

Agenda Report

TO: CITY COUNCIL

January 31, 2000

FROM: City Manager

RE: Approval of "Alternate D" as the Basis for Proceeding with Plans for Restoration and Seismic Upgrade of City Hall

RECOMMENDATION:

It is recommended that the City Council approve the recommendation of the City Hall Restoration Oversight Committee that Alternate D, Base Isolation and New Office Wing, as presented in the June 1995 *Report on Seismic Evaluation and Upgrade Concepts for the Pasadena City Hall* prepared by Forell/Elsessor Engineers, Inc. and in the December 1999 *Pasadena City Hall Seismic Upgrade Cost Estimate* prepared by Daniel, Mann, Johnson & Mendenhall, as revised by City staff, be used as the basis for proceeding with plans for the restoration and seismic upgrade of City Hall. The total budget estimate for the project in 2001 dollars is \$96.6 million.

SUMMARY:

Staff recommends that City Council approve Alternate D as the basis for proceeding with plans for the restoration and seismic upgrade of City Hall. In the long run, Alternate D (Base Isolation and Construction of New Office Wing) is the most cost-effective solution and is the only alternative that meets all historic preservation and building system codes and standards. In addition, the community overwhelmingly supported Alternate D during numerous community outreach meetings held over the last year.

BACKGROUND:

History

In 1990, Architectural Resources Group (ARG) was awarded a contract for the preparation of design drawings and construction contract documents for the restoration of several City Hall building elements. This work was to be coordinated with a preliminary seismic study being carried out by the structural engineering firm of Dames and Moore. As a result of the seismic study, a balance of the restoration work was deferred because of concerns that it might either conflict with measures needed to strengthen City Hall or be vulnerable to damage in a major earthquake.

MEETING OF 01/31/00

AGENDA ITEM NO. E.

AC:rl

1B-10600-AC-A

The preliminary seismic assessment, together with new issues raised by damage caused during the 1991 Sierra Madre earthquake and the 1994 Northridge earthquake, created some urgency to plan for the seismic upgrade of City Hall. Consequently, in March 1994, a contract was awarded to Forell/Elsesser Engineers, Inc. (F/E E, Inc.) of San Francisco to expand and refine the preliminary seismic study. The firm was selected because of its experience with projects for the retrofit of the San Francisco and Oakland City Halls damaged by the October 1989 Loma Prieta earthquake, a past working relationship with ARG, and a feel for preservation aesthetics demonstrated by the retrofit of several historic structures (including San Francisco City Hall) designed by Bakewell & Brown, Pasadena City Hall's architects.

In June 1995 F/E E, Inc. submitted a *Report on Seismic Evaluation and Upgrade Concepts for the Pasadena City Hall*. The report analyzed the earthquake related strengths and weaknesses of the building, presented seismic upgrade recommendations, assessed hazards represented by non-structural elements, and provided construction cost estimates for several retrofit strategies. The analysis found that, in general, the performance of City Hall in a major earthquake is expected to be poor and may result in serious life/safety hazards. Given the potential for localized structural instability and life/safety hazards, the report concluded that some level of seismic upgrade was required to attain a reasonable level of performance in a major earthquake.

After the evaluation of several alternates, the F/E E, Inc. report was narrowed down to four alternative schemes, including no seismic upgrade (Alternate A), and three alternatives involving trade-offs among life/safety, historic preservation, and continued operations (Alternates B, C, and D). These three upgrade schemes were designed to meet two basic goals: 1) to ensure life safety by preventing building collapse, and 2) to limit damage to a repairable level.

Subsequent to receipt of the report, ARG and F/E E, Inc., revised the proposed upgrade schemes to reflect staff input and expanded the scope of work for each to include the upgrade of building systems discovered to be not in compliance with present standards because of functional obsolescence and the effects of long term deferred maintenance. This expansion of the scope of work also focused on the preservation and restoration of the building's historic features.

Project Description

The four alternatives proposed, in ascending order of the measure of protection afforded, were classified as follows:

- Alternative A – No Upgrade
- Alternative B – Life Safety (Shear Walls)
- Alternative C – Limited Disruption (Shear Walls and New Office Wing)
- Alternative D – Continued Function (Base Isolation and New Office Wing)

Brief descriptions of the alternates and their implications are provided below.

Alternate A – No Seismic Upgrade

A major earthquake poses a threat to public safety due to the risk of partial structural collapse and hazards from falling non-structural building elements. Exterior non-structural elements include the dome finial and lantern, numerous concrete balustrades, urns, other ornamentation, and dome roof tiles; interior elements include room partitions, ceilings and lights, mechanical equipment and distribution systems, furniture, and office and computer equipment. After a major seismic event it is anticipated that the building will be damaged beyond repair and will have to be replaced.

Under this alternative it will still be necessary to perform regular maintenance/restoration activities, and eventually upgrade virtually all building systems to meet applicable codes and standards. Architectural, mechanical, plumbing, electrical, communications, fire suppression, barrier removal, hazardous materials abatement, historic restoration, furniture, fixtures, and equipment improvements are all needed. However, any of this work done absent seismic upgrading may very well be wasted in the event of a major earthquake.

Alternate B – Shear Walls (Life Safety)

This is the least expensive seismic upgrade alternate. It is designed to protect the building's occupants by preventing structural collapse and limiting damage to a repairable level. The improvements proposed consist of the construction of an extensive series of concrete and shotcrete (air-blown concrete) walls, the installation of steel columns and trusses, the demolition and replacement of portions of the second and third story floor slabs, and the demolition and replacement of the one-story eastern arcade. This alternate does serious damage to the historic interior fabric of City Hall.

In the event of a major earthquake it is expected that the building will sustain widespread structural and non-structural damaged requiring significant repair efforts and staff relocation for nearly six months. The same use of wasted improvement costs exists as with Alternate A, although not to the same degree. Alternate B will result in the loss of existing usable space and historic features.

Alternate C – Shear Walls with New Office Wing (Limited Disruption)

This is a more costly seismic upgrade alternate due to the higher level of protection it offers. It will reduce the disruption of business activities by limiting structural and non-structural damage to a moderate level. The improvements proposed consist of the construction of a more extensive series of concrete and shotcrete walls than proposed by Alternate B, the installation of steel trusses, the demolition and replacement of portions of the second and third story floor slabs, the demolition of the eastern arcade and the construction, in its place, of a three-story office wing that will be compatible with the appearance of the existing office wings. This alternate also does serious damage to the historic interior fabric of City Hall.

In the event of a major earthquake, severe damage to concrete walls will be prevented so that widespread replacement of the structural elements will not be needed. The construction of a new east office wing, as envisioned by the original Bakewell & Brown

design, will strengthen the structure to resist lateral earthquake forces and provide a significant amount of office space for a comparatively modest increase in cost. It will, however, result in the loss of some historic features and require staff relocation for approximately six months.

Alternate D – Base Isolation and New Office Wing (Continued Function)

This alternate, which is the most costly, will limit structural and non-structural damage to a level which will allow for continued building occupancy with only a short interval of approximately two weeks needed for minor repairs. The entire structure, including a new east office wing, will be separated from its foundation by “base isolators” consisting of a network of either elastomeric (synthetic rubber polymer) or stainless steel pendulum isolators installed atop new interconnected and oversized concrete footings to be constructed beneath the building. New concrete beams and slabs will be constructed at the basement level to support the office wings, stair towers, and dome tower.

The base isolation system will allow the entire structure to move laterally as a single unit during an earthquake as opposed to swaying as would be expected with the use of conventional shear wall bracing systems. The construction of the new office wing, as with Alternate C, will add a significant amount of office space for a relatively modest increase in cost. This alternate will provide the highest level of protection for upgraded building systems during a major earthquake. It will also allow for substantially complete preservation of the building’s historic fabric. The engineers expect a down time of approximately two to three weeks after a major seismic event.

Community Outreach

In January 1998, in order to provide guidance to the staff and the consultants in developing detailed proposals for the restoration and seismic upgrade work, the City Manager appointed a City Hall Seismic Oversight Committee composed of representatives of the Cultural Heritage Commission, the Design Commission, and Pasadena representatives with expertise in architecture, engineering, and historic preservation.

In December 1998, the City Hall Seismic Oversight Committee recommended that the staff select Alternate D as the basis for proceeding with the next phase of restoration and seismic upgrade planning. The committee stated that, in its judgment, the scheme selected should have the minimum impact on the historic fabric of the building, while at the same time providing the highest level of life/safety and structural integrity protection, including allowing for continued occupancy and use.

The selection of Alternate D was also unanimously endorsed by a new 13-member City Hall Restoration Oversight Committee appointed by the Mayor and City Council in the spring of 1999. The committee, which is composed of Pasadena architects, engineers, construction officials, and historic preservationists, unanimously endorsed the installation of base isolators and the construction of a new office wing based on overall project cost projections and the desire to preserve City Hall’s historic fabric.

The Oversight Committee's recommendation was presented to the City Council, which in February 1999 directed the staff to schedule neighborhood meetings to discuss the restoration and seismic upgrade alternates and their estimated costs with the Pasadena community.

A series of public meetings was conducted throughout the City during 1999, presenting the four scenarios to over 300 citizens. Videotaped presentations were also shown on KPAS – Channel 55, reaching an unknown amount of additional residents. The city architect presented the alternatives with a video showing the effects of a major earthquake on city hall, a rendering of the original Bakewell and Brown vision of City hall (including the fourth wing), and schematic drawings of the various alternatives.

Following each meeting, a survey was distributed asking residents to rank the four scenarios in order of their support. Alternate D, received support from 73.89% of respondents. (A summary of survey results is attached.)

Projected Costs

An analysis of the cost of Alternate D was performed by an independent construction management firm, Project Management Associates, Inc., (PMA, Inc.) in November 1998. The analysis estimated the cost of the preferred scheme as \$70.6 million dollars as expressed in 1998 dollars.

In December 1999, comprehensive budget estimates for carrying out each of the four alternates were completed by DMJM. In addition to construction costs, the following other costs were included: construction support costs such as consultant fees, staff expenses, permits, and anticipated bond funding; relocation costs; and the cost of anticipated repairs after a major seismic event.

Cost approximations are shown below as expressed in 2001 dollars:

	APPROXIMATE COSTS IN \$ MILLIONS				
	Construction Costs	Support & Relocation Costs	Subtotal	Repairs After Major Event	Total
Alternate A	\$26.3	\$9.3	\$35.6	\$120.0	\$155.6
Alternate B	\$59.0	\$27.0	\$86.0	\$11.2	\$97.2
Alternate C	\$63.8	\$27.5	\$91.3	\$12.0	\$103.3
Alternate D	\$69.5	\$27.1	\$96.6	\$1.4	\$98.0

The \$26.0 million increase in the estimated cost of Alternate D from the 1998 analysis prepared by PMA, Inc., was attributable to increases in the following categories:

Cost Escalation: 1998 to 2001	\$5.9 million
* Basement Tenant Improvements	1.6 "
Internal Systems Replacement	6.0 "
Staff Relocation During Construction	9.1 "
ITSD Facilities Relocations	2.0 "
** ADA compliance, landscaping and off-site utility work	1.4 "
	\$26.0 million

* The previous estimate was based on not reoccupying the basement following the completion of construction.

** Includes costs for improvements and system upgrades discovered during the planning and schematic drawings preparation phase of the ARG and DMJM contracts.

Costs to relocate staff during construction also increased significantly. Original estimates included upgrades to internal systems (such as plumbing, electrical, air conditioning, etc.) but did not include total replacement of these systems. The structural work on the base isolation alternate combined with limited upgrades to internal systems would not require total vacation of City Hall. Further analysis, however, revealed that these systems cannot be salvaged and must be completely replaced. The replacement of internal systems necessitates either phased or total vacation of the building.

Following review of these new figures, the City Hall Restoration Oversight Committee voted in December 1999 to recommend to the City Council that Alternate D (Base Isolation and New Office Wing) be used as the basis for proceeding with plans for the restoration and seismic upgrade of City Hall and again that the work be carried out by vacating the entire structure at the time of construction.

It is undeniable that the cost of the project has increased dramatically over the years – but so too has the scope of work. When the project was originally conceived in the early 1980's it merely contemplated the restoration of the exterior of the building. The discovery of the building's vulnerability to partial collapse and irreparable damage due to a major earthquake introduced a new set of considerations. The engineering performed to formulate seismic upgrade alternates in turn disclosed that virtually all of the structure's building systems are functionally obsolescent and/or not in compliance with existing codes. In addition, the undertaking of seismic upgrade construction triggers the need to undertake other improvements, such as fire suppression and barrier-free access, to comply with existing building codes and the Americans With Disabilities Act. Restoration in accordance with *The Secretary of the Interior's Standards for Rehabilitation* necessitated by City Hall's listing on the National Register of Historic Places has also contributed to an increase in the cost of the project.

As the development of plans for the project has progressed over the years, estimated costs have risen as the full extent of the work has become better defined. As typical of all construction projects, costs for both professional services and construction have risen over time to reflect national and regional economic trends. A special consideration for this project that illustrates that difficulty inherent in advance cost estimating involves the cost of vacating City Hall during the 26 month construction period: this cost will ultimately be determined by the availability of suitable office space and the market rental rates in effect at the time.

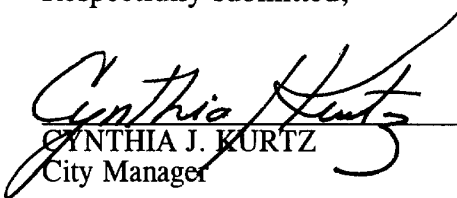
Summary

It is recommended that Alternate D be approved by the City Council at this time as the basis for proceeding with plans for the restoration and seismic upgrade of City Hall. Alternate D is the most cost-effective solution for protecting the structure and the proposed non-seismic improvements. It is the only one that meets all historic preservation and building system codes and standards.

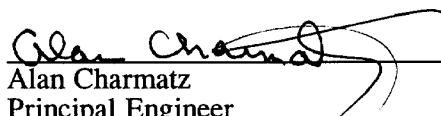
FISCAL IMPACT:

The total project estimate for implementation of Alternate D, as proposed, is \$96.6 million in 2001 dollars; it is estimated that a delay until 2002 will cause this estimate to escalate to \$105 million. Approval of the recommendation in this report will direct staff to continue to pursue Alternate D incrementally, but does not commit the city to this total dollar amount. At this time \$6.6 million has been committed by FEMA, and another \$1.5 to \$1.75 million is expected from the State. Staff will continue to pursue funding from outside sources for the remaining \$88.25 million. If adequate funding cannot be identified, the City may choose to follow another course of action.

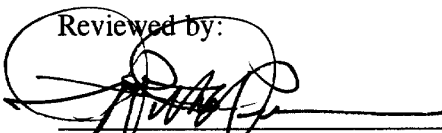
Respectfully submitted,


CYNTHIA J. KURTZ
City Manager

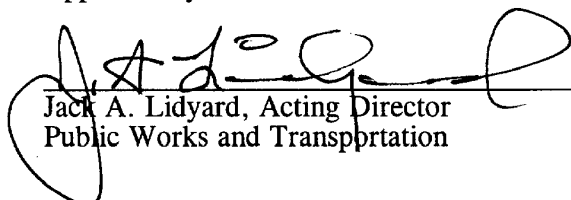
Prepared by:


Alan Charmatz
Principal Engineer

Reviewed by:


Robert Allen Reed, AIA
City Architect

Approved by:


Jack A. Lidyard, Acting Director
Public Works and Transportation