REPORT
ON
PROJECT DELIVERY & LESSONS LEARNED
LIBRARY FACILITIES BOND PROGRAM

This report on project delivery and lessons learned on the Department of Public Works, Bureau of Engineering’s Library Facilities Program provides a summary of the program and an overview of specific approaches and actions taken for effective Program/Project Delivery. The Executive Summary is followed by sections on each of the major phases of activity and specific methods and practices BOE employed in the Program’s management. Sections are as follows:

Executive Summary
Project Phases - Lessons Learned
Site Selection / Land Acquisition
Programming / Pre-Design
Design
Bid & Award
Construction
Post-Construction

EXECUTIVE SUMMARY

The Library Facilities Program consists of 41 total projects: 36 library projects from Proposition DD and 5 remaining library projects. The Proposition DD bond initiative provided funding to improve, renovate, expand and construct 32 branch libraries and 4 library projects were added to the 1998 library bond program from cost savings and other source of funds.

Presently 37 of the total 41 library projects are complete, under the management of the BOE, Library Facilities Program. All of the original 32 libraries in the Proposition DD bond measure are complete and open to the public. All of the original 32 libraries were completed within the Master Program Schedule of 6 years and the majority of the projects finished under budget, with an average of approximately 11% Change Orders. Completion of the original scope without major schedule delays, cost overruns or litigations, the Library Facilities Program set a new standard of excellence in Project Delivery for the City of Los Angeles.

In an unprecedented achievement, as a result of the program’s overall success and effective management, 4 additional projects were added to the Program’s original scope. In September 2002, the City was able to fund the first additional library project (1 new) and, as more cost savings and other source of funds were realized with the completion of the original scope, three additional library projects were added in June 2004 (1 new, 1 replacement of existing and 1 expansion of an existing historic library). Of these added projects one is complete; two are in design and one is in construction. Thus, the Library Facilities Program met and exceeded what voters expected from the bond measure. The Bureau of Engineering, Library Facilities Program worked with our Client, the Library Department to create the largest system of public libraries for any city in our nation. With the addition of this Program, the City of Los Angeles increased the Library Department’s facilities to a system of 72
libraries that provide numerous community services and access to educational materials for one of the largest metropolitan areas.

From the start, our management philosophy is one of Partnering, collaboration and dialogue. As a team, BOE worked to enroll our projects in programs promoting environmental consciousness and sustainability with the U.S. Green Building Council and the Southern California Gas Company’s Savings-By-Design Program. The Library Facilities team met with the “Savings By Design” Program and submitted library projects to their program to identify ways to improve the building’s design for optimal energy efficiency. The Program received $50,600 in total owner and design incentives. Effective July 2003, Council action made LEEDS certified level a requirement for City buildings larger than 7,500 sq. ft.

The Program adopted the LEED Green Building Rating System as a target objective, making LEEDS certification part of the design process. In particular, Platinum LEED certification was achieved on one of our projects – the Lakeview Terrace Branch Library – only 1 of 9 Platinum-certified buildings in the world. The building design promotes energy efficiency by utilizing aspects of location and interior/exterior building systems to maximize the use of natural light and air, landscaping and recycled or environmentally conscientious materials. Its sustainable design implements numerous features to meet the global demands of present generations without compromising the ability of future generations to meet their own needs. Features include reusing and/or recycling finished products, using recycled materials and/or high recycled–content materials, savings in energy and water usage, reducing storm water run-off and promoting drought-tolerant landscape for a green Earth. This library exists as one of the City’s most ecologically friendly facilities promoting energy efficiency and environmental conservation and received honorable awards including the 2004 Top Ten Green Projects Award from American Institute of Architects (AIA) and the 2005 Leadership in Engineering Award from Los Angeles Council of Engineers and Scientists (LACES).

The Library Facilities Program made significant achievements in community outreach and public relations. Our team participated in over 180 community meetings and presentations with numerous organizations, stakeholders, neighborhood councils and Friends groups. Community meetings allowed for meaningful dialogue and feedback on the building program by including community comments and concerns about their neighborhood library. This feedback was taken seriously by our team and became part of the overall Project Delivery process by informing the pre-design and planning stages of a particular project and this dialogue was carried into the design phase where community stakeholders actually saw design changes to balance out their concerns with the operational needs of the Library Department. As a result, the libraries became the product of a true team effort across City departments and Community stakeholders.

The Program received numerous awards for best management practices, design excellence and positive community/civic impact and, even the 2004 Project of the Year Award from the American Public Works Association. Over the Program’s history, 23 awards and honors have been given to the Library Facilities team from several agencies and organizations, including the City of Los Angeles Productivity Commission, Cultural Affairs Commission, Governor’s Historic Preservation Committee, Los Angeles Conservancy, Los Angeles Business Council, Downtown Business Council, Highland Park Heritage Trust, Concrete Masonry Association, American Institute of Architects and the American Public Works Association.

And with the recognition, publicity came from all sides. Several articles and feature stories were written on the Library Facilities Program and the Library Department. Amazingly the overwhelming printed news was positive from the Los Angeles Times to the numerous trade publications, including Architecture Magazine and the American Library Association magazine. Of course, in December 2001, the Daily News, could not resist the opportunity to chastise the City by saying, “when it comes to public bond issues, Los Angeles’s leaders usually bungle public works projects so badly they cost too much and take far too long to complete,” but inadvertently and unintentionally complemented the Program as “a rare case of excessive government efficiency.”
The good news for the Library Facilities Program is its completion, with none of the historic and old grievances of uncontrollable cost overruns and schedules characterized by delay after delay. Our team’s efforts and work changed the tide. The “good news” manifests in the dozens of libraries, uniquely and distinctly design, adding to the landscape of Los Angeles. The awards, accolades, recognition and appreciation were not the point of but rather the validation of a job well done. And for the BOE, perhaps, more importantly, the Library Facilities Program became a positive role model for best Program Management practices. In the era where public bond-funded building programs are increasingly becoming the means to improve and develop infrastructure, the Library Facilities Program provided a very special training ground for BOE Project Managers. Architects, Civil, Structural, Mechanical & Electrical Engineers, Associates, Analysts, Administrative staff and even Student Interns had the amazing opportunity to be a part of a comprehensive and successful building program. Engineers and Architects developed into Project Managers who committed to a library from the planning/programming stage to post-construction/closeout, fully actualizing the concept of “cradle to grave” in Project Delivery methodology.

Another key accomplishment of the Program was the organized administration and governance. An Oversight Committee was established to ensure timely decision making and accountability. Composed of senior managers and officials, it was chaired by the City Librarian and also included the City Engineer, Deputy Mayor and Representatives of the City Administrative Officer and Chief Legislative Analyst. The LBOC brought together the key decision makers to ensure Program accountability, tracking and, ultimate success. As the first of its kind, the Library Bond Oversight Committee (LBOC) met monthly and oversaw the Program at every step from inception. The establishment of a centralized group to monitor progress and management is part of meeting the public and fiscal responsibility for bond funds. A comprehensive Governance Structure outlining roles and responsibilities was adopted by the LBOC.

Several lessons were learned with the Oversight Committee that are critical to the management of the Program and these are worth noting for future programs. Because it is primarily the Program Manager who reports and is accountable to the Oversight Committee, developing a positive rapport greatly facilitates the process. First, be honest and realistic in the reporting. A Program Manager’s responsibility covers every aspect of a Program such as ours and all progress and status should be reported positively and realistically. Secondly, do regular “look-aheads” and work hard at keeping the CAO and CLA staff informed. Looking ahead will help in tracking and foreseeing potential road blocks or challenges. Thirdly, be responsive to any requests made by the Oversight Committee; especially with reports as these inform the policy decisions and recommendations of the Committee. And lastly, keep clear and cogent documentation of discussions and actions. One element of that includes keeping a single chronological record, over the life of the program, of the official actions of the Oversight Committee. This should be distributed each month with meeting minutes from the meeting. Having an accurate and comprehensive recording of the management and governance decisions not only fulfills the documentation requirements of the bond program but it provides an open record for all parties.

In addition to the many City forces that worked together to bring our Program full circle, the BOE utilized PM/CM consultants to assist, provide support and augment the team with particular expertise in areas of construction, constructability and design review, scheduling and document/technical support. For the Library Facilities Program, conducting the RFQ/consultant selection and negotiation process for a PM/CM consultant was done in the early stages of the program's life. Having this support is important to building and augmenting the overall team.

This report provides information on key phases of activities, issues and responsibilities specific to the Library Facilities Program with the intent to offer insights that may help other programs. Having faced a number of common and special challenges, this report compiles lessons learned and good practices for an improved approach to Program/Project/Construction Management, as a growing field and practice. The intent of this report is to provide useful insight that may be practiced on other and future CIP and bond-funded programs within the City of Los Angeles.
PROJECT PHASES - LESSONS LEARNED

SITE SELECTION / LAND ACQUISITION PHASE

The process of site/land acquisition is, without doubt, a critical path phase of the program’s activities. Several factors in the process of acquiring a site can quickly become challenges, with the potential to seriously impact the schedule. The key to managing the land acquisition process is to be proactive from the onset and manage the process with City forces working together, in tandem. For the Library Facilities Program, the Bureau of Engineering worked closely with the Library Department (Client/User Group), a real estate consultant (hired through the PM/CM consultant), the Department of General Services-Asset Management Division and the City Attorney. The identification and investigation of potential sites is a time-sensitive issue that requires consistent attention. Obtaining concurrence from the Council and Community and coordination early on prevents delays. Our strategy involved this proactive approach. While there were significant schedule impacts on 3 or 4 individual projects caused by problems during this phase, the Program successfully acquired the 28 needed sites with no negative impact to the overall Program completion date. The following bullet points summarize key aspects of our approach:

◆ There is one primary point of contact, the Bureau of Engineering, and work is carried out in concert with the Client/Library Department, GSD Asset Management and the Real Estate Consultant to identify, research, investigate and discuss viability of potential sites.

◆ All negotiation of price, terms (relocation, any existing tenants, site conditions), escrow instructions and timeline with property owner(s) is done by the BOE, GSD Asset Management and the Real Estate Consultant.

◆ The Client, with the assistance of BOE, informed and discussed site selection with relevant Council offices for each project to obtain Councilmember feedback and concurrence.

◆ Community meetings were organized and held at the project’s onset to present potential sites and generally discuss the site selection process. We recommend having at least three potential sites for presentation as possible library locations during the community discussion.

◆ After a preferred site is identified, the team should consult with the Bureau’s District Office, Building & Safety and the Planning Department to determine any street dedication or improvement requirements, any setback requirements and all zoning and CUP issues related to a selected site.

◆ Commence on completing the Environmental Assessment Phase I clearance and order the Appraisal concurrently so as not to delay the start of negotiation.

◆ Do as much prep work as possible for the Environmental clearance/CEQA process so as to be ready to efficiently complete Environmental requirements as soon as possible. Environmental clearance can be a long lead item and is a critical path activity. Therefore, manage it with well planned coordination and a clear decision on the site selected. Changing sites due to politics and unforeseen conditions will impact the process and can be minimized with active prep, communication and coordination.
During early phase of Environmental clearance, check for any potential historic significance that may impact your project.

Geotechnical/environmental issues must be addressed early on and any site investigations, soil borings, soil tests, etc. should commence as soon as land is acquired in order to minimize unforeseen conditions during construction, such as hydrocarbon contamination of the soil and methane gas occurrence.

As soon as property acquisition terms are established and agreed upon, contact Housing Department to complete and file for their approval of the removal of any rental units that may be demolished.

Make sure to verify and confirm all escrow instructions and closing terms.

If land is to be vacant for some time prior to construction, the site must be secured as City property and all unnecessary structures should be demolished, the site cleared and property fenced. We streamlined this process by completing any demolition and site clearing soon after acquisition utilizing contracts through GSD or the BOE's on-call demolition list. This way the potential nuisance of vacant buildings was avoided and the site was clear and ready for the start of construction.

Track issues and status of graffiti abatement for vacant structures with Building and Safety and the Department of Public Works' Office of Community Beautification.

File all lot ties with the Planning Department and register ties with Building and Safety.

Input data on all projects in the BOE UPRS (Uniform Project Reporting System) and update the project status, budget, and schedule on a monthly basis.

PRE-DESIGN / PROGRAMMING PHASE

The activities in the Pre-Design/Programming Phase are critical to ensuring the most efficient Design process for each project. During this phase the primary objective is to work with the Client/ User Group to fully determine the needs and operations of the facility. This effort was greatly enabled by the development of two primary technical documents. From the Client-side, the Library Department, with BOE’s assistance, developed a Master Building Program. This established priorities and parameters for the design of library facilities. The BOE also developed Master Specifications that provided the benchmark for Design and Construction Documents. The development of the Master Specifications involved the collaborative efforts between the Library Department, BOE and the Department of General Services maintenance staff. Collaboration with GSD is particularly critical as the facilities constructed in the bond program will ultimately depend on GSD for their maintenance and longevity.

The activities in Pre-Design set up the foundation for the subsequent design phases. In the early stages of the project’s management, it is critical to establish parameters. To this objective, our approach was to work on activities concurrently and in tandem. Thus, programming and pre-design were being worked on as site/land acquisition was in progress. Understandably, design can only go to a certain point without the site but our approach is to be proactive and maximize time by conducting work that is not mutually exclusive. The programming effort commenced as soon as information and initial data was available. The following bullets summarize specific activities and approaches:

- Continue to address geotechnical/environmental issues and complete geotechnical investigation, Environmental clearance, CEQA compliance, and Negative Declaration or full EIR, if required.
- Work closely with the Client to thoroughly define the project scope of work and requirements to minimize design and construction changes at a later stage.
Prepare for additional Community meetings where Community members can be involved and provide input and comments on the massing, layout and style of the project.

In a Program composed of multiple building projects, an “On-Call A/E Design Consultants” list should be generated specific to your Program. We started this process at the Program’s onset, writing and organizing a RFQ process, interviews, selecting and executing "standby" contracts with 16 Design Consultants. By executing "standby" contracts with this pre-qualified list of design firms during the parallel activities of site acquisitions and pre-design/programming, individual projects could be assigned, by Task Orders, as soon as a site was selected, avoid potential schedule delays.

Following execution of the On-Call Design Consultant contracts, as sites were acquired, projects were assigned to a particular Architect. They were given the architectural program which had been developed, as well as the BOE Master Specifications and BOE guidelines for General Conditions/Requirements.

In some Programs, certain City facilities can follow a standard layout as program components are the same throughout. While this is mostly true for our Client, the Library Department, the Client specifically placed a high priority on design variety and innovation. Understanding this priority, BOE worked with the Client, Architect and Community to design each Library with its own, unique design and look while still meeting all the programming requirements (i.e. certain amounts of space for children’s area, teen area, circulation, computers, community room, staff offices, etc.). Consequently, the layouts themselves were not standardized, though they followed a general concept.

During Pre-Design and Programming, keep track of any changes that are identified in the program and be prepared to implement them in all projects prior to the Construction Document phase.

Discuss scope of work with Client and do an initial cost estimate and schedule to ensure the budget and Master Program Schedule is adequate for successful project delivery. It is critical to have consensus and understanding on cost and timelines with the Client.

Conduct “Pre-Design Partnering” meeting to go over the building program with the assigned design firm and Client.

Develop early contacts and relationships with other Departments and BOE Divisions to establish a key point of contact/“Case Manager” for resolving issues.

Discuss and collaborate with GSD maintenance staff on equipment and maintenance issues and parameters during Pre-Design so final choices on equipment and materials is compatible with GSD’s maintenance procedures and policies. Recognize that simply giving them the opportunity to review your proposal and comment if they desire is not sufficient. GSD maintenance staff is not used to reading plans or specifications. You must actively engage them in discussions in which you review the entire list of items that you've provided to them for input.

**DESIGN PHASE**

The Design phase of project development involves three sub phases: Schematic Design (SD), Design Development (DD) and Construction Documents (CD). Each of these phases requires the timely completion of specific work and deliverables by both the Architect/Design Consultant and the BOE, in concert with the Client. Because each phase builds on the previous phase, it is crucial to track, monitor and manage the design process in a proactive manner. Our approach operated from the premise that the better the design, the better the building process. Most often changes and change order work in construction is directly related to the thoroughness, clarity and detailing, or lack thereof, in the Design documents. As BOE project managers, we are often in the unpopular position of holding the line of program and scope. For the Library Facilities Program, our best practice evolved as a give and take with the spirit of partnership - commitment, communication and compromise - to solve any issue. As with Land Acquisition, Design is a critical path item and the overall process requires
consistent attention to ensure Program success. In addition, BOE took the initiative to conduct independent third-party Constructability Reviews to achieve the most accurate, complete and thorough plans and specifications. Several specific items to be aware of, from our overall Design experience, are outlined below:

- Conduct a “Design Partnering” meeting with Client and other City Departments (Bureau of Contract Administration, Building & Safety, Planning, Street Lighting, DOT, Fire, and DWP), as well as BOE Divisions/Groups to further discuss requirements for the projects. The Architect must be involved and the PM should work with the designer as they may not know all the requirements in advance.

- Keep Council office and Community informed to cultivate a smooth approval process of the Schematic Design.

- Communicate with the Cultural Affairs Department early on regarding the Public Art for the project. Work to obtain their concurrence on the building’s design. Prepare and plan for the necessary presentations to the Cultural Affairs Commission. Be sure to plan ahead for any RFP to the Art community that Cultural Affairs Department may want and plan for adequate lead time to circulate the RFP and select an Artist.

- Because the Design process is so critical, we utilized the PM/CM consultant to conduct independent, third-party constructability reviews and validations of cost estimates for each project.

- All Plan reviews were organized to ensure timely submittal, comment, feedback and revision; be sure to thoroughly mark changes.

- Overall, pay careful attention to the Architect’s detailing and presentation on drawings. Be clear and concise on showing all geotechnical and grading notes on the plans, such as cut and fill quantities, excavation and over-excavation depths; soil compaction should be clearly noted. Inform the architect of the Ready to Advertise checklist which the project manager must complete prior to the Deputy and City Engineer signing the plans.

- Ensure that the prime design firm is providing good coordination with sub consultants to promote less change orders and delays. For example, in Structural vs. Architectural plans, we found conflicts between some MEP plans and the Architectural plans which had to be clarified and coordinated on the drawings. *A good rule of thumb: If the drawings presume, expect or anticipate the Contractor to know, interpret or assume the design intent or “how-to” of the building instructions, the drawings are probably NOT thorough or complete enough.*

- Depending on the public access to the facility, be cognizant of urban guerrilla art/tagging. Include elements to protect the building, as much as possible, against graffiti by applying anti-graffiti films on glass areas inside and outside.

- Request an electronic copy of all reports on Asbestos, Lead Paint and Soils for more efficient distribution to bidders.

- Survey is a very critical element of the project; be sure there is a completed street survey and your on site drainage and hardscape improvements fit properly to the existing, adjacent public infrastructure. Know what the final parking area elevations and site drainage system must be compared to street and sidewalk elevations. Ask for the assistance of experienced street designers or B-Permit plan checkers in the Bureau to review these designs if necessary. Changes to site and drainage elevations in the middle of construction can cause serious delays and cost impact.

- Establish specific contractual milestones, including liquidated damages, to track the progress of the job and allow time to react if problems arise.
Review the project’s design to promote easy maintenance where possible, for example, exposed ceilings with electrical conduits and fire/life safety system covered above the roof can cause potential maintenance issues. This is another area where it is critical to get input from GSD.

Work with the Architect to meet with manufacturers of selected materials and review the appropriateness of these materials in public buildings. Specify materials made locally and that are readily available to save time, money and substitutions. Discourage use of experimental/new materials and systems without researching their status in the industry.

Work with the Architect and Client to achieve the LEED certified level (per City policy) and all options that are fiscally responsible and help achieve a higher LEED rating. Always study the building’s orientation on the site to address glare and heat problems.

Ensure that all site boundary issues are correctly dealt with in the design (i.e., wall replacements, parkway and landscape irrigation, street and sidewalk work) and make sure Construction Documents include parkway, sidewalk and street improvements that are needed as well as work that is required by Code/Ordinance as determined by relevant BOE Divisions.

Conduct constructability review in a team format with as many Project Managers and as much in-house expertise as possible.

We recommend preparing Planning Department's Conditional Use Permit (CUP) documents and required tasks in-house. By not using an outside vendor, we saved approximately $300,000.

Although we did not have standard layout, we had a standard architectural Program, standard specifications, equipment and prepared a standard plan check list used on all projects which was developed with input from GSD as the agency responsible for facility maintenance.

Verify construction estimates at the end of each design phase and perform value engineering if needed; value engineering efforts must be done in collaboration with Client.

To ensure all major project systems were included in the scope, we had a thorough review and sign off on the design memorandum. We required any modifications or changes to be documented and copied to all constructability reviewers before they start their review.

In the case of renovation work, make sure lead and asbestos surveys include analysis of the paint on existing steel which may be drilled through or welded to during the construction, and therefore, require abatement at all of these areas if lead/asbestos is present.

In renovation work, make sure all items to be demolished and removed are completely and clearly identified.

Require designers to overlay the duct drawings with the lighting, plumbing, fire sprinklers and structural drawings to verify that all major components will fit. Lack of coordination in the trades can complicate and/or prohibit construction.

Ensure that the Structural Engineer or Architect provides the design for all items which are not a part of the basic building design (i.e., semi-detached canopies, seismic loads on raised floors, site screen walls, concrete parking areas, architectural eyebrows).

Upon receipt of 100% Construction Documents from the Architect, check plans and ensure their completeness before approving payment as outlined in their contract based on lump sum payments for specified deliverables. If they are not complete withhold payment and return plans to Architect with clear indication of incompleteness and how to proceed.

If you have high clerestory operable windows, strongly consider making them motorized. If they can not be motorized, examine keeping them as fixed panels.
For designs with a raised floor, cross check with Plan Check’s latest requirements for fire separations below the floor and smoke detectors to make sure the design fits the requirements, otherwise a variance is required.

For designs with a raised floor, provide for seismic bracing of the floor under heavy shelving or equipment, some flooring suppliers have standard bracing details which may work.

Strongly consider specifying a 15 or 20 year roof system with a warranty for both labor & material, and ‘no dollar limit,’ which is more appropriate for a public building.

If Data, Telephone and Security systems are included in the contract, make sure this is included in the specifications and all standard clauses which exclude this work are removed (i.e., Section 16010).

Do not use the word “alternate” in the specifications unless the alternate is covered in the bid form to avoid confusion; always make sure it is clearly stated as part of the job or NIC.

Currently, the specs call for a very low moisture content in concrete slabs to prevent delaminating the flooring materials and build up of mold. Most slabs exceed this moisture level. Include a section on moisture limiters to apply to slabs for various moisture contents and various flooring material. (Note: You may have to deal with this as an allowance since you can’t predict what the actual conditions will be until you are about to install the flooring.)

If you are going to create an allowance for permits, clearly list what is included in the allowance, specify whether it is for the main building permit, sub’s permits or utility fees. (Note: If the contractor is to pay for utility fees, make sure this is completely and clearly specified in the documents and it is clearly stated that the contractor is to verify all DWP requirements prior to bidding the project and include them in the bid.)

Make sure the Architect has all the information relevant to the site including, soils, asbestos, lead paint and Building Department reports by the time Notice to Proceed is issued.

Obtain Client’s approval and sign off of all design phases prior to proceeding to the next phase.

Project manager must track plan checks and ensure that the Consultant meets or exceeds minimum code requirements; no “Modifications” should be allowed.

Project manager should attend plan check verifications in order to verify plan completion and minimize plan check delays.

Project manager should work with BOE’s Project Awards & Controls Division’s (PAC) utility coordination group at each stage as required through the design process.

Confirm with DWP the power and water points of connection for both temporary and permanent. Work through the Bureau’s Utility Coordination section in the Project Award and Control Division. (Note: If power has to be brought from across the street, or from any other point, fees will be triple the normal fee and Contractors will claim unforeseen. Confirm DWP requirements and get their confirmation in writing.)

Confirm all utility point of connections and clearly show in the plans and specs that the Contractor is responsible for the payment of all connection fees.

Ensure that the different ductworks and utility penetrations through shear walls are coordinated with the structural engineer.

A haul route permit requires major lead time of 3 months or longer. Apply for the permit from Building & Safety if the project will be importing or exporting more than 1,000 CY; name of GC is required; provide permit to the GC once the contract is awarded.
Make sure drawings clearly show method of attachment for all electrical fixtures and other utilities; GC may request a Change Order if detail connections are not shown.

Make sure to include special attachment and review by the Structural Engineer for any pendent light fixtures that are over 60 pounds.

On a flat roof, make sure to coordinate the slope of the roof for drainage requirements with the height of the parapet walls.

If there is a roll-up door in your project, be aware the vendor usually requires steel columns to support housing for the roll-up door.

If PVC storm drain pipes located in the parking lot are too close to the surface, they should be upgraded to cast iron to prevent cracking over time from the weight of vehicular traffic.

Provide access to all fire dampers, VAV boxes, electrical pull boxes; attic space should have catwalk and lights.

Prepare Ready to Advertise Checklist and submit this list with plans to the City Engineer for signature. Following CE signature, index and micro-film the plans prior to submitting them to the PAC Division for the Bid & Award phase.

**BID & AWARD PHASE**

A smooth and efficient Bid & Award phase is key to the Program’s transition from design to construction. Coordination is a major part of this phase and it’s strongly advised that timelines and schedules are discussed with the Project Awards & Controls Division toward the end of design. With electronic distribution of the bid package, it is especially necessary to coordinate the completion of specs and plans with date of bid advertisement. This is a crucial phase because gaps in the organization and coordination can lead to low bidder turn out and even the possibility of re-bid, which will impact the schedule and budget. This phase involves numerous parties between City groups, Contractors and Sub-Contractors so being proactive is the best way to manage this process. We found the following practices essential:

- Daily records were kept of all contacts and Q&A to prevent possible hang-ups to the coordination and advertisement of bid documents.
- BOE project managers should utilize the Bid & Award period to look ahead and identify milestones for construction progress.
- Be prepared to answer bidder questions in writing, via Addendum, and not over the phone.
- Communicate regularly with the BCA/Office of Contract Compliance and follow-up to ensure a smooth MBE/WBE/OBE review process.
- Work with the Bureau of Contract Administration and the PAC Division to carefully review the low bidder’s experience and qualifications to make sure they have the capacity to really complete the project.
- If a project is re-bid, make sure to keep the first bid documentation on file, and double check that the old documentation is not submitted during the new bid process.

**CONSTRUCTION PHASE**

All the phases are working up to the point of construction which is the most demanding part of project delivery. Our Project Managers saw projects from inception and design and many continued with the same projects.
through construction. The dual role as PM/CM greatly ensured continuity in the management and delivery of each library project. In construction, little can substitute for solid, long-term experience in managing construction and dealing with a range of Contractors. For Project Managers with little CM experience, it is especially critical to closely track and monitor Contractors progress and be able to draw from in-house resources in areas where they have less knowledge. It is important for less experienced PM/CMs to know their drawings and specs inside and out. Remember: an experienced Contractor can immediately tell the difference between someone who has a clue and who does not, and the clue-less will pay in time and money or both.

A fundamental principle of construction is “common sense” and being actively responsive to the day-to-day situations on the project site is necessary. A PM/CM cannot run a construction job from their desk. BOE PMs on the Library Facilities Program were onsite, working with the Contractor and Inspectors 3 to 4 days a week. It is important to manage the project with the awareness that time and money are constant variables and mis-management or lack of management can quickly result in major schedule and budget damage. It is absolutely crucial that all documentation and correspondence is dealt with right away and promptly processed. As the program/project manager/ construction manager, it is up to BOE to set a tone of addressing issues in a proactive, partnering manner and make sure the Contractor, the Architect and BCA work together – this is not the time to be lazy about any of the work or the project will suffer and you will make yourself vulnerable to cost over-runs and delays. The following bullets highlight things to be particularly conscientious of during this phase:

- Prior to start of construction, we completed any necessary demolition under a separate contract to ensure the construction process started with a clean, open site.
- Be courteous and use common sense to deal with the site neighbors to avoid complaints and unnecessary drama with the Community and politicians.
- Always take a proactive approach to solving problems with the Architect and Contractor to prevent delays to the project; remember your common and primary goal is successful project delivery.
- We strongly recommend conducting Partnering sessions with the Contractor, Subcontractors and Contract Administration to set a tone for construction management and lay out the ground rules for team work. This is also the time to establish the chain of decision making/authority and work on preliminary coordination and collective identification of issues and approaches to problem solving. This should take place as soon as the contract is awarded and include all relevant City Departments
- Make partnering with the contractor and the inspector a reality: work with the Contractor to solve issues, own your own mistakes and make all your communications an exercise in building trust to avoid adversarial relations, delays, claims and litigation. An inflexible and uncompromising attitude toward the Contractor debilitates effective project delivery.
- BOE PM/CMs for the Library Facilities Program made a concerted effort to partner with the BCA inspectors at every level and worked to foster a consistent City-side approach when dealing with the Contractors. When multiple and different City groups are involved in the same project delivery effort, it is critical to have a united approach in negotiating and managing the construction process. BOE is charged with the overall project delivery and management but this cannot be done successfully without the concurrence, support and team work from the BCA.
- Make sure the Contractor submits a baseline, resources-loaded Project Schedule, including costs and labor, at the beginning of construction for discussion and mutual approval, as stipulated in the Specs and make sure this is updated monthly.
- Start the Compaction Report a week before compaction is complete and start the Grading as soon as possible after all compaction is complete.
- Use of Security guards should be added in the program when it may be needed to protect a construction site.
Push Contractor to begin Submittals as soon as possible and practice a prompt response method for all documentation. Always try to be quicker than required in the specs.

Push the Architect to respond to RFI’s and submittals quickly. Always try to be quicker than required in the specs.

Resolve CO’s and claims early, come to an agreement with the Contractor and process the CO ASAP; issue a Unilateral CO if necessary; **do not** wait until the end of construction; track and manage the CO amount to meet your budget – know your project budget.

Communicate regularly with the Contractor to determine any CO proposals or directives, review them and negotiate work and price with Contractor to process them ASAP into an executed CO; remember cash flow is critical to keeping the work moving forward.

Review As-Built plans regularly for completeness and identify discrepancies early; make sure they are updated every week and ask the inspector to check their status when reviewing the monthly payment application.

Ensure continuing Partnering and foster collaborative effort for all parties at the job site. When needed, we held focus meetings with the Contractor to address specific critical path or key issues.

Review BCA Inspector daily log to determine any potential impact to the scope of work.

Recognize that subcontractor substitutions can cause delays. The on-site inspector's OK of substitutions is not valid. If a substitution is necessary, strongly urge the contractor to immediately work with the authorized group in the Bureau of Contract Administration to get the substitution approved. The contractor WILL be penalized at project completion if they do not follow the rules for substitutions.

Likewise, labor wage issues can also be a challenge. Emphasize to the Contractor that all wage violation issues should be addressed and resolved with BCA immediately.

We kept the Client involved and included them in weekly job site meetings; their presence can help expedite RFI’s, submittal reviews and help minimize complaints/requests after construction.

Keep particularly close track of construction of ITA components and be sure to obtain sign-offs from ITA and the Client before the Contractor wraps the building.

Make sure Client and GSD maintenance personnel are present during the mandatory commissioning and testing of the building’s systems: electrical, fire alarm/life safety, security, HVAC and methane, prior to building orientation.

Training of GSD and Client staff on equipment usage and maintenance requirements must be mandatory.

We strongly suggest that consideration be given to having HVAC and Lighting System be able to be monitored and adjusted remotely thru a web-based internet system to reduce downtime, response time and complaints from the Client and the Community.

Conduct a coordination meeting for HVAC system with Air Balancing Contractor, HVAC Contractor, Control Engineer and Plumbing Contractor; request on-site inspector to supervise the installation process.

The Extended Overhead Rate should be negotiated within the first few weeks of start of construction and should include the daily cost of Builder’s Risk Insurance in the calculation.

Staying on task with the weekly construction meeting minutes is critical, especially in the event of disputes or claims; complete the minutes within 24 hours of the meeting and send out a “Draft” by email for comments and then complete a final draft of the minutes, including a statement as such in the minutes.
◆ On a couple of our Library projects the general contractor went out of business. To ensure project
delivery and lessen the impact, any “Takeover Contract Agreements” through the Surety with the new
replacement contractor should include the penalty amount that is assessed by Bureau of Contract
Administration’s Office of Contract Compliance against the previous contractor. Coordination with the
Bonding/Surety Company should happen ASAP.

◆ Review questions from the Contractor to the Architect/designer, or vice versa, prior to transmitting them,
to verify and validate so as to not create issues with negative cost or time impact.

◆ Meet with the BCA Inspector and coordinate with them about how the information should be presented
on the Daily Reports to help you during the negotiation of Change Orders or claims at a later date.

◆ Identify one party to be responsible for gathering all the punch list items and include a “Sign-off Date”
column for the items.

POST-CONSTRUCTION PHASE

Post-construction begins when “substantial completion” is accomplished. The objective of this phase is to finish
all punch-list work, conduct operations/systems training, wrap up and closeout the construction contract,
complete As-Built drawings and transition the building to the Client/User Group. Post-construction requires no
less attention and proactive management than other phases in project delivery so it is not yet time to become lax
on the work or schedule. Poor management in this phase can result in a costly “dragging on” effect when the
contract and project should be wrapped up and finished. The goal is to quickly and efficiently close-out the work
and we found the following essential:

◆ Be extremely thorough on the punch list walk-through and generate One Master Punch List of items with
the project team, including the Client and BCA; work with the Contractor early to remedy any problems
and obtain sign-offs from all parties to finalize the list.

◆ To save time, money and frustration, work with the Client and Contractor in the event there are items
needed that were not included in the construction and make them pick up/Change Order work.

◆ Obtain marked up drawings from the Contractor and As-built drawings from the Architect; keep on track
by including these issues as part of the agenda for construction meetings.

◆ As required by the contract, Contractor submission of O & M manuals, brochures and extra items
requires close coordination and follow ups. Be sure these are officially transmitted to GSD and the
Client.

◆ For our Library projects there were punch list items and “owner wish list” items which we separated and
properly identified for validity and feasibility; be conscientious because “wish list” items from the Client
can cause the CO amount to go beyond the budgeted allowance for the project and must be negotiated
with the Client.

◆ All documentation and record keeping of Submittals, RFIs, Correspondence, Change Orders, Daily Con
Ad reports, Field Orders, Meeting Minutes and drawings must be kept for at least 3 years for future
reference, especially during the warranty period.

◆ Negotiate the final CO and closeout the contract with the Contractor as quickly as possible.

◆ Encourage BCA to notify Contractors early of any penalties for wage and labor violations in the contract.

◆ Respond and quickly address all concerns from the Client/user group.

◆ At time of final inspection, prepare Contractor Performance Evaluation and submit to BCA.