the following factors, some of which are required and will be applied to each project approved for an alternative delivery method and some of which are discretionary and will be applied as needed by the department to either increase the likelihood of a successful project or establish a stronger determination of "best interest" for the state:

Required Alternative Project Delivery Directives

- The alternative project delivery solicitation will occur under competitive, sealed proposals or, in the case of Design-Build-Bid, sealed bids.
- The RFP must contain the following information:
  - The aggrieved offeror protest provision meeting requirements of 4 AAC 31.080(c);
  - Identification of project bonding, insurance, and prevailing wage requirements; and
  - Identifications of the required project warranty period.

- The solicitation RFP and supporting documents including, but not limited to 1) a cost estimate based on the RFP documents and prepared by a qualified cost estimator showing the anticipated construction cost to be at or below the budgeted amount, 2) the proposed scoring criteria, 3) positions held by evaluation team members, and 4) a copy of the agreement by which the work is to be undertaken, including any general conditions, supplementary conditions, and other project documents that the agreement will incorporate by reference must be approved by the department prior to advertising.
- The RFP evaluation team will include maximum of five members and must include a Facilities staff member from DEED if determined to be appropriate by the DEED Facilities Manager.
- Evaluation team meetings may be in person or by telephone.
- A majority of the evaluation team must be experienced facilities professionals; the non-majority may consist of educators, board members or other elected/appointed officials, or other interested parties.
- The contract awarded must either be a *guaranteed maximum price* (GMP) or fixed price contract (allowances for cost savings may be incorporated).
- Sealed cost proposals will be provided separate from the responses to remaining proposal items and will be reviewed only after all other evaluation elements are finalized.
- Provisions for local hire as an evaluation criteria or contract performance requirement are excluded (ref. State of Alaska Attorney General advice dated February 18, 2004).

Additional Alternative Project Delivery Directives

- The RFP will require a guaranteed maximum price (GMP) from each offeror with a breakdown of costs by DEED Cost Format, Level 2.
- For Best-Value selections, consideration of cost as a selection criterion will incorporate an evaluation of both the GMP and an evaluation of the offeror's *General Conditions* and *Fees*. The GMP will constitute at least 50% of the possible scoring with all cost factors constituting at least 60% of the possible scoring.
- For QBS selections, the RFP will require objectively calculated cost factors to include the *Pre-construction* cost, *General Conditions* costs and the constructor's *Fee* to combine for at least 50% of the available points.
- An independent cost estimator will be retained and a cost estimate will be prepared for the work prior to negotiation of the lump-sum contract.
- A separate scoring factor will be included in the evaluation criteria to evaluate the offeror's plans/abilities to incorporate the resulting facility into a preventive maintenance and facility management program.
- Prior to solicitation, designs will be completed to a sufficient detail (approximately 35% or greater) to provide clarity to the scope of the project and will contain: design standards, necessary drawings, material specifications, performance specifications, project constraints, and other information relevant to the project. (Note: this directive will become required for any request for Design-Build.)
- Identification of project documentation (i.e. software, manufacturer's literature, product warranties, product operating handbooks, inventory of installed equipment, maintenance

cycles, etc.) required to establish an effective preventative maintenance and facility management program as defined by AS 14.11.011(b)(4) will be included in the RFP.

- Evaluation criteria and weighting as selected from Appendix C may be mandated by DEED to ensure selection criteria is responsive to the project environment.
- Restrictions on the use of a multi-step selection process. A multi-step selection process is any solicitation which evaluates offerors using sequential criteria. Typical first-step criteria includes qualifications/experience, technical capability, capacity, etc. and usually results in a short-list of qualified offerors continuing to subsequent steps and contract award.
- Legal review of the RFP by the entity's attorney or an independent counsel experienced in construction solicitations and familiar with the entities local codes and structure.
- For projects including site as a criteria, provide site parameters and site selection criteria.
- In accordance with 4 AAC 31.025, sufficient interest via a deed or lease will be established for the proposed site prior to advertising.
- *Owner* representation must be provided by one of the following methods:
  - The *Owner* must provide a dedicated project manager with suitable experience and credentials to establish criteria, perform inspections and enforce *Owner* requirements;
  - The *Owner* must contract for project management/*Owner* representation by consultant (subject to the provisions of statutory limitations on fees – AS 14.11.020, and professional services procurement requirements – 4 AAC 31.065); or
  - The design team is to be retained by the district under a separate contract from that of the general contractor and will act on the *Owner's* behalf.
- All construction materials that are to be installed by the contractor are to be purchased by the contractor; the recipient (i.e. municipality/borough/school district) shall not purchase and/or stock pile materials that are to be utilized by the contractor as part of the project construction.
- The price component will be factored such that the difference between the lowest cost proposal and other proposals grows at a rate of twice the proportionate differential between offers (a sample of that formula is depicted below).

> Total GMP Points = 300 x (Lowest Received GMP / Proposer's GMP) - 200
> [where 100 is the maximum points available for the GMP]

Conclusion

The environment in which a project is initiated may necessitate an *Owner* to take specific, intentional steps toward setting its course in order to achieve a successful project. Those steps include assessing the project delivery method most likely to result in a project that meets scope, schedule and budget constraints.

This handbook builds on an analysis of historic use of alternative project delivery methods on school projects in Alaska. It provides both a framework for clear discussion of the options and a process of evaluation whereby an *Owner* may, in conjunction with trusted advisers, determine the appropriateness of using an alternative delivery method.

Stipulations and directives for various delivery methods are included for use once a best-interest determination has been made in favor of an alternative method. These directives are intended to keep the process of selecting construction entities for public capital projects funded with state aid through the Department of Education & Early Development open and fair.

Sources

1. *Project Delivery Options – Understanding Your Options*; Atlanta, GA; Georgia State Financing and Investment Commission, 2003.

2. *Project Delivery Options – Selecting the Appropriate Project Delivery Option*; Atlanta, GA; Georgia State Financing and Investment Commission, 2003.

Appendix A

Glossary

CM/GC Best Value

This is the construction manager as general contractor (at-risk) method. This method is defined by the use of separate design and construction contracts where the cost of the work is a selection criteria and the total construction cost is not the sole selection criteria.

CM/GC QBS

This is the construction manager as general contractor (at-risk) method with a variation of the selection process. This method is defined by the use of separate design and construction contracts where the cost of the work is not a selection criteria nor is the total construction cost the sole selection criteria.

Competitive Sealed Bid

A standard solicitation provision whereby an offeror's price proposal is transmitted in a sealed envelope for consideration at a bid opening for comparison with other offerors. This solicitation method is the default method under DEED regulation.

Competitive Sealed Proposal

An alternative solicitation process whereby factors other than, or in addition to price are solicited for consideration. Offeror's are usually scored by a selection panel. This solicitation method is allowed under DEED regulation when supported as being in the state's best interest.

Constructor

The entity in a capital project responsible for the construction of a facility or infrastructure project (as differentiated from "contractor", which can be any entity providing a product or service).

Constructor's Fees

The component of a Constructor's Total Construction Cost that are above its direct and indirect costs (i.e., its profit); usually expressed as a percentage of those costs.

Construction Cost of Work

The fixed costs of labor and materials as provided for in the project scope.

Contract Type

The type of contractual arrangement between *Owners*, Designers and Constructors. Contract Type is one of the two determinants, Selection Method being the other, of a project delivery method.

Critical Question

The central question for each Primary Factor in the decision making process related to selection of the most beneficial project delivery method. Answers to critical questions are used to move through the *Alternative Project Delivery Approval Flowchart* to determine delivery options that best match a project's environment.

Designer

The entity in a capital project responsible for the design of a facility or infrastructure project and the documentation of that design for use by the Constructor.

Design-Bid-Build

Often referred to as the "traditional" project delivery method. This method is defined by the use of separate design and construction contracts where the cost of the work is a selection criteria and the total construction cost is the sole selection criteria.

Design-Build Best Value

This is normal design-build. This method is defined by the use of a combined design and construction contract where the cost of the work is a selection criteria and the total construction cost is not the sole selection criteria.

Design-Builder

A term used to identify the entity contractually responsible to the *Owner* for both the Design and Construction of a capital project.

Design-Build Low Bid

This is a specific variation of the design-build project delivery method. This method is defined by the use of a combined design and construction contract where the cost of the work is a selection criteria and the total construction cost is the sole selection criteria.

Design-Build QBS

This is normal design-build with a variation on the selection process. This method is defined by the use of a combined design and construction contract where the cost of the work is not a selection criteria nor is the total construction cost is the sole selection criteria.

General Conditions

The component of a Constructor's Total Construction Cost that account for its cost of doing business that are not direct costs for materials and labor on a capital project (i.e., its overhead); usually itemized by category such as "home office", insurance, etc. but can be expressed as a percentage of direct costs.

General Contractor

The contractual entity responsible to an *Owner* for the delivery (execution) of a facility or infrastructure project. Subcontractors work under the authority of the General Contractor but do not have a direct contractual relationship with the *Owner*.

Need Factors

The subset of Primary Factors that drive an *Owner's* need to explore and/or use alternative project delivery methods. These factors pertain to challenges related to a projects schedule and scope definition.

Owner

The entity in a facility or infrastructure project that will issue contracts and direct work related to the design and construction and make payments following performance; the *Owner* is normally also the end user of the project.

Pre-construction Services

Services provided by a Constructor to support of the Designer in finalizing a project's design prior to the commencement of construction. Typical services include cost estimating, constructability reviews, schedule analysis, value analysis, phased construction, etc.

Primary Factors

The group of key factors of a project's environment that test both the need to move from Design-Bid-Build delivery and the *Owner's* likelihood of success using an alternative project delivery option.

Project Delivery Options Matrix

The matrix of basic options for the delivery of construction projects which results from the combination of selection methods (3 possible) and contract types (2 possible). This matrix yields six unique combinations understood to encompass all project delivery methods and their variants.

Qualifications Based Selection

A method of selecting a Constructor where the Total Construction Cost is not a factor for selection. Under this method, constructors are primarily evaluated based on the qualifications they have that would indicate their ability to succeed on a particular project.

Selection Method

The method by which an *Owners* will select the Constructor for a capital project. Differentiation of Selection Methods hinges on the role of the Total Construction Cost in the selection process. Selection Method is one of the two determinants, Contract Type being the other, of a project delivery method.

Success Factors

The subset of Primary Factors that drive assess an *Owner's* ability use alternative project delivery methods. These factors pertain to challenges related to resources, philosophy and legal constraints.

Total Construction Cost

A Constructor's price for the execution of a facility or infrastructure project inclusive of the Construction Cost of Work (direct costs), General Conditions (overhead) and Fee (profit). Often solicited by *Owner's* as a lump sum or guaranteed maximum price.

Total Design and Construction Cost

The combination of Total Construction Cost and design fees for which an *Owner* is responsible on a capital project.

Traditional Method

A term synonymous with the Design-Bid-Build project delivery method; also known as low bid.

Unique Characteristics

The features of a project delivery option that set it apart from all other options. Unique Characteristics result from assessing the Contract Type and Selection Method of a project delivery method.

Appendix B

DEED Alternative Project Delivery Approval Flowchart

Appendix C

Sample Evaluation Criteria

Preconstruction Services Experience	Range: 5-10%

Describe your firm's approach to the following preconstruction responsibilities: Design review and commentary, document coordination, constructability review and commentary, cost estimating, value engineering, site logistics, and subcontract preparation and packaging. Provide two or more examples of the range of pre-construction services your firm has provided on previous design-assist projects or projects with a guaranteed maximum price (GMP Projects). Describe the manner in which pricing and constructability services will be provided for areas of work normally subcontracted by the proposer.

Value Engineering/Project Estimating	Range: 5-10%

Describe your value engineering process and how you work with the design team to help reduce construction and life cycle facility costs. Explain your method of estimating the costs of construction during the design process before design documents are complete.

Design Assist/GMP Experience	Range: 10-15%

Provide a summary of projects of this type completed in the last 5 years. Describe your experience, providing details regarding your firms' specific contractual roles and responsibilities. Include the names, addresses, and phone numbers of *Owner* and Architect references for each project. Describe your experience working on a team approach with the *Owner*, Architect and other consultants to achieve the best facility possible within the established time frame and budget.

School Construction Experience	Range: 10-30%

Identify all of the school construction projects performed by the Proposer in the last 5 years where the Proposer has acted as a constructor (either as a General Contractor or a Design/ Builder). Provide names, addresses and phone numbers of *Owner* and Architectural references on projects listed. Highlight *[sub-arctic]* experience.

Project Team	Range: 5-15%

Describe the proposed Contractor's team, including the specific roles and responsibilities of each member. An organization chart would be helpful. Include the staffing requirements and identification of key personnel. Provide separate lists for the preconstruction and construction phases. Provide qualifications for the key individuals including history of employment, education, experience, and any other information the selection committee might find useful in evaluating the project team.

Management Plan	Range: 10-30%

Summarize how the proposer will staff and organize this particular project. Include information on the anticipated level of effort during the construction document design phase, estimating process, and construction quality control procedures. Outline work that will likely be accomplished via subcontract vs. proposer's own forces during the construction phase. Comment on the proposer's review of the attached proposed project schedule and their capacity to meet schedule. Address any significant scheduling issues and potential for partial completion/partial occupancy scenarios.

Quality Control	Range: 5-10%

Provide a summary of your firm's approach to quality control during construction. Include a description of the quality control organization you plan to employ and the authority assigned to the different level of quality control responsibility.

Preconstruction Fee	Range: 5-10%

Stipulated sum for all services to be provided until completion of Construction Document Phase.

GMP	Range: 50-65%

The guaranteed maximum price (GMP) with a breakdown of costs by DEED Cost Format or Construction Specification Institute Division.

Overhead & Profit for Change Order Work	Range: 5-8%

The Overhead & Profit percentage that the contractor will apply to the cost of work directed by change order to arrive at the total cost of the change order work.

References	Range: 5-8%

Include at least two *Owner* and two A/E references from similar projects included and described in the AIA Document 305– Contractor's Qualification Statement.

Contractor's Qualifications/Financial Capabilities	Range: 10-30%

Summarize the proposer's current and anticipated workload from _____ - _____. Include a description of projects, dollar values of construction for which the proposer is responsible, either as a prime or subcontractor, and bonding and insurance capacity available for the referenced period. Provide copy of contractor's State of Alaska Business License. Provide list of legal claims pending or settled over the past five years, either *Owner* or contractor initiated.

Maintenance and Management Plan	Range: 3-8%

Provide information on proposer's experience and implementation of the preventative maintenance and facility management program required by AS 14.11.011(b)(4).

Current and Projected Workload	Range: 5-10%

What has been your annual volume (in dollars) of construction for the past five years? What is your anticipated volume for the current year? What is your plan for the next two years?

Appendix D

Alternative Project Delivery Approval
REVIEW CHECKLIST

District:
Project/School:
Project Delivery Option Requested:

Item	Requirement	Checked	Comments
	Need Factors		
	Tight project milestones or deadlines	❒	
	Amount of overlap of design and construction phases	❒	
	Scope definition	❒	
	Potential for changes during construction	❒	
	Need/desire for the contractor's input during design	❒	
	Flexibility to make design changes after construction cost commitments	❒	
	Success Factors		
	Ability or desire to define and verify program & design content/quality	❒	
	Experience with the particular delivery method & forms of contracts	❒	
	Ability to participate in multiple trade contractor/supplier evaluations	❒	
	Desired contractual relationship and ability to recoup savings	❒	
	Concurrence Items		
	Provide a resolution supporting the requested project delivery method	❒	
	Request must address how the alternative delivery method will result in lower project costs/increased value to the state	❒	
	Request must address how quality standards will be maintained	❒	
	Request must address how unknown conditions will be accounted for	❒	
	Provide name and qualifications of the Owner's project manager for the alternative delivery method process (list specific experience)	❒	
	Describe the basic process leading up to the award of the contract (establish how competitive selection will be achieved)	❒	
	Possible Directives-see pages 31-33 of project delivery method handbook		
	6 month approval expiration	❒	

Printed: 08/09/17 Alternative Project Delivery Approval Checklist.doc Page 1 of 1
Reviewed by: _____

Alternative Project Delivery Procurement
REVIEW CHECKLIST

District:
School:
Project Name/Number:

Item	Requirement	Checked	Comments
	RFP Review		
1	RFP incorporates design standards and project description items	❒	
2	Evaluation criteria includes a fixed price (e.g., LS or GMP)	❒	
3	Evaluation criteria clear and sets cost at 50% or greater weight	❒	
4	Provisions for a PM plan are incorporated in evaluation criteria	❒	
5	Owner representation clear; as either independent design team, qualified owner staff or consultant	❒	
6	Contract agreements anticipated for use are included in RFP	❒	
7	Advertising period of 21 days or longer	❒	
8	At least three publishing dates	❒	
9	Sealed proposals requested with award to most qualified offeror	❒	
10	Provisions to negotiate final cost and move to other ranked offerors (QBS/ Pre-construction Services)	❒	
11	Provisions for award protest within 10 days included	❒	
12	Bid bonds provided for	❒	
13	Performance/Payment bond provided for	❒	
14	Notice that the project requires compliance with AS 36.05.070, prevailing wage rates	❒	
15	Contractor's liability insurance included in agreement	❒	
16	Notice that the project requires compliance with AS 36.15.010, use of local forest products required wherever practicable	❒	
17	Local hire encouragement is not mentioned	❒	
18	GMP will be submitted in a separate sealed envelope	❒	

District Logo

[Project Name]

Project Delivery Options Analysis

XYZ School District

Date: [Month, Day, Year]

PROJECT MANAGER	[Name] [Title] XYZ School District [City], Alaska
CONTRIBUTORS	[Name] [Title] XYZ School District
	[Name] [Company] [City], Alaska

Table of Contents

Executive Summary

Background

In [Month, Year], the XYZ School District submitted a capital project to the Alaska Department of Education & Early Development for FYXX funding consideration. The project, entitled [Project Title], received funding through DEED and the district entered into a Project Agreement with the following final scope:

- *[Copy from Project Agreement]*

Purpose

The purpose of this document is to evaluate project delivery method options available under Department of Education & Early Development provision and select the delivery method that had the greatest influence on the success of the [Project Name] project. This evaluation identified six alternative delivery methods as described in the DEED publication Project Delivery Methods Handbook but focuses primarily on [number] alternatives. These are summarized as follows [select from among those below as extracted from the DEED handbook]:

Design-Bid-Build

Design-Bid-Build is the most common project delivery option. It is often referred to as the "traditional" method. For school projects in Alaska with a state contribution, Design-Bid-Build is the default delivery method. All other project delivery options require a specified approval.

There are three prime players: *Owner*, *Designer* and *Constructor* (general contractor). The relationship of these parties is depicted in the graphic at the right.

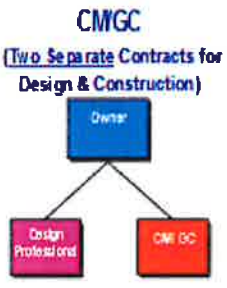
A standard three-question test can be applied to determine, from these relationships, whether a delivery option falls into the Design-Bid-Build category. Those three questions and their results are as follows:

Are the *Designer* and *Constructor* contracts combined?	**NO**
Is the *Construction Cost of Work* a selection criteria?	**YES**
Is the *Total Construction Cost* the sole selection criteria?	**YES**

Under this delivery method, selection of the *Constructor* is based on a *Total Construction Cost* with the award going to the lowest responsible and responsive bidder.

Construction Manager/General Contractor—Best Value

CM/GC—BV is the next most common project delivery option. It allows the *Owner* to maintain control throughout the design process but provides for the early involvement of a "best qualified" *Constructor*. For school projects in Alaska with a state contribution, CM/GC is an alternate delivery method and requires a specified approval by both school boards and DEED.



There are three prime players: *Owner*, *Designer* and *Constructor* (general contractor). The relationship of these parties is depicted in the associated graphic.

The standard three-question test can be applied to determine, from these relationships, whether a delivery option falls into the CM/GC category. Those three questions and their results are as follows:

Are the *Designer* and *Constructor* contracts combined?	**NO**
Is the *Construction Cost of Work* a selection criteria?	**YES**
Is the *Total Construction Cost* the sole selection criteria?	**NO**

Under this delivery method, selection of the *Constructor* is based on a best value weighting of *Total Construction Cost* with other factors; the award goes to the CM/GC that best meets the predefined qualifications and cost selection criteria.

Construction Manager/General Contractor – QBS

CM/GC—QBS is a lesser used project delivery option. It allows the *Owner* to maintain control throughout the design process while providing for the early involvement of a "best qualified" *Constructor* without regard to the construction cost of work. For school projects in Alaska with a state contribution, CM/GC–QBS requires that cost elements other than the Cost of Work provide 50% of the evaluation. CM/GC-QBS is an alternate delivery method and requires a specified approval by both the recipient entity and DEED.

There are three prime players: *Owner*, *Designer* and *Constructor* (manager-general contractor). The relationship of these parties is depicted in the graphic at the right.

The standard three-question test can be applied to determine, from these relationships, whether a delivery option falls into the CM/GC category. Those three questions and their results are as follows:

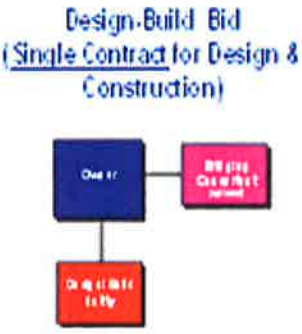
Are the *Designer* and *Constructor* contracts combined?	**NO**
Is the *Construction Cost of Work* a selection criteria?	**NO**
Is the *Total Construction Cost* the sole selection criteria?	**NO**

CM/GC selection: Qualifications based; does not incorporate any weighting for the *Construction Cost of Work*. Rather, selection is based on weighting of predefined criteria with the award going to the offeror that best meets the predefined criteria; selection criteria must include weighting of some cost factors at 50% unless otherwise approved. Typically these include *General Conditions* or Fee costs.

Design-Build Bid

Design-Build—Bid is a niche project delivery option. It requires a level of *Owner* sophistication to exercise quality control throughout the design and construction process. However, its simplicity is ideal for *Owners* with clearly documented standards but relatively few management resources. It also provides for the early involvement of a "best qualified" *Constructor/ Designer*. For school projects in Alaska with a state contribution, Design-Build is an alternate delivery method and requires a specified approval by both school boards and DEED.

There are two prime players: The *Owner* and the *Design-Builder*. [The *Designer* (architect) and the *Constructor* (general contractor) are combined into one entity.]



The three-question test has the following result:

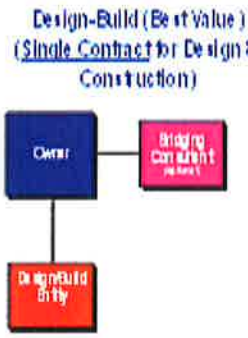
Are the *Designer* and *Constructor* contracts combined?	**YES**
Is the *Construction Cost of Work* a selection criteria?	**YES**
Is the *Total Construction Cost* the sole selection criteria?	**YES**

Design-Builder selection: Based on *Total Design and Construction Cost* with the award going to the lowest responsible and responsive bidder.

Design-Build—Best Value

Design-Build—BV is the least common of the three primary project delivery options. It requires a level of *Owner* sophistication to exercise quality control throughout the design and construction process. However, its simplicity is ideal for *Owners* with clearly documented standards but relatively few management resources. It also provides for the early involvement of a "best qualified" *Constructor/ Designer*. For school projects in Alaska with a state contribution, Design-Build is an alternate delivery method and requires a specified approval by both school boards and DEED.

There are three prime players: *Owner*, *Designer* and *Constructor* (general contractor). The relationship of these parties is depicted in the graphic at the right.



The standard three-question test can be applied to determine, from these relationships, whether a delivery option falls into the Design-Build category. Those three questions and their results are as follows:

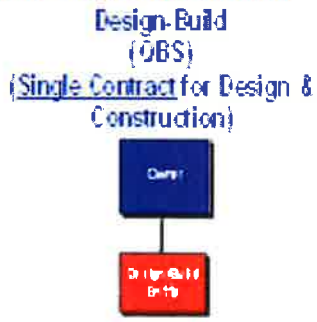
Are the *Designer* and *Constructor* contracts combined?	**YES**
Is the *Construction Cost of Work* a selection criteria?	**YES**
Is the *Total Construction Cost* the sole selection criteria?	**NO**

Under this delivery method, selection of the *Design/Builder* is based on some weighting of *Total Construction Cost* including the *Construction Cost of Work* with the award going to the Design/Builder that best meets the predefined qualifications and cost selection criteria.

Design-Build—QBS

Design-Build—QBS is a lesser used project delivery option. It requires a level of *Owner* sophistication to exercise quality control throughout the design and construction process. However, its simplicity is ideal for *Owners* with clearly documented standards but relatively few management resources. It also provides for the early involvement of a "best qualified" *Constructor/Designer*. For school projects in Alaska with a state contribution, Design-Build–QBS requires that cost elements other than the Cost of Work provide 50% of the evaluation. Design-Build—QBS is an alternate delivery method and requires a specified approval by both the recipient entity and DEED.

There are two prime players: The *Owner* and the *Design-Builder*. [The *Designer* (architect) and the *Constructor* (general contractor) are combined into one entity.]



The three-question test has the following result:

Are the *Designer* and *Constructor* contracts combined?	**YES**
Is the *Construction Cost of Work* a selection criteria?	**NO**
Is the *Total Construction Cost* the sole selection criteria?	**NO**

Design-Builder selection is not based on any weighting of the *Construction Cost of Work*. Rather selection is based on weighting of predefined criteria, with the award going to the *Design-Builder* that best meets the predefined selection criteria. Selection criteria must include weighting of some cost factors at 50% unless otherwise approved. Typically these include *General Conditions* or Fee costs.

Delivery Options Evaluation Process

Using the Department of Education & Early Development's *Project Delivery Methods Handbook*, the district's project manager assessed a series of Determining Factors. These factors are established by DEED and include items related to a project's schedule, the ability of the district to define the scope of the project and potential for changes, the district's internal resources available to execute the project and its preference for structuring contracts and finally, any regulatory or legal constraints. Primary considerations under each of these categories were reviewed and evaluated, the results of which are included in the later sections of this document. [Optional: In an effort to confirm the basis of assumptions, particularly regarding possible project schedules and construction methods, the project manager also interviewed specialists with experience in these areas. These are listed in the contributor's section of the study's acknowledgements.]

Results

This analysis indicates the [Project Name] project has a high likelihood of success under the [enter method] project delivery method. However, the anticipated success of this method is dependent on the following factors:

A. [List/discuss any schedule-related issues.]

B. [List/discuss any budget-related issues.]

C. [List/discuss any scope-related issues.]

Project Delivery Options

The XYZ School District reviewed the following matrix of project delivery options—each defined by a unique combination of *contract type* and *selection method*—discussed in the Department of Education & Early Development's (DEED) *Project Delivery Methods Handbook* .

EED Project Delivery Option Matrix

SELECTION METHOD	CONTRACT TYPES: DESIGNER & CONSTRUCTOR (w/SEPARATE CONTRACTS)	CONTRACT TYPES: DESIGNER/CONSTRUCTOR (ONE CONTRACT)
Competitive Sealed Bid (Low Bid) *Total Construction Cost is sole criteria for selection*	Design-Bid-Build	Design-Build-Bid
Competitive Cost Proposal (Best Value) *Total Construction Cost weighted with other factors for selection*	CM/GC Best Value (BV)	Design-Build Best Value (BV)
Competitive Qualifications Proposal (Qualifications Based Selection) *Total Construction Cost is not a factor for selection*	CM/GC QBS	Design-Build QBS

The district recognizes that the default method established in regulation is the Design-Bid-Build delivery method, However, because it is a key principle of project management that benefits may be available to *Owners* when the traditionally distinct entities of the *Designer* and the *Constructor* are strategically aligned or even merged, XYZSD has undertaken to analyze the permissible alternative project delivery methods for possible use on it's [Project Name] Project (DEED #XX-XXX). This document provides the results of that analysis.

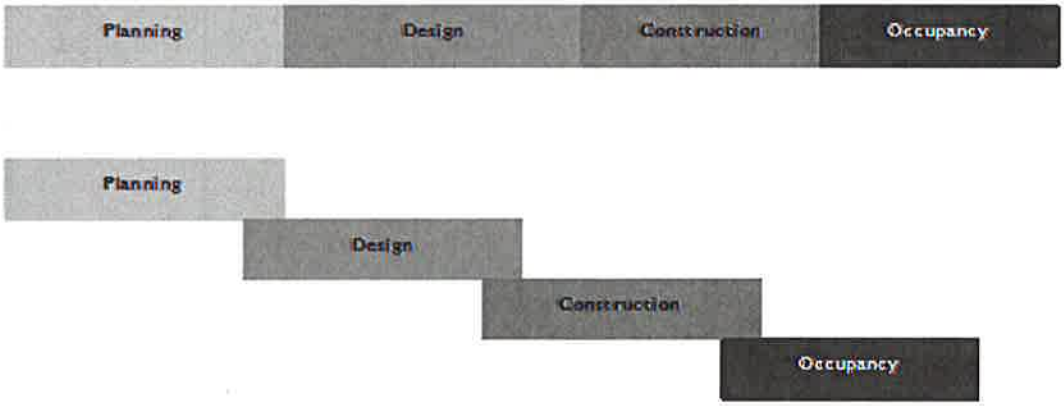
Having agreed to a set project delivery method options, the next step taken by XYZSD was to determine which of the options is most appropriate for the particular project under consideration. This analysis does not assume there is only one possible option for project delivery. However, while no one project delivery option is perfect, the district believes one option may be better suited than another based on the unique requirements for a particular project. The requirements for the [Project Name] project were evaluated to determine which of the various options would most likely produce the best outcome for the state and the school district.

As part of the analysis, the district implemented a variation of the DEED recommendation of establishing a "group of trusted advisors". This effort primarily consisted of gathering some expertise in areas of [list field(s)]. That knowledge,

combined with in-house expertise regarding the work effort and timelines related to project design and the education process, was used to provide the needed reality check on the determinations made under each delivery option.

The Project Environment

Every project occurs in the context of a unique environment, an environment consisting of a variety of both physical and philosophical factors. This environment bears greatly on the successful maturation of a project. That maturation occurs in four typical phases: planning, design, construction and occupancy. These can occur sequentially or may be overlapped (see illustration).



The main characteristics of a project's environment consist of its schedule, the need and ability to establish and define its scope, the resources available to the project, the risks associated with the project and the external constraints placed on the project.

Although identifying and coping with the factors in a project's environment is both complex and an ongoing task until completion is achieved, the focus of this analysis is primarily project initiation not project execution. The district will use the luxury of this focus to narrow our determination of primary factors from the overall project environment to those that bear most directly on determining the "best" project delivery method. The district is further assisted in this effort by one of the external factors for school construction projects receiving state aid. This external factor is that the Design-Bid-Build project delivery option is the standard project delivery method for school construction projects. However, if we can recognize there are some primary factors affecting particular projects that might eliminate this delivery method or make it untenable without significantly increasing risk, an alternative is provided for.

Determining Factors Analysis

Establishing Determining Factors

Need Factors		Success Factors		
Schedule/Necessity to Overlap Phases	Ability to Define the Project Scope/ Potential for Changes	Owner's Internal Resources & Philosophy	Desire for a Single Contract or Separate Contracts	Regulatory/Legal or Funding Constraints
Tight Project Milestones or Deadlines	Scope Definition	Ability or Desire to Define and Verify Program & Design Content/Quality	Ability or Desire to Take Responsibility for Managing the Design	Regulatory and Statutory Requirements
Amount of Overlap of Design & Construction Phases	Potential for Changes During Construction	Experience with the Particular Delivery Method & Forms of Contracts	Ability or Desire to Eliminate Responsibility for Disputes Between Designer and Builder	State Budget and Funding Cycles
	Need/Desire for the Contractor's Input During Design	Ability to Participate in Multiple Trade Contractor/Supplier Evaluations		
	Flexibility to Make Design Changes After Construction Cost Commitments	Desired Contractual Relationship and Ability to Recoup Savings		

The district's analysis groups the *Primary Factors* into five categories as shown in the table below, taken from the DEED Handbook:

By addressing these *Primary Factors*, the district was confident it could guide the selection of the most appropriate delivery option and increase the chances for a successful project.

The first two categories are grouped as *Need Factors*. These factors determine the need to move away from the Design-Bid-Build delivery method established as the standard delivery method for projects administered by DEED. In the following section, **Delivery Method Selection**, XYZSD will demonstrate how the project's environment establishes the need versus the desire or preference for a delivery method other than Design-Bid-Build. The remaining three categories are grouped as *Success Factors*. These are the elements of the project environment that can determine how likely a project is to succeed in using an alternative project delivery method and which of the delivery options is most appropriate. Many of these are tied to the XYZSD's ability to execute the project in a non-traditional method. Regardless of whether the project environment shows a need to move away from the department's standard delivery method or to apply the standard method, XYZSD will demonstrate it both has chosen and that it has the ability to manage the factors of the project

environment aligned with the successful implementation of the project delivery option selected.

Evaluating Determining Factors

For each factor, there is a *Critical Question* that should be considered. Grouped within the five categories, each *primary factor* is listed along with its critical question, appropriate commentary and the ramifications associated with the answer. *Need factors* are addressed first.

Need Factor #1: Schedule/Necessity to Overlap Phases

Primary Consideration: *Tight Project Milestones or Deadlines*

Critical Question: *Is overlap of design and construction phases necessary to meet schedule requirements?*

Discussion: [Enter information on project schedule.]

Schedules supporting the analysis offered can be reviewed in Appendix A.

Ramifications: [Summarize impacts of schedule discussion on this primary consideration.]

Primary Consideration: *Amount of Overlap of Design and Construction Phases*

Critical Question: *Is there time to complete the Design Development stage of the design prior to starting construction?*

Discussion: [Enter information on how overlap might address project schedule.]

Ramifications: Enter conclusions of schedule discussion on this Need Factor.]

Need Factor #2: Ability to Define the Project Scope/Potential for Changes

Primary Consideration: *Scope Definition*

Critical Question: *Is the scope of work difficult to define?*

Discussion: [Enter information on project scope definition.]

Ramifications: [Enter impacts of scope discussion on this primary consideration.]

Primary Consideration: *Potential for Changes During Construction*

Critical Question: *Is there a significant potential for changes during the construction phase?*

Discussion: [Enter information on project scope change potential.]

Ramifications: [Enter impacts of change discussion on this primary consideration.]

Primary Consideration: *Need/Desire for the Contractor's Input During Design*

Critical Question: *Is input from a Constructor during design required or desired?*

Discussion: [Enter information on how contractor input might address project scope issues.]

Ramifications: Enter conclusions of contractor input discussion on this primary consideration.]

Primary Consideration: *Flexibility to Make Design Changes After Construction Cost Commitments*

Critical Question: *Are your design and scope requirements fully defined?*

Discussion: [Enter information on how changes after cost commitments relate to project scope issues.]

Ramifications: [Enter conclusions of changes to scope discussion on this primary consideration.]

Success Factor #1: Owner's Internal Resources & Philosophy

Primary Consideration: *Ability or Desire to Define and Verify Program and Design Content/Quality*

Critical Question: *Will the Owner utilize outside resources to verify quality?*

Discussion: [Enter information on the qualifications and experience of the Owner's staff to establish and review quality issues. Discuss internal tools and resources and the need for any outside resources.]

Ramifications: [Enter conclusions related to in-house resources and experience, and any need for outside/additional resources.]

Primary Consideration: *Experience with the Particular Delivery Method and Forms of Contracts*

Critical Question: *Are agency in-house personnel experienced in alternative delivery options or, if not, will in-house personnel be augmented by other agency or contracted personnel?*

Discussion: [Enter information on how the qualifications and experience of the Owner's staff. Discuss internal tools and resources and the need for any outside resources (e.g., architects, engineers, project managers, construction inspectors, etc.) Note limitation for managing any delivery method.]

Ramifications: [Enter conclusions regarding Owner experience and any impact on the project.]

Primary Consideration: *Ability to Participate in Multiple Trade Contractor/Supplier Evaluations*

Critical Question: *Does the Owner need the ability to participate in the selection and evaluation of trade contractors or suppliers?*

Discussion: [Discussion should include project schedule options, Owner personnel knowledge and experience, and the need to participated in the selection of subs and lower tier specialties.]

Ramifications: [Enter conclusions regarding the need to participate in acquisition of lower-tier contractors and the Owner's internal or external resources.]

Primary Consideration: *Desired Contractual Relationship and Ability to Recoup Savings*

Critical Question: *Does the Owner wish to have a complete and timely access to all of the Contractor's Information?*

Discussion: [Enter information related to the level of involvement in the Contractor's information about the job.]

Ramifications: [Enter conclusions. Generally, if the Owner is not fully able to take advantage of an open, collaborative relationship among the parties for making financial decisions, then a *qualifications based selection* does not need to be considered under this factor.]

Success Factor #2: Desire for a Single Contract or Separate Contracts

Primary Consideration: *Ability or Desire to Take Responsibility for Managing the Design*

Critical Question: *Does the Owner have in-house design resources qualified to oversee design professionals, and does the Owner have the ability to commit sufficient resources to design management?*

Discussion: [Enter information about the Owner's in-house resources for managing or executing Design. What experience is there and does it need to be augmented?]

Ramifications: [Enter conclusions about the Owner's ability and desire to manage the design of the project or to assign that responsibility to another entity.]

Primary Consideration: *Ability or Desire to Eliminate Responsibility for Disputes Between Designer and Builder*

Critical Question: *Does the Owner desire to hold a single entity responsible for*

coordination, collaboration, and productivity for the entire project?

Discussion: [Enter information on the ability and experience of XYZSD' responsibility for resolving disputes between the Design and Construction entities.]

Ramifications: [Discuss the conclusions regarding the needs of the project to have Designer and Constructor entities integrated or the pros/cons of separation and the ability to manage such.]

Success Factor #3: Regulatory/Legal or Funding Constraints

Primary Consideration: *Regulatory and Statutory Requirements*

Critical Question: *Do laws, rules, regulations, etc., permit the use of an alternative project delivery method?*

Discussion: [Enter information about state (DEED) requirements for alternate delivery methods. Discuss the local requirements and allowances for alternative delivery methods.]

Ramifications: [Enter conclusions regarding law and regulatory issues. Consider timelines that may be needed.]

Primary Consideration: *State Budget and Funding Cycles*

Critical Question: *Is funding available for construction at initiation of design?*

Discussion: [Discuss the State's budget and funding cycle and how they may or may not have an impact on the timing, sequencing and a subsequent recommendation of a project delivery option.]

Ramifications: [Enter conclusions such as: "Any of the permitted delivery options will work with complete project funding," or other statement supporting the project environment.]

Delivery Method Selection

Although there are a number of factors in making a decision concerning which project delivery option to recommend, by the time a few *primary factors* are applied, it becomes apparent which options are least appropriate. By the process of elimination, the most appropriate option(s) can be determined.

Having used the DEED matrix of options and worked through its list of major factors to consider, the district is able to determine through a process of elimination, "Which project delivery options are least appropriate to recommend on this project?"

The order in which the *primary factors* have been applied in our analysis is driven by the approval process as illustrated in the ***DEED Alternative Project Delivery Approval Flowchart*** shown in Appendix B. An assessment of the *Need Factors* was applied to the project, any one of which may drive the need to use an alternate project delivery

method. Next, the *Success Factors* were applied. These factors reflect judgments that were made regarding the district's ability to be successful in implementing a particular delivery method.

The depiction of the DEED Project Delivery Options Matrix showing the project delivery options eliminated as a result of the districts analysis is included below.

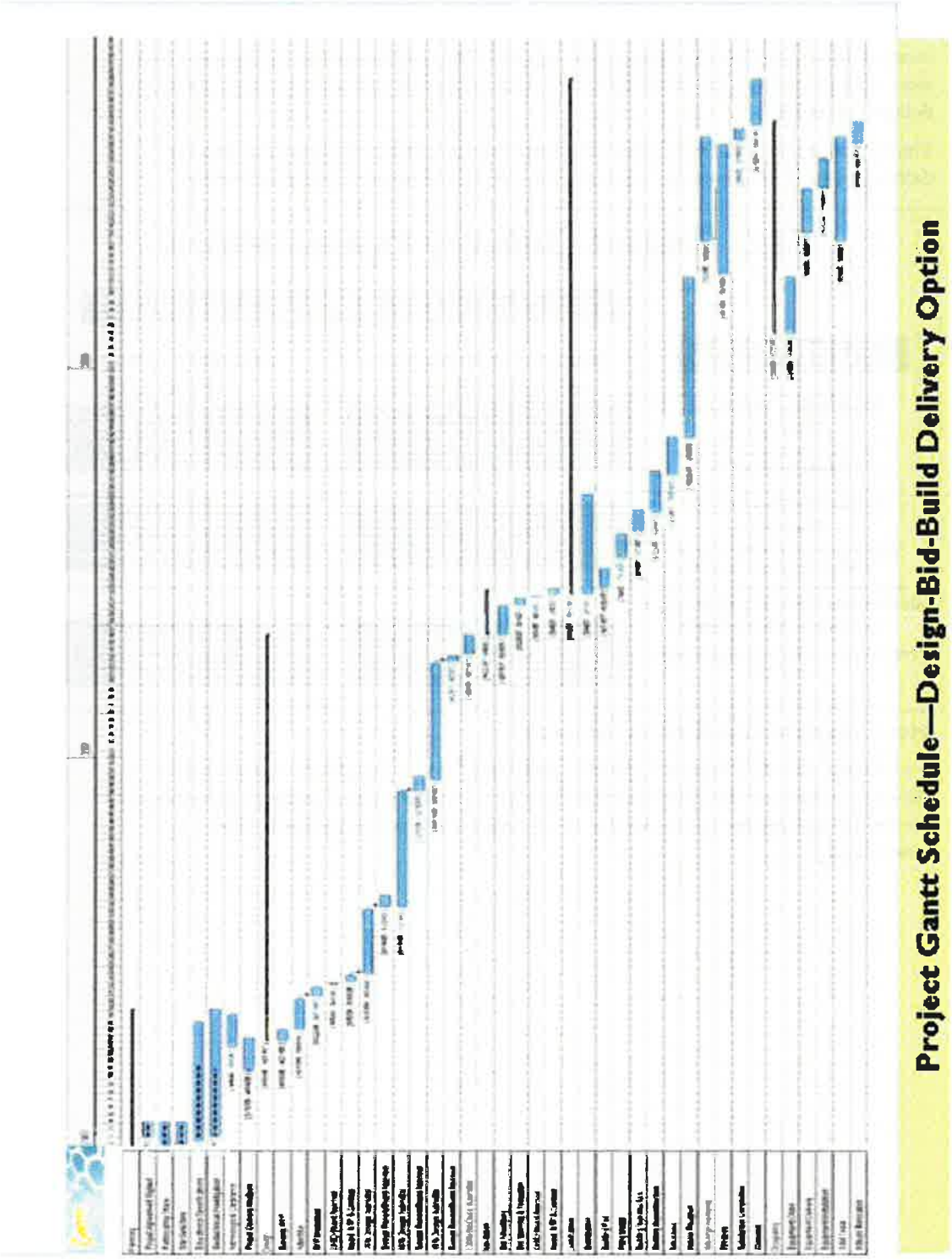
EED Project Delivery Option Matrix

SELECTION METHOD	CONTRACT TYPES: DESIGNER & CONSTRUCTOR (w/SEPARATE CONTRACTS)	CONTRACT TYPES: DESIGNER/CONSTRUCTOR (ONE CONTRACT)
Competitive Sealed Bid (Low Bid) *Total Construction Cost is sole criteria for selection*	Design-Bid-Build	Desig uild-Bid X
Competitive Cost Proposal (Best Value) *Total Construction Cost weighted with other factors for selection*	M C Best e (BV) X	De uild Best e (BV) X
Competitive Qualifications Proposal (Qualifications Based Selection) *Total Construction Cost is not a factor for selection*	M C X	De uild X

[Note: Adjust markings above as required.]

In summary, the XYZ School District is proposing to use the [Enter name] project delivery method for the [Project Name] project. [Add additional support narrative as needed OR alternative outcomes based on information yet to be finalized or determined.]

Sample School Capital Project—Project Delivery Options Analysis



Project Gantt Schedule—Design-Bid-Build Delivery Option

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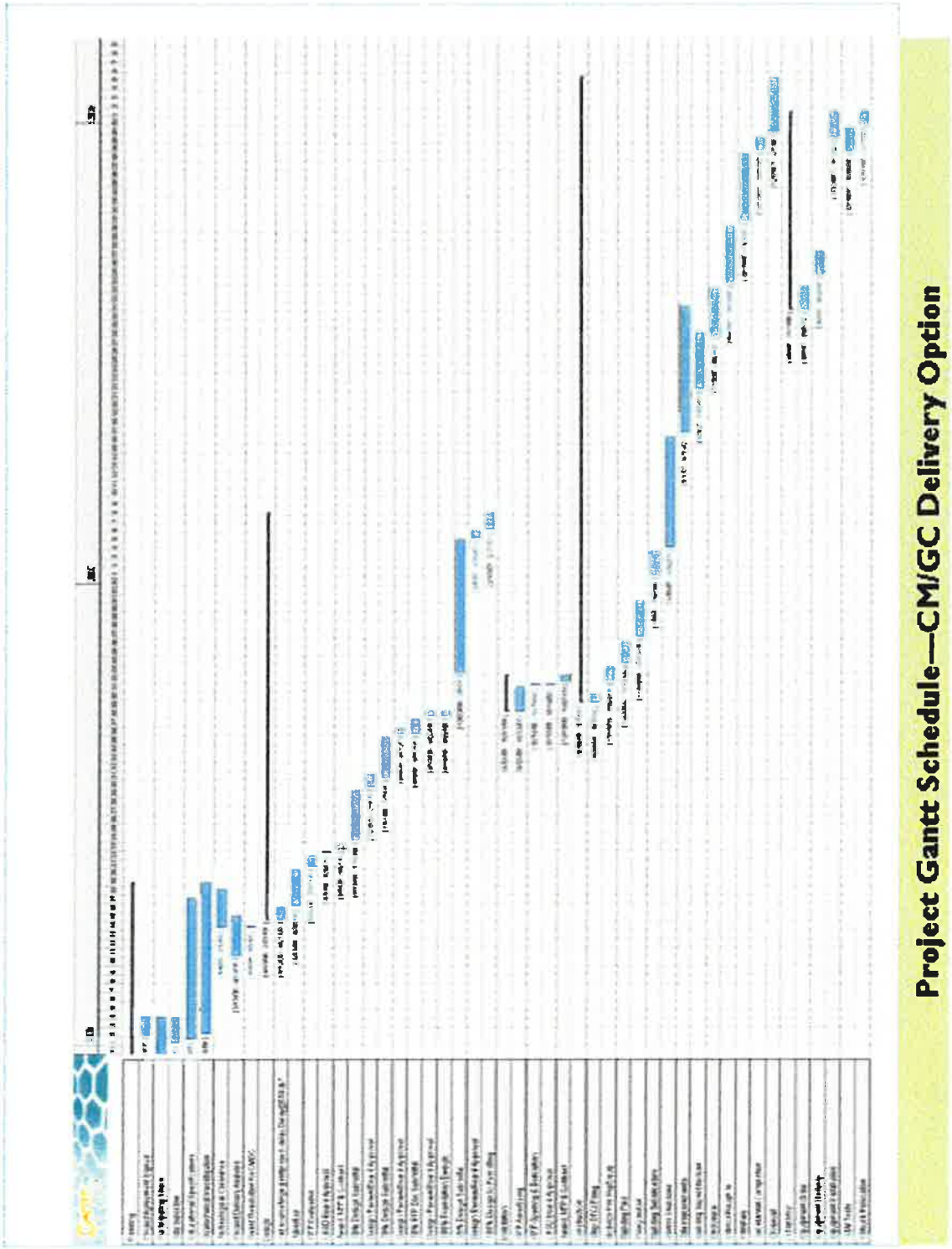
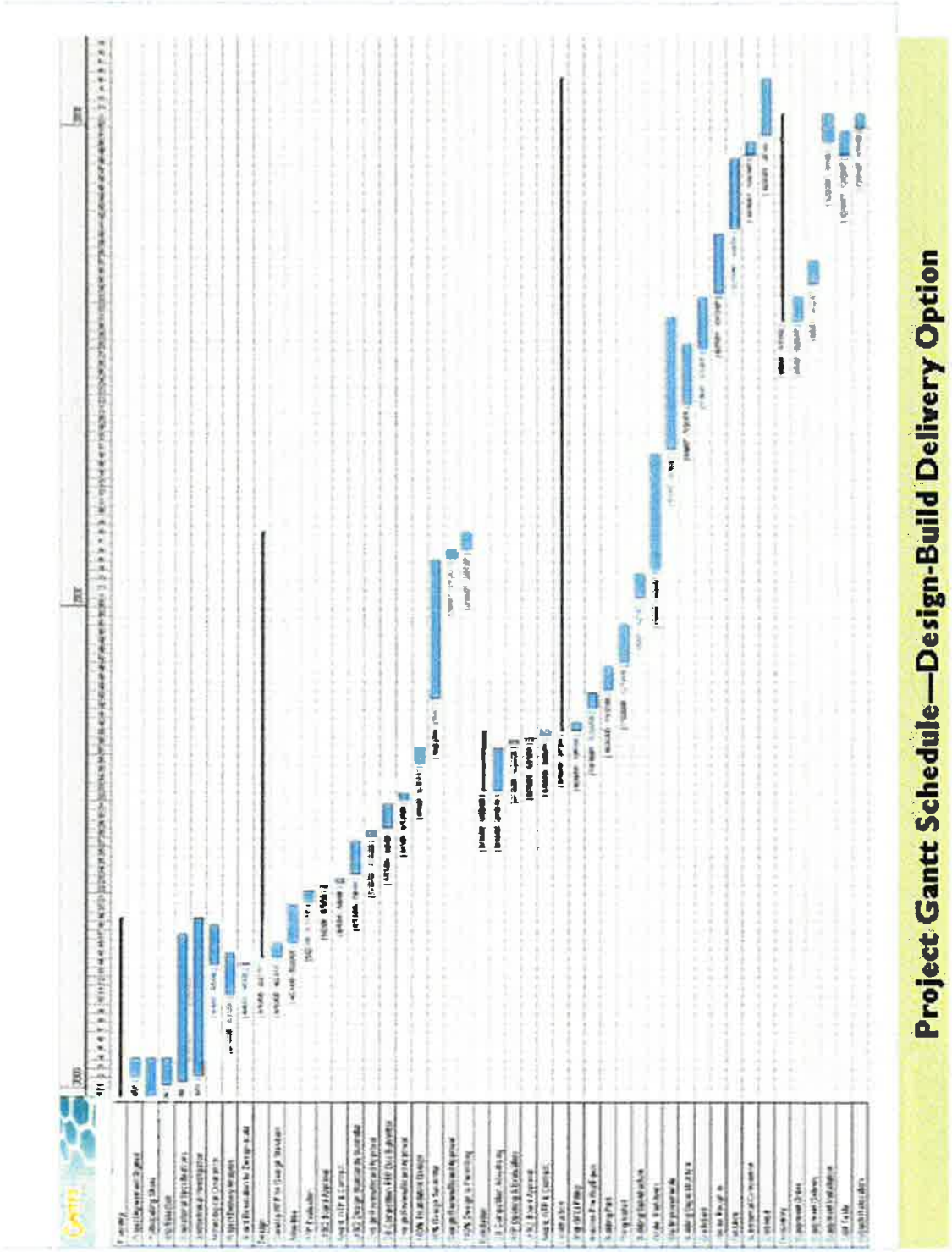
Sample School Capital Project—Project Delivery Options Analysis

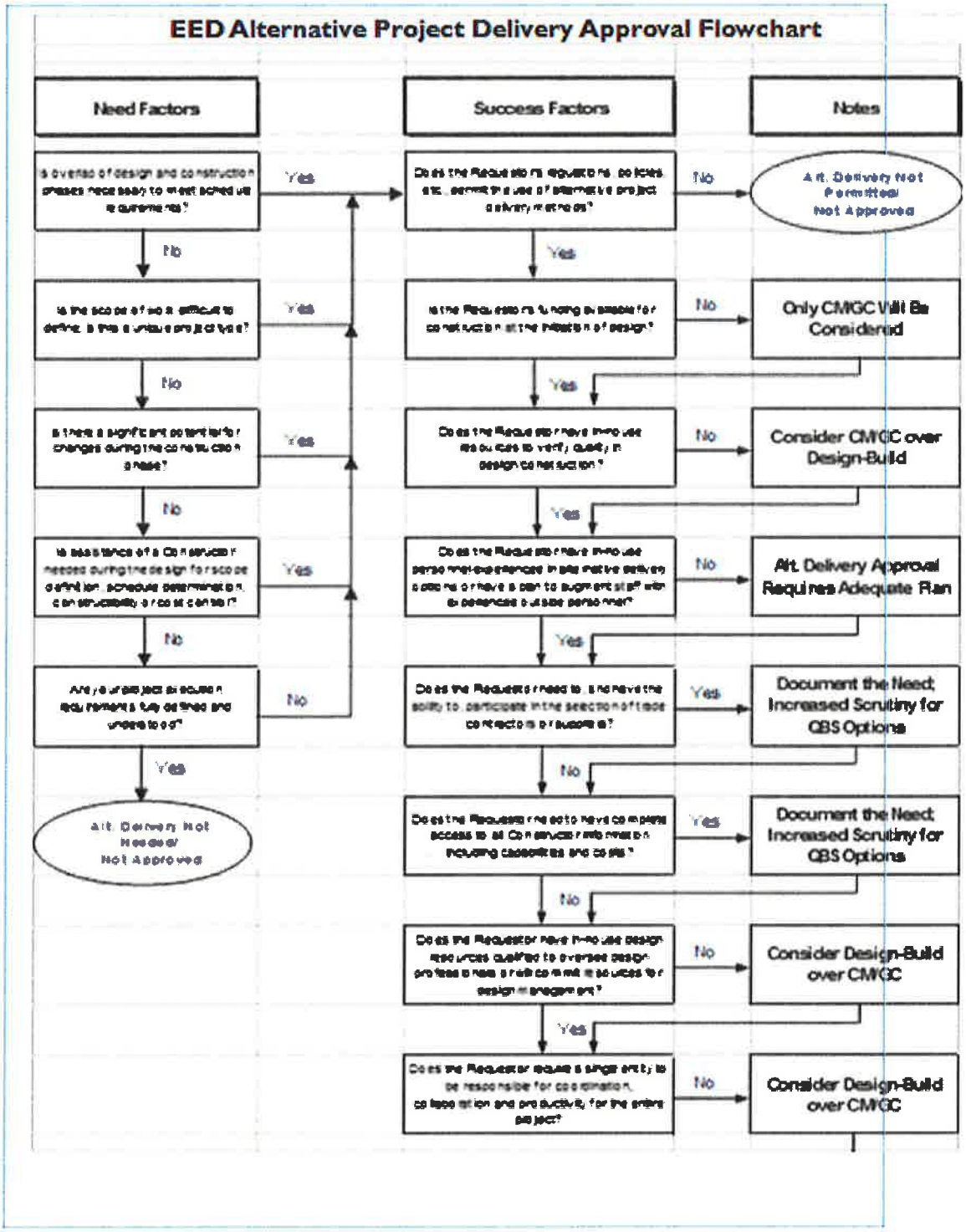


Sample School Capital Project—Project Delivery Options Analysis



Appendix E (cont.)

Sample School Capital Project—Project Delivery Options Analysis



Guidelines for School Equipment Purchases

State of Alaska - Department of Education & Early Development
School Finance / Facilities
2016 Edition

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Originally published in 1988 by the State of Alaska, Department of Education as *Guidelines for School Equipment Purchases* and updated in 1997 and 2005 under the same name.

Table of Contents

Introduction

Overview

Regulations governing the use of state aid from debt reimbursement and grant funding provide for the use of capital project funds for the purpose of equipping new or rehabilitated school facilities. In addition, statutes prohibit the granting of capital project funds to districts unless districts account for all school equipment through an auditable fixed asset inventory system. The purpose of this Department of Education & Early Development guideline is to assist school districts and municipal entities in purchasing equipment in compliance with school construction statutes and the regulations which implement them. The guideline provides direction in three major areas: identifying the needed equipment, equipment budgets and accounting for the equipment.

Authority

AS 14.17.190(b)

(b) Each district shall maintain complete financial records of receipt and disbursement of public school foundation money, money acquired from local effort, and other money received by the district. The records must be in the form required by the department and are subject to audit by the department at any time.

AS 14.11.011(b)

(b) For a municipality that is a school district or a regional educational attendance area to be eligible for a grant under this chapter, the district shall submit

(1) a six-year capital improvement plan that includes a description of the district's fixed asset inventory system and preventive maintenance program no later than September 1 of the fiscal year before the fiscal year for which the request is made; the six-year plan must contain for each proposed project a detailed scope of work, a project budget, and documentation of conditions justifying the project; . . . .

AS 14.11.017(a)(3)

(a) The department shall require in the grant agreement that a municipality that is a school district or a regional educational attendance area . . .

(3) agree to limit equipment purchases to that required for the approved project plan submitted under (5) of this subsection and account for all equipment purchased for the project under a fixed asset inventory system approved by the department, ...

AS 14.14.060(h)

(h) School boards within the borough may determine their own policy separate from the borough for the purchase of supplies and equipment.

AS 14.11.135(3)

(3) "costs of school construction" means the cost of acquiring, constructing, enlarging, repairing, remodeling, equipping, or furnishing of public elementary and

secondary schools that are owned or operated by the state, a municipality, or a district and includes the sum total of all costs of financing and carrying out the project; these include the costs of all necessary studies, surveys, plans and specifications, architectural, engineering, or other special services, acquisition of real property, site preparation and development, purchase, construction, reconstruction, and improvement of real property and the acquisition of machinery and equipment that may be necessary in connection with the project. . . .

4 AAC 31.900 defines school equipment as follows:

(2) "capital equipment" means built-in and movable equipment used to furnish a newly constructed or rehabilitated space; it includes the first-time purchase of library books, reference material, and media to furnish a new or renovated library; it does not include supply items such as textbooks and expendable commodities; the term is further defined in the Department of Education & Early Development's *Guidelines for School Equipment Purchases*, 1997 edition; . . . .

Identifying Needed Equipment

Educational Specifications

The general scope of necessary equipment purchases, as defined in 4 AAC 31.900(2) and this guide, should be a part of the educational specification developed for the project. Paragraph (7) of 4 AAC 31.010 Educational Specifications, indicates that the educational specifications should include, "the educational spaces needed, their approximate sizes in square feet, *their recommended equipment requirements*, and their space relationships to other facility elements." Educational specifications for projects incorporating state funding are reviewed and approved by the Department of Education & Early Development prior to contract award. Good educational specifications include, in tabular form, a listing of necessary equipment for the project. The listing should be based on the Activity Setting Descriptions identified in the department's guide "A Handbook to Writing Educational Specifications", current edition. If the project architect's professional services include responsibilities for preparing furnishing, fixtures, and equipment (often referred to as FF&E) documents, these listings become an invaluable tool in communicating district needs to ensure their inclusion in the project. The project's design documents should identify types and quantities of equipment which conform to the district's established standards. The actual selection and purchase of this equipment is normally the responsibility of the school district in which the school facility is located unless otherwise agreed when a municipality is the project manager.

Technology Items

A key component of any equipment budget is the provision of technology items such as computers, computer peripherals and software, audio-visual and vocational-technical equipment. Technology incorporates a wide spectrum of equipment items and has become an integral part of education. Technology can both be taught as a subject area and used as a delivery system in the teaching/learning process across all subject areas. In other words, most schools include both technology education and educational technology. They do this to differing degrees depending on the objectives and culture of the school district or individual school. The definitions included in Appendix A indicate that technology is best thought of in the broad sense of those equipment items used to process or create electronic data which are integrated into a system. Under this definition, typical technology equipment at the publication of this guide would be, computers, printers (2D/3D), monitors, video projectors, interactive whiteboards, scanners (2D/3D), video cameras, digital cameras, large format displays, video recorders/players, image processors, robotics, calculators, electronic test equipment, voice over IP, digital telephone, etc. Most of these items are dependent on both the software and wiring/cabling connections to make them functional for specific purposes. An initial copy of software can be purchased as technology equipment. Typically, the wiring and cabling will be included as part of the construction budget.

Furnishing & Equipment Items

The remaining components of an equipment budget include furnishings and the equipment necessary to provide for the administration, operations and instructional programs of the school.

The identification of furnishings for administrative and instructional use is a relatively straightforward process. The items are typically large and are used daily. This serves to keep them in the forefront of people's minds when being asked to develop school equipment lists. The identification of instructional equipment presents additional challenges and requires intentional planning and even research on the part of the school district's project design team. Probably the most overlooked items are those that pertain to the maintenance and operation of the new or renovated school. Items in this category include custodial care equipment, personnel lifts, mowers, snow blowers, and similar items that are appropriately sized and are dedicated to the use and operation of that specific facility. Maintenance items such as testing equipment, any type of construction equipment, or vehicle that can be used at multiple school locations are not appropriate purchases under the capital equipment associated with the school facility being constructed or rehabilitated.

Distinguishing Between Supply & Equipment Items

An item can be classified as **supply** if it meets one or more of the following criteria:

1. It is consumed, worn out, or deteriorated as it is used, to the point of being not useful or not available for its principal purpose, and under normal conditions of use, it reaches this state of being not useful or not available for its principal purpose typically within one (1) but nor more than two (2) years.
2. Its original shape, appearance, and/or character changes with use.
3. It loses its identity through fabrication or incorporation into a different or more complex unit or substance.
4. It is expendable, that is, if the item is damaged or some of its parts are lost or worn out, it is usually more feasible to replace the item with an entirely new unit rather than repair it. Examples are paper, pencils, cleaning supplies, etc.

An item can be classified as **equipment** if it is an instrument, machine, apparatus, or set of articles which meets *all* of the following criteria:

1. It retains its original shape, appearance, and/or character with use.
2. It does not lose its identity through fabrication, or incorporation into a different or more complex unit or substance.
3. It is non-expendable; that is, if the item is damaged or some of its parts are lost or worn out, it is usually more feasible to repair the item rather than to replace it with an entirely new unit.
4. Under normal conditions of use, including reasonable care and maintenance, it can be expected to serve its principal purpose for more than one (1) year.

Equipment items are normally of significant value, usually over $5000, or the value that the local school district has established in its capitalization policy. However, smaller value items, often

needed in quantity or available as sets, which meet the above conditions also qualify as equipment. Examples include, a) office equipment such as punches and staplers, classroom flags, and waste cans, b) maintenance and career technology equipment such as hand tools and diagnostic equipment, and c) food service equipment such as utensils, pot/pans, shelving, and portable work surfaces.

Items which are obviously "supply" in nature may be purchased only if they are an integral part of an equipment package purchase such as with a computer (operating system software) or teaching machine or other device meeting the criteria of an equipment item.

For supply/equipment decision flow chart, see the department's Uniform Chart of Accounts, current edition.

School Equipment Budgets

Quantities

Equipment items should be purchased only as needed to support the individual school project or program which is authorized. Numbers of desks, computers, calculators, video players, video display panels, etc., should be--when added to those already available to be moved from any older facility which formerly housed the program--a total of no more than those appropriate to adequately provide for the educational program served by the school construction project named in the funding application or project agreement. The Department of Education & Early Development will approve the general types and quantities of equipment purchases as it approves the educational specifications submitted by the school district. It is the responsibility of the school district to actually purchase the equipment and to make specific cost-benefit value decisions and product selections.

Overall Budgets

The portion of each school construction or major maintenance project budget used for the purchase of school equipment should respond to the district's instructional program, the type of equipment needed to deliver the program, the grade levels being served, the availability of satisfactory existing equipment and the cost and quantities of new equipment. Traditionally, school equipment budgets have been thought of as a percentage of the facility construction cost. Current experience is showing percentages ranging as high as eight percent. This figure is for new construction; a lesser amount often is sufficient in renovations due to the availability of existing equipment items. For projects funded by appropriations made to the Department of Education & Early Development, total equipment budgets (i.e. conventional equipment plus technology items) have been limited to 7% unless a detailed justification is provided which shows the correlation between a school board-approved instructional program and the need for additional equipment.

While budgeting for equipment as a percentage of construction cost has some merit, state-wide equity is difficult to achieve due to the widely varying cost per square foot of Alaska schools. Whereas the cost of acquiring a constructed facility involves labor costs, material costs, and substantial premiums to access and serve remote sites, the cost of acquiring school equipment is more likely to be similar among districts regardless of location. Some small increases can be expected for shipping, lack of quantity discounts, as well as the services required to install more elaborate systems.

The department has established two parameters with which to evaluate school equipment budgets. The first will be the percentage-of-construction method with the standard limitation remaining at 7%. The second budget parameter is established on a per-student basis as shown in the tables on the following page:

Elementary Students Served	Technology Equipment	All Other Equipment
10 - 100 students	$1,400	$1,700
101 - 250 students	$1,300	$1,700
251 - 500 students	$1,000	$1,500
over 500 students	$900	$1,400

Secondary Students Served	Technology Equipment	All Other Equipment
10 - 100 students	$1,700	$2,100
101 - 250 students	$1,500	$2,000
251 - 500 students	$1,300	$1,900
over 500 students	$1,200	$1,700

Note: for schools with a mix of elementary (K-6) and secondary students (7-12), the aggregate number of students will determine which per-student allotment is used. Example: A K-12 school with 86 students in grades K-6 and 59 students in grades 7-12 would use figures from the 101-250 category ($1,300 and $1,700 for elementary and $1,500 and $2,000 for secondary). These would be applied to the specific numbers of students in each grade grouping.

Schools in regions with a geographic area cost factor greater then 110.00, as established in the department's current Program Demand Cost Model for Alaskan Schools, will be allowed an additional amount to account for estimated shipping and installation costs. For these schools, equipment budgets calculated using the per-student table may be increased an amount equal to one-fifth of their geographic area cost factor. Example: A school with a geographic factor is 140.91, may increase their per-student-based equipment budget by 8.18 percent. (40.91 / 5 = 8.18)

Summary

For projects funded under AS 14.11, total school equipment budgets will be limited to the lesser of the amounts generated by the percentage of construction cost formula at 7%, and the per-student formula shown above. The opportunity to provide detailed justification which shows the need for additional funding of equipment remains in effect.

For projects providing new facilities or projects constructing space for new media programs which do not replace another facility, the initial purchase of library media is appropriate for inclusion in the equipment budget.

Accounting for Equipment Purchases

Installed Equipment

Built-in equipment or furnishings or those pieces of equipment which are an integral part of a building system are normally included in the construction documents and are not considered capital equipment for the purposes of a fixed asset inventory. Installed equipment is instead accounted for as part of the building cost.

Fixed Asset Inventory

Procedures and requirements for establishing and maintaining a property accounting system can be found in various industry, state, and federal publications. Equipment purchased as part of a school construction project will be recorded in a district's approved fixed asset inventory system, as required. It is impractical for every individual item purchased as school equipment to be recorded. Therefore, a minimum cost should be established above which an asset will be entered into the fixed asset records. The Alaska Department of Education & Early Development Uniform Chart of Accounts, current edition, establishes that minimum at $5000 or the school district's/municipality's capitalization threshold for equipment, whichever is lower. The cost established as the threshold should be stated in the fixed asset portion of the annual audit submitted for department review under 4 AAC 09.130. In establishing the appropriate management of school equipment within a fixed asset system, cost thresholds and financial accounting are one consideration. Another consideration of similar importance is level of control or physical control. Often, these two considerations—fiscal control and physical control—work in conjunction within a fixed asset inventory.

Equipment Control

The tracking and control of physical resources by school districts is a matter of responsible stewardship. In devising methods for carrying out this responsibility, selecting an appropriate level of control is important. Three broad categories of control have been suggested as applicable to school equipment purchases: little or no control, group control, and individual control. Two of these, group control and individual control intersect with the district's fixed asset system. The individual control category, in which discrete equipment items are tracked based on their relatively high value, has been adequately covered in the preceding paragraph. Group control, as a category, offers a mechanism for school districts to include equipment items with lower individual dollar values in their fixed asset inventory. Items in this category, when taken as a group, are valuable enough to justify the cost of providing some type of control over their safety, use, location, and condition. Examples of such items include classroom equipment group, or administration equipment group. These groups would consist of furnishings, computers/peripherals and appliances assigned to a room, suite, or wing of the school facility. Best practices for school equipment accounting would include such groups as fixed assets.

Appendix A - Definitions

Construction Equipment: Any type of bulldozer, front end loader, fork lift, or other type of equipment that is typically used in construction activities that may or may not be legal for use on a public way, that can move under its own power, and is controlled by an operator that is located on or in the equipment.

Installed Equipment: Built-in equipment or furnishings or those pieces of equipment which are an integral part of a building system.

Fixed Assets: An account grouping used to track the balance of expenditures and revenues associated with owned property.

Property: Physical assets including land, buildings, and equipment.

Supplies: Items which are consumed during normal use or are more feasible to replace with an entirely new unit rather than repair it. Supplies are not part of the fixed asset account group.

Technology: An integrated system of electronic and mechanical equipment, associated software and peripherals which creates and/or process information to support a school's educational program.

Vehicle: Any tracked, two, or four wheeled motorized means of conveyance that carries an operator, that may or may not carry a passenger, and that may or may not be legal for use on a public way.

Site Selection Criteria and Evaluation Handbook

State of Alaska - Department of Education
Education Support Services / Facilities

2011 Edition

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Table of Contents

Introduction

Overview

The perfect school site can be envisioned as generally level with some topographic interest, having complete utilities, stable, well drained soils, excellent road and pedestrian access, protection from excessive weather patterns, with ample space for school facilities, playground and sports fields. The site would be accessible to present and future populations and be free of any natural or environmental hazards. It would be removed from undesirable business, industry and traffic hazards but be convenient to important public facilities and recreational/outdoor learning areas. In most communities, however, the perfect site is elusive and difficult to find.

School siting is also a serious public policy decision. Land availability, land use, public sentiment and other community issues can have dramatic influence on site selection. In any site selection process, local involvement and judgments regarding the relative significance of selection criteria are important.

This Site Selection Criteria Handbook was developed with flexibility in mind, and can be used by school districts to perform a site selection analysis for any school facility by carefully selecting the appropriate criteria and weighting factors. Districts can use this guide for analysis of site opportunities for elementary schools, secondary schools, charter schools, alternative schools and special purpose facilities.

Finally, site selection for school facilities has a direct and lasting impact on the resources of the State of Alaska. Both the economic resources and the natural resources of the state are affected by the construction and operation of public schools. Primarily in response to these factors, the state recognizes the need for careful and thorough evaluation of school sites.

Authority

The guidelines incorporated in this handbook have been developed to give assistance and direction to Alaska school districts and communities in determining the suitability of various building sites for educational facilities planning. They are based upon AS 14.11.013 and 14.11.100, which provides for department review of projects to ensure they are in the best interest of the state. This provision is further developed by regulation 4 AAC 31.025 which requires approval of educational facility sites under paragraph (a) and investigations by the appropriate local governing body for suitability in paragraph (d). This handbook establishes the basic considerations for an adequate site selection process. Other products of similar detail may be used to fill the requirements laid out in statute and regulation.

Basic Procedures

Site Selection Elements

This handbook establishes a set of basic site selection elements and offers suggested evaluation criteria for rating the elements. Although the document does incorporate an internal weighting factor (it lists a few key ranking criteria elements which have high cost impacts in more than one sub-category) it does not prescribe the importance of most selection elements but rather, incorporates a weighting system whereby a district or community can assign a range of importance to each element. It is recognized that information for all the elements cannot always be determined nor are all elements applicable to every site. However, detail and rigor in addressing the elements is important for an effective evaluation.

The selection elements are grouped into three major categories as follows:

1. ***Social and Land Use Factors***

2. ***Construction Cost Factors***
   a) *Soils/Foundations*
   b) *Utilities*
   c) *Other*

3. ***Operations and Maintenance Cost Factors***

The site selection elements form the basis for an evaluation matrix which is shown in **Appendix A** and is available as a spreadsheet on the department's website. The first step in the process is to review the matrix elements for applicability to the project and sites being considered.

Weighting Factors (WF)

After identifying the site selection elements, the next step is to assign weighting factors to each element. Assignment of the weighting factors is the district/community's opportunity to apply its values to the evaluation process so that the final scores for each site reflect issues involved at the local level. This is often accomplished through community surveys, public meetings and other forums for developing consensus among the parties affected by the school project. A suggested model for the district/community weighting factors is shown below:

Weighting Factors
1 = not very important
2 = somewhat important
3 = important
4 = very important
5 = essential

Basic Procedures

Applying Ranking Criteria

Following the assignment of the weighting factors, each selection element is evaluated according to established criteria and ranked on the simple five point scale from 0 to 4. The detailed ranking criteria to be used, which differentiates as needed between rural and urban sites, is described following this section on **Basic Procedures**. The table below gives a suggested definition of each ranking score:

Criteria Ranking Scores

0 = unacceptable (least desirable/least cost effective)
1 = poor
2 = fair
3 = good
4 = excellent (most desirable/most cost effective)

Tabulating and Analyzing Results

Using the Site Evaluation Matrix (Appendix A) enter the criteria ranking scores for each element. Compute the total score for each site by multiplying each criteria score by the weighting factor and sum them. An example of a portion of the Site Evaluation Matrix is shown below:

Maintenance and Operating Cost Factors

Criteria	WF	**Site 1**	S1 x WF	**Site 2**	S2 x WF	**Site 3**	S3 x WF	**Site 4**	S4 x WF
Site Drainage	3	4	12	3	9	3	9	n/a	n/a
Flooding	4	4	16	4	16	2	8	n/a	n/a
Site Erosion	4	3	12	3	12	3	12	n/a	n/a
Sun Orientation	2	2	4	1	2	1	2	n/a	n/a
Protection from Elements	2	3	6	3	6	2	4	n/a	n/a
Proximity to Natural Hazards	4	0	0	3	12	4	16	n/a	n/a
Alternative Energy Sources	3	1	3	1	3	2	6	n/a	n/a
Air Inversions/Katabatic Winds	2	4	8	4	8	4	8	n/a	n/a
TOTALS			61		68		65		n/a

The total scores for each site represent a detailed analysis; the highest score should indicate the most desirable site. If the district or community, based on factors not captured by the evaluation, desires to choose a site other than the site receiving the highest score, a narrative justification of this position will need to be developed for inclusion in the site selection report.

Ranking Criteria Elements

The following ranking criteria elements provide specific guidance to school districts in establishing a score of each associated ranking element. If a particular district has a particular criteria that is not included in the ranking criteria listed below, but is important to the district in determining the acceptability of a school site, then the district can utilize the spreadsheet available on the department's website to add that criteria to the scoring matrix. Because the department reviews and approves site selection decisions made by a school district, the department will need to be consulted if additional criteria are proposed for a site selection analysis.

Size of Site

Criteria:
The specific criteria listed below have been adapted from the *Council of Educational Facility Planners International Creating Connections Guideline.*

Selection of a school site involves many variables, all of which cannot be captured in a basic metric such as the one shown below; however, the tool below can be helpful for identifying the approximate site size necessary to accommodate a district's proposed school facility. For assistance with estimating size for a particular use contact the department, or consult with a design professional.

Use	Typical Size	Actual Estimated Size
Building Footprint	Varies	
Service Area (3 dumpsters/recycling bins, loading and turning area for two trucks)	8,000 SF	
Bus Drop-off/Pick-up (including space for angled parking and driveways with appropriate turning radius)	5,500 SF/bus	
Bus Drop-off/Pick-up (parallel loading at sidewalk)	650 SF/bus	
Car Drop-off/Pick-up	250 SF/car	
Vehicle Parking	285 SF/space	
Paved Outdoor Play Area	4,500 SF (varies)	
K-2 Playground Equipment Area	3,200 SF (varies)	
3-5 Playground Equipment Area	3,200 SF (varies)	
Outdoor Learning Area	Varies	
Grassy/Natural Play Area	Varies	
Football Field	88,000 SF	
Football Field with track and field event space	225,000 SF	
Soccer	106,000 SF/field	
Total Net Square Footage		
Net to Gross Factor (10% for larger sites varying to 30% for small sites to accommodate walkways and buffers between activity areas)	10%-30% of net square footage	
Total Useable Area Required		
Number of Useable Acres Required (divide total useable area required by 43,560 SF/acre)		

See next page for evaluation criteria

Ranking Criteria Elements

Evaluation (for Site Size Criteria):	Scores:
Site size is within 30% of the calculated programmatic space requirements for the proposed facility	0
Site size is within 20% of the calculated programmatic space requirements for the proposed facility	1
Site size is within 10% of the calculated programmatic space requirements for the proposed facility	2
Site size is adequate to meet the calculated programmatic space requirements for the proposed facility	3
Site size exceeds the calculated programmatic space requirements for proposed facility and provides room for building expansion and/or activity use expansion	4

Proximity to Population to be Served

Criteria:
Ideally, all students served by the school would be in convenient, safe walking distance to the site. In communities with roads, convenient vehicle/bus travel is also important. Evaluate this criterion using the anticipated population distribution when the school is at capacity (i.e. 5 year post-occupancy). Use the following standard, evaluating for both elements and using the lowest score:

- 50% of students served are within reasonable walking distance (i.e. ¼ mile or less) and,
- 90% of students served are within a 15 minute vehicle/bus ride

Evaluation:	Scores:
Proximity of student population is 40% or more below standard	0
Proximity of student population is within 20% of standard	1
Proximity of student population is within 10% of standard	2
Proximity of student population is equal to standard	3
Proximity of student population is 10% or more above standard	4

Ranking Criteria Elements

Proximity to Future Expansion of Community

Criteria:
Occasionally, schools are constructed on sites that within 20 years are no longer adjacent to population centers and/or residential areas. This criterion assesses long-range planning and land use factors related to school sites. Use a subjective evaluation of how well the site corresponds to future expansion and land use in the community to score this criterion. Answer the question, "Is this a good long-term site for a school?"

Evaluation:	Scores:
Incompatible with future expansion	0
Significant variances with future expansion	1
Some variances with future expansion	2
Corresponds well with future expansion	3
Corresponds ideally with future expansion	4

Proximity to Important Existing Facilities

Criteria:
In some instances, a district/community can identify an existing facility (e.g. swimming pool, food service, etc.) which is shared between multiple schools and to which close proximity is essential or desired. If more than one facility is important, this criterion may have to be scored multiple times. In most cases the adjacency is important because it involves student transit. Use the following standard:

- students served are within a short walking distance to important existing facilities (i.e. 1/8 mile [660ft.] or less)

Evaluation:	Scores:
Proximity of school is 40% or more below standard	0
Proximity of school is within 20% of standard	1
Proximity of school is within 10% of standard	2
Proximity of school is equal to standard	3
Proximity of school is 10% or more above standard	4

Ranking Criteria Elements

Year-round Accessibility

Criteria:
Ideally, the site should be easily accessible during all times of the year regardless of weather and temperature effects on paths, walks or roads. In some communities, access may improve during winter due to frozen water/wetlands. In other communities, winter may cause the most difficult accessibility problems. Evaluate this criteria assuming standard amenities for site accessibility are provided (i.e. walks, roads, bridges, etc.). Costs for providing these amenities should be covered in other criteria.

Evaluation:	Scores:
Site is inaccessible during certain times of the year	0
Access is routinely interrupted by weather/temperature conditions	1
Access is periodically over swampy, unstable soils	2
Typically year-round well drained ground/road access	3
Fully accessible; only severe storms may temporarily hinder access	4

Site Topography

Criteria:
Ideally, the site should be fairly level with some topographic relief that can provide opportunities for learning area development. In some communities, choice of level property may not be available, so consideration should be given to the side that best meets the programmatic needs of the facility. Evaluate this criterion by considering the types of amenities required for the facility (i.e. playground/play area, soccer field, track, basketball court, etc.). Costs for providing these amenities should be covered in other criteria.

Evaluation:	Scores:
Site contains significant topographic relief, and cannot accommodate anticipated uses	0
Site is not level, and can only accommodate a limited number of anticipated uses	1
Site is not level, but can still accommodate all anticipated uses	2
Site is mostly level and can accommodate all anticipated uses	3
Site is level and can accommodate all anticipated uses	4

Ranking Criteria Elements

Traffic Impact, Access Needs:

The following five criteria relate to traffic and access issues that may affect a potential school site. A thoughtfully situated site will allow walking, busing and driving access while minimizing crash risk between those modes of travel as well as mainline traffic. The criteria address capital and maintenance needs for road function, sight distance, access and circulation, walking routes, school zones, turn lanes, and traffic signals. The following five criteria are especially important to consider in urban and suburban site selection processes where inadequately addressed traffic issues can result in safety concerns for students.

Road Access

Criteria:
Evaluate site access options. Access to the school site from minor arterials and collectors is more compatible than access from high speed or high volume road corridors or a low volume neighborhood residential street. Consider traffic speed and volume at the point of driveway access. Request DOT/PF or local agency assistance for roadway classification and traffic volume information.

Evaluation:	Scores:
Driveway access from National Highway System, Principal Arterial, or Interstate	0
Driveway access from a low volume internal residential-only street	1
Driveway access from a Major Arterial roadway	2
Driveway access from a Minor Arterial roadway	3
Driveway access from Local Road or Collector (not generally a low volume residential-only street)	4

Visibility, safety of driveways

Criteria:
Driveways have the potential to create conflicts when vehicles enter the roadway, particularly where slopes, curves or obstacles prevent good sight distance. The potential for conflicts can be reduced through provision of proper sight distance and traffic control devices. Evaluate sight distance at existing intersections and identify changes that may be required to provide adequate sight distance. Request DOT/PF or local agency assistance for minimum intersection sight distance.

Evaluation:	Scores:
Adequate intersection sight distance cannot be provided or is very difficult to provide.	0
n/a	1
Adequate intersection sight distance can be provided but requires clearing and/or earthwork.	2
n/a	3
Adequate intersection sight distance can be provided without any major work.	4

Ranking Criteria Elements

Driveway Conflicts and Internal Circulation

Criteria:
Driveway access options are limited by roadway frontage. The greater the frontage along a road, or along adjoining roads, the greater the likelihood that multiple driveways will provide options for internal site circulation of vehicular traffic (buses, visitors, students and faculty), pedestrians and bicycle traffic. Evaluate driveway access and internal circulation options. For information on driveway separation requirements, contact DOT/PF.

Evaluation:	Scores:
Road frontage limits access to one driveway; site restricts or limits internal site circulation, or driveways and access frontage is insufficient for multiple modes of access.	0
n/a	1
Road frontage limits driveway access options; site allows internal site circulation options. Frontage limits multiple modes of access.	2
n/a	3
Road frontage wide enough for multiple driveways and other modes of travel; site allows internal site circulation options.	4

Safe Routes to School for Pedestrians and Bicycles

Criteria:
Safe walking routes enable students within a short distance of the school the option to walk or ride bicycles. Minor collectors and local roads with easy access to the school are best for student pedestrians and bicycles. Roads with a significant amount of traffic act as barriers to students, will require traffic control devices (signs, signals, crossing guards) and can result in conflicts when students make poor crossing decisions. Evaluate the local walking conditions and changes necessary to improve safety for students.

Evaluation:	Scores:
No walking routes are available, nor can reasonable routes be constructed.	0
Walking routes can be constructed, but significant pathway work is required. Traffic control devices could be extensive, requiring tunnels, bridges, or signalization.	1
Walking routes can be constructed at-grade without major right-of-way or road work.	2
Existing walking routes are suitable for 1/4 to 1/2 mile travel. A school zone beacon system may be required.	3
Existing walking routes are suitable for 1/4 to 1/2 mile travel. No new traffic control devices are required.	4

Ranking Criteria Elements

Roadway Capacity, Safety Needs

Criteria:
Schools generate a significant amount of traffic. Increased vehicle trips to a school site may create congestion and delay for school and non-school related traffic. Turning movements create conflicts between vehicles and pedestrians. Major intersection safety improvements include adding through lanes, right-turn lanes, a significant length of road widening to accommodate left turn lanes, or a traffic signal or a roundabout. Evaluate how increased traffic volume and turning movements can be safely accommodated. Request DOT/PF or local government guidance and technical assistance regarding traffic impacts, safety improvements and permitting.

Evaluation:	Scores:
The roadway requires major intersection and road segment improvements for long distances. Requires a Traffic Impact Analysis (TIA) per 17 AAC 10.060 (required typically for site generated traffic volume greater than 100 vehicles per hour).	0
The roadway requires major intersection improvements. Requires a Traffic Impact Analysis (TIA) per 17 AAC 10.060 (required typically for site generated traffic volume greater than 100 vehicles per hour).	1
The roadway requires widening to provide turning lanes to accommodate turning traffic demand. Requires a limited Traffic Impact Analysis (TIA) to review turning demands.	2
No roadway improvements are required; signing changes are needed.	3
No roadway improvements are required; existing road capacity and traffic control devices are adequate.	4

<<<<END OF TRAFFIC AND ACCESS RELATED CRITERIA>>>>

Aesthetic Value

Criteria:
Sites can be assessed for the quality of their surroundings such as vegetation, topography, views and surroundings. Because aesthetic value is subjective, it is important that the local residents establish the aesthetic criteria considering each of the categories mentioned above. Use a subjective evaluation of the aesthetic merits of the site and answer the question, "What would it take to make this site aesthetically pleasing?"

Evaluation:	Scores:
Will never be aesthetic	0
Has few natural aesthetic features and little potential	1
Has some aesthetic features; potential for more with considerable effort	2
Could have many aesthetic features with minimal efforts	3
Has many aesthetic features naturally	4

Sun Orientation

Ranking Criteria Elements

Criteria:
The site should allow designs to take full advantage of available sun angles. Locating outside play areas to receive sunlight normally makes them a more desirable place for activity. A facility can benefit from the solar gain of winter sunlight. Large stands of trees, north-facing slopes and adjacent structures can be detrimental. Evaluate this criteria based on the year-round use of the facility.

Evaluation:	Scores:
Site is in constant shadow during fall, winter and spring months	0
Site is mostly in shadow during winter months with some fall/spring sun	1
Site is mostly exposed winter sun	2
Site is exposed to year-round sun with some obstructions	3
Site is exposed to full year-round sunlight; no obstructions	4

Protection from Elements

Criteria:
The site should provide protection from prevailing winds which intensify cold temperatures, dust, driving rain and drifting snow. Topography, orientation and site vegetation relative to cold winter winds can be important both for indoor and outdoor educational activities. Sites with some type of wind protections are desirable over those exposed to harsh winds (this is especially critical in coastal areas). Evaluate this criteria based on natural features. Costs of compensating for inadequate protection should be covered in other criteria.

Evaluation:	Scores:
Site is fully exposed to prevailing winds; no obstructions	0
Site is mostly exposed to prevailing winds	1
Site is partially protected from prevailing winds; some natural barriers	2
Site is mostly protected from prevailing winds	3
Site offers full protection from prevailing winds	4

Ranking Criteria Elements

Site Drainage

Criteria:
Sites with good drainage are easier to develop and maintain. Good drainage reduces the chance of water or ice collecting around a facility which could cause undermining, decay and/or frost heave leading to structural damage. It could also make general use and occupancy of the site difficult. Evaluate this criteria based on natural features. Costs of compensating for inadequate drainage should be covered in other criteria.

Evaluation:	Scores:
Site is generally low; surrounding areas drain into it	0
Drainage collects in some areas within the site	1
Drainage collects in areas adjacent to the site	2
Site has positive drainage; water contribution from surrounding areas is easily accommodated	3
Site has positive drainage; no water contribution from surrounding areas	4

Proximity to Natural Hazards

Criteria:
Ideally, the site would have no susceptibility to damage (facilities, utilities, etc.) from natural disasters. These would include the results of "Force Majure" such as earthquakes, avalanches/landslides, volcanic activity as well as health and safety hazards such as bluffs/steep cliffs, bodies of water and sewage/garbage disposal areas. Evaluate this criteria based on natural features and the historical occurrence of those hazards listed above. Costs of compensating for hazards should be covered in other criteria.

Evaluation:	Scores:
Site in proximity to five or more hazards	0
Site is in proximity to four or fewer hazards	1
Site is in proximity to three or fewer hazards	2
Site is in proximity to one hazard	3
Site free of any potential damage/injury from natural hazards	4

Ranking Criteria Elements

Zoning/Land Use

Criteria:
Current and projected zoning and land use should be compatible with the use of the site for a school. If local regulations do not currently permit educational facilities, it could be a lengthy process to obtain a change in zoning or a conditional use permit. Evaluate this criterion according to the difficulty and associated risk.

Evaluation:	Scores:
Present/future zoning does not permit use of the site for a school	0
Not zoned for schools but change or exemption can be requested	1
Current zoning will allow schools as conditional use	2
Currently zoned for schools; not likely to change	3
Present/future zoning permits schools or no zoning restrictions exist	4

Site Soils/Foundation Conditions

Criteria:
Ideal sites contain well graded, stable soils with high soil bearing pressure. Soil conditions should allow conventional, economical foundation systems which can meet or exceed a 50 year life expectancy with little maintenance. Soil conditions which can adversely affect construction include, discontinuous permafrost, silts and clays, substantial surface or sub-surface organic and high water contents (all susceptible to frost heave). Sites should be assessed for the quality of their soil based on known conditions or on-site investigations.

Evaluation:	Scores:
Unstable soils throughout; highly specialized foundation required	0
Mostly unstable soils; specialized foundation required	1
Isolated area of the site have unstable soils, some specialized foundation likely	2
Most areas of the site have stable soils; conventional foundation possible	3
Stable soils; conventional foundation system possible	4

Ranking Criteria Elements

Availability of Water Utilities

Criteria:
Connection into an existing, reliable water supply system with adequate capacity is preferred. Sites closest to the existing system would be rated highest. When considering adequacy, don't forget fire suppression system requirements. If a new water system is required for the site, then sites should be rated as to their potential to support/provide the system. For new systems, proximity to wells, lakes or rivers may be a factor. Evaluate this criteria based on known improvements and/or natural features as described above. Costs of providing water utility should be covered in other criteria.

Evaluation:	**Scores:**
No existing system; no known/potential water supply near site	0
No existing water system; potential water supply near site	1
No existing water system available; known water supply at site	2
Adequate, reliable water system is available adjacent to or near the site	3
Adequate, reliable water system is available within the site	4

Availability of Sewage Utilities

Criteria:
Connection into an existing, reliable waste/sewer system with adequate capacity is preferred. Sites closest to the existing system would be rated highest. If a new sewage system is required for the site, then sites should be rated as to their potential to support/provide the system. For new systems, perking soils, space for lagoons and availability of effluent outfalls may be a factor. Evaluate this criteria based on known improvements and/or natural features as described above.

Evaluation:	Scores:
No existing system; no known/potential waste handling area near site	0
No existing sewer system; potential locations for sewer system near site	1
No existing sewer system available; known location/method avail. on site	2
Adequate, reliable sewer system is available adjacent to or near the site	3
Adequate, reliable sewer system is available within the site	4

Ranking Criteria Elements

Availability of Electrical Power

Criteria:
Connection into an existing, reliable electrical system with adequate capacity is preferred. Sites closest to the existing system would be rated highest. If a new electrical system is required for the site, then sites should be rated as to their potential to support/provide the system. For new systems, space for generators, space for fuel storage and availability of fuel may be a factor. Evaluate this criteria based on known improvements and projected requirements.

Evaluation:	Scores:
No existing system; known difficulties for generation on site	0
No existing power system; good potential for power generation near site	1
No existing power system available; known power generation at site	2
Adequate, reliable power system is available adjacent to or near the site	3
Adequate, reliable power system is available within the site	4

Availability of Fuel Storage/Distribution

Criteria:
Connection into an existing, reliable fuel storage/distribution system with adequate capacity is preferred. Sites closest to the existing system would be rated highest. If a new fuel system is required for the site, then sites should be rated as to their potential to support/provide the system. For new systems, proximity to delivery points, available land for tankage, etc. may be a factor. Evaluate this criteria based on known improvements and/or natural features as described above. Costs of providing fuel utility should be covered in other criteria.

Evaluation:	Scores:
No existing system; known difficulties for fuel storage on site	0
No existing fuel system; good potential for fuel system near site	1
No existing fuel system available; known fuel system location on site	2
Adequate, reliable fuel system is available adjacent to or near the site	3
Fuel system is not required or is available on site	4

Ranking Criteria Elements

Proximity to Fire Response Equipment

Criteria:
This may or may not influence site selection in rural areas since many villages have no organized fire protection. In areas with fire hydrants and a continuous/reliable water supply and/or a fire station, sites may be rated by response time or whether a site is within the service area. In facility design, sprinkler systems may be specified which become part of the fire protection equipment which is independent of site location except as it relates to water supply. Use the following standard:

- site is within a service area and is in close proximity to a fire station (i.e. 4 miles or less)

Evaluation:	Scores:
Proximity of site is 40% or more below standard	0
Proximity of site is within 20% of standard	1
Proximity of site is within 10% of standard	2
Proximity of site is equal to standard	3
Proximity of site is 10% or more above standard	4

Ease of Transporting Construction Materials

Criteria:
Proximity to transportation routes which can support heavy equipment and loads can affect the usability of a site for construction. This criterion is not to measure the cost of getting construction materials to a community or geographic area but evaluates the local impact of transporting materials to the site. Sites closest to the transportation route will be most easily serviced. Evaluate based on the following:

Evaluation:	Scores:
Site is inaccessible	0
Transporting materials/equipment will be very difficult	1
Transporting materials will be difficult	2
Transporting will be fairly easy, routes will need upgrading	3
Transporting of equipment/materials will be simple; on established routes	4

Ranking Criteria Elements

Site Availability

Criteria:
Land status availability is one of the most fundamental criteria for locating capital improvements. The title to the site should be free of legal encumbrances, platted and surveyed with an accurate legal description and have a single owner. Evaluate as follows:

Evaluation:	Scores:
Clear or unclear title, owner/seller not interested	0
Uncertain title/boundaries; multiple owners	1
Some encumbrances/easements, etc., multiple owners	2
Clear title, recent survey, possibly available	3
Clear title, recent survey, definitely available	4

Site Cost

Criteria:
Land parcels should be available at an affordable cost. The most favorable situation is one in which the parcel is public land available at no cost to the district or available by donation from a private entity. Obviously, the cost of some parcels may be totally beyond the available funds. Evaluate as follows:

Evaluation:	Scores:
Site is cost prohibitive	0
Site is above fair market value but within reach	1
Site is available at fair market value	2
Site is available below fair market value	3
Site is available at no cost or has a nominal administrative fee	4

Ranking Criteria Elements

Alternative Energy Sources

Criteria:
In some cases it may become feasible/cost effective to use the waste heat from an electrical generation plant, or some other low-cost alternative energy source for heating the new facility. All other criteria being equal, this may become an important factor. Evaluate as follows:

Evaluation:	Scores:
Site has no possibilities for alternative energy systems	0
n/a	1
Site is adjacent to alternative energy systems; significant effort to develop	2
n/a	3
Site is adjacent to alternative energy systems; easily developed	4

Permafrost Stability

Criteria:
The best method in dealing with permafrost is to avoid it if possible. If the whole area is underlain with permafrost, then a site with well drained, non-frost-susceptible soils is preferred since there is less chance of encountering an ice wedge/lens, which, when melted will cause unstable soil conditions. Evaluate as follows:

Evaluation:	Scores:
No soils testing; obvious signs of discontinuous permafrost	0
Soils test silt and clay, known permafrost conditions	1
Undetermined soil conditions; no obvious signs of permafrost	2
Limited soils information; most of site free of permafrost	3
Site soils tested, no permafrost present	4

Ranking Criteria Elements

Flooding

Criteria:
Flooding potential from adjacent bodies of water should be considered. Ideally, the site would not be located within a flood plain of flood-prone area.

Evaluation:	Scores:
Site floods routinely	0
Site is within flood plain boundaries	1
Site is in close proximity to flood prone areas	2
Site is in proximity to bodies of water but well above flood plain	3
Site is not in flood plain; no nearby bodies of water	4

Site Erosion

Criteria:
Sites which border on eroding river banks and eroding sea spits should be evaluated on how much and how often erosion takes place to determine if a facility would be endangered. Slopes which have been cleared of vegetation can also erode due to heavy rain. Evaluate this criteria based on natural features and the historical occurrence of those hazards listed above. Costs of compensating for hazards should be covered in other criteria.

Evaluation:	Scores:
Known erosion potential	0
n/a	1
Moderate erosion potential; mostly during construction	2
n/a	3
No erosion potential; not near water or at toes of slopes	4

Ranking Criteria Elements

Air Inversions/Katabatic Winds

Criteria:
During winter under clear sky/no wind conditions, cold air flows down hillsides settling in low-lying areas. This causes temperatures to be colder at low-lying sites (especially in the Interior where there may be little wind). In regions where this occurs often during the winter, sites which are on a hillside are preferred over sites in low-lying areas. Evaluate as follows:

Evaluation:	Scores:
Site has continuous winter Katabatic accumulations	0
Site is routinely affected by Katabatic accumulation; annually	1
Site is in areas of occasional Katabatic wind; not every season	2
Site is adjacent to areas of known Katabatic accumulation	3
Site is on a hillside above cold air accumulation areas	4

Existing Site Development

Criteria:
Vacant, undeveloped land is preferable; if developed or currently used, alternative sites must be available for existing uses. Evaluate based on the magnitude of existing uses requiring relocation and/or demolition and the simplicity of the action.

Evaluation:	Scores:
Site has many existing uses; will all be problematic to relocate/demolish	0
n/a	1
Has 2000 square feet or less in existing uses; all relocatable/demo	2
n/a	3
Site has no existing uses	4

Ranking Criteria Elements

Access to Outdoor Recreation/Learning

Criteria:
Students benefit when complimentary park and recreation resources are located near public schools. Recreation and nature areas available by walking provide opportunities to use the outdoors as an extension of the classroom. Evaluate according to the following standard:

- site is contains or is adjacent to outdoor recreation/nature area (i.e. 1/8 mile or less)

Evaluation:	Scores:
Proximity of site is 40% or more below standard	0
Proximity of site is within 20% of standard	1
Proximity of site is within 10% of standard	2
Proximity of site is equal to standard	3
Proximity of site is 10% or more above standard	4

Noise

Criteria:
Incompatible noise such as from air traffic, vehicle traffic, industrial uses, etc. is detrimental to educational delivery. Evaluate this criteria based on actual or anticipated noise factors according to the following standard:

- sound decibel level is below 65db sustained and 75db peak

Costs for mitigating these factors will be covered in other criteria.

Evaluation:	Scores:
Sound level of site is 40% or worse than standard	0
Sound level of site is within 20% of standard	1
Sound level of site is within 10% of standard	2
Sound level of site is equal to standard	3
Sound level of site is 10% or more better than standard	4

Ranking Criteria Elements

Wetlands

Criteria:
Wetlands should be avoided due to the adverse impact on cost and schedule. Evaluate as follows:

Evaluation:	Scores:
100% of site is classified as wetlands; significant impact to building	0
Most of the site is wetlands; considerable impact to building likely	1
Some of the site is classified as wetlands; some impact to building likely	2
Some of the site is classified as wetlands; little or no impact to building	3
Site has no wetlands	4

Potential for Hazardous Materials

Criteria:
The site should be free of evidence of past use by industrial functions, unregulated storage of items containing hazardous materials or know disposals of hazards. A site assessment may be required. Evaluate as follows:

Evaluation:	Scores:
100% of site has known hazmat; significant impact to building	0
Most of the site has known/probable hazmat; considerable impact likely	1
Some of the site has known/probable hazmat; some impact likely	2
Some of the site has known/probable hazmat; little or no impact likely	3
Site has no known/potential hazmat issues	4

The Evaluation Report

There are many formats for reporting the results of a site investigation. Reports can range from basic tabulations and narratives with a few maps showing the sites being evaluated to high-powered multi-media presentations incorporating aerial photography, video footage, color graphics and detailed site plans. Appendices can range from a few simple support documents to detailed reports covering everything from archeology to zoning maps. Regardless of the visual and graphic development, a good site investigation report should include the following:

Introduction and Executive Summary

The introduction should describe the purpose and scope of the investigation listing the type and size of planned facilities which the site would need to support and a brief description of the sites. Toward the front of the report, a summary which indicates which site was selected and the basic rationale for the selection should be provided.

Maps and Graphics

Because of the type of information normally processed in a site investigation, graphic representations are essential. For instance, a metes and bounds narrative of the property may very well be an accurate description of the site's boundaries but a site plan with a graphic representation of those bearings and distances communicates more effectively, the shape and size of the site. Similarly, the sentence, "a stream crosses the property from the north to the south," offers a general description of a key site feature where the same stream drawn on a site plan offers an instant evaluation of its impact on placing a building on the site.

It is helpful not only to have graphic representation of each site and its immediate surroundings showing roadways, vegetation, adjacent structures, etc., but also a smaller scale map showing each of the potential sites and their relationship to one another as well as to key area landmarks. Appendix B shows an example of a site graphic for a rural village. On one simple sheet the following items are indicated: each site, bodies of water, compass directions, roads/paths, vegetation, topography, existing structures and site improvements, utility systems, prevailing winds, winter sun angles and natural and man-made hazards.

Aerial photographs, site cross-sections, and photographic panoramas are all useful and fairly standard graphic tools which assisting not only in describing the results of the site investigation but are often instrumental in making the evaluation itself.

Evaluation Matrix and Narratives

In addition to graphics, tabulated data is often one of the best ways to condense information and allow comparison across a specific category. The tabulations shown in Appendix A and/or the spreadsheet available on the department's website offer suggested formats for this type of information.

Appendix A
Site Evaluation Matrix

Social and Land Use Factors

Criteria	WF	Site 1	S1 xWF	Site 2	S2 xWF	Site 3	S3 xWF	Site 4	S4 xWF
Size of Site									
Proximity to Population to be Served									
Proximity to Future Expansion of Community									
Proximity to Important Existing Facilities									
•									
•									
Year-round Accessibility									
Site Topography									
Road Access									
Visibility, Safety of Driveways									
Driveway Conflicts and Internal Circulation									
Safe Routes to School for Pedestrians and Bicycles									
Roadway Capacity, Safety Needs									
Aesthetic Value									
Sun Orientation									
Protection from Elements									
Site Drainage									
Proximity to Natural Hazards									
Zoning/Land Use									
Proximity to Fire Response Equipment									
Flooding									
Existing Site Development									
Access to Outdoor Recreation/Learning									
Noise									
Wetlands									
Potential for Hazardous Materials									

TOTALS

Note: Italicized Items are also evaluated in either **Construction Cost Factors** or **Maintenance and Operating Cost Factors**

Appendix A
Site Evaluation Matrix

Construction Cost Factors

Criteria	WF	Site 1	S1 xWF	Site 2	S2 xWF	Site 3	S3 xWF	Site 4	S4 xWF
Soils/Foundation Conditions									
Permafrost Stability									
Availability of Water Utilities									
Availability of Sewer Utilities									
Availability of Electric Power									
Availability of Fuel Storage/Distribution									
Year-round Accessibility									
Driveway Conflicts and Internal Circulation									
Safe Routes to School for Pedestrians and Bicycles									
Roadway Capacity, Safety Needs									
Ease of Transporting Construction Materials									
Site Availability									
Site Cost									
Site Drainage									
Proximity to Natural Hazards									
Site Erosion									
Existing Site Development									
Wetlands									
Potential for Hazardous Materials									
TOTALS									

Note: Italicized Items are also evaluated in **Maintenance and Operating Cost Factors**

Appendix A
Site Evaluation Matrix

Maintenance and Operating Cost Factors

Criteria	WF	Site 1	S1 xWF	Site 2	S2 xWF	Site 3	S3 xWF	Site 4	S4 xWF
Safe Routes to School for Pedestrians and Bicycles									
Site Drainage									
Flooding									
Site Erosion									
Sun Orientation									
Protection from Elements									
Proximity to Natural Hazards									
Alternative Energy Sources									
Air Inversions/Katabatic Winds									

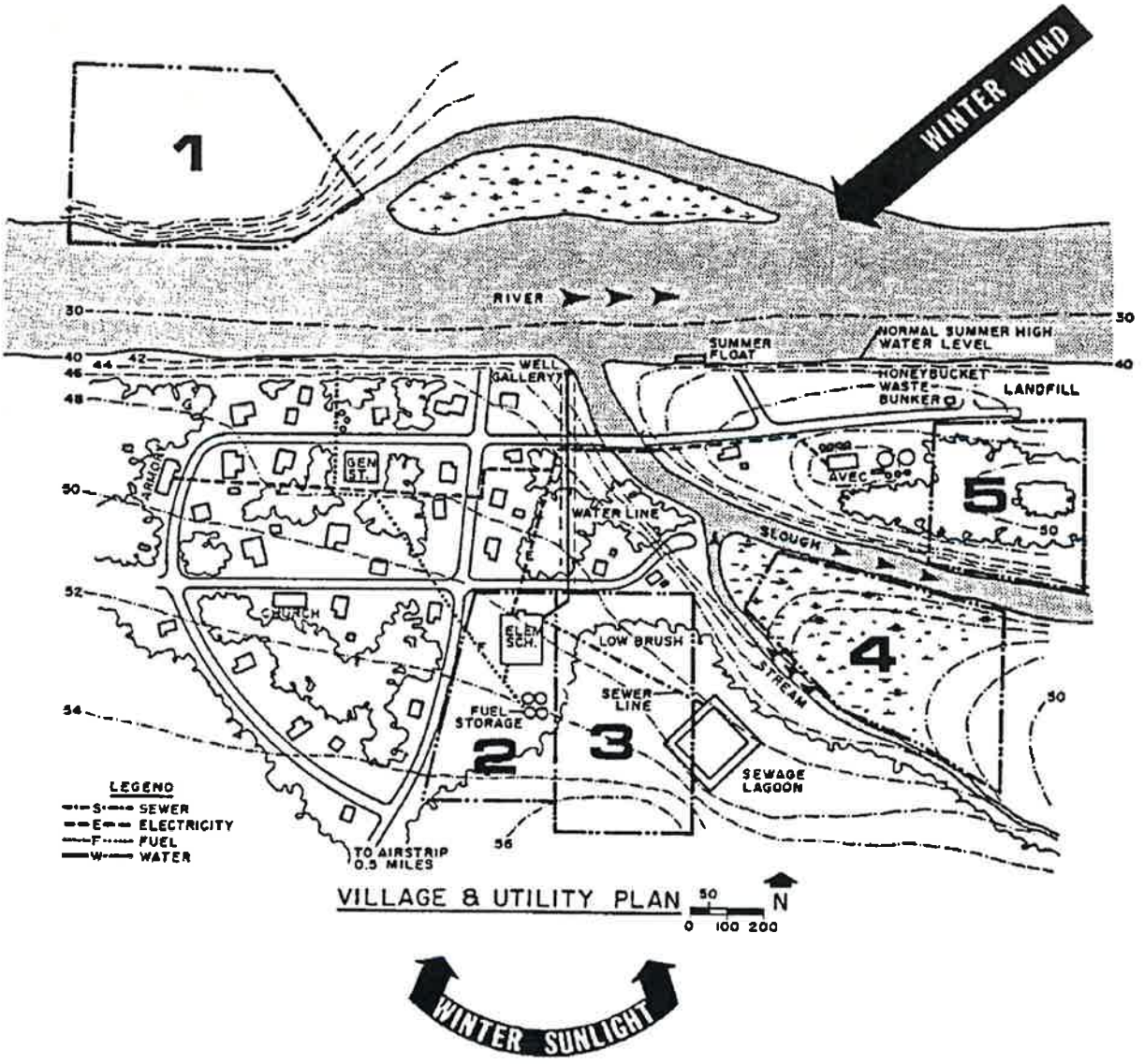
TOTALS

Site Evaluation Summary Table

Criteria	Site 1	Site 2	Site 3	Site 4
Social and Land Use Factors				
Construction Cost Factors				
Maintenance and Operating Cost Factors				

GRAND TOTALS

Appendix B
Sample Site Graphic Analysis



Appendix C
Suburban School Layout