SUPERIOR COURT OF CALIFORNIA
COUNTY OF SAN DIEGO

POST OFFICE BOX 122724
SAN DIEGO, CA 92112-2724

KEVIN A. ENRIGHT
PRESIDING JUDGE
(619) 450-5000

September 22, 2011

Administrative Office of the Courts
Court Facilities Working Group
Hon. Brad R. Hill, Chair
455 Golden Gate Avenue
San Francisco, CA 94102-3688

Subject: Response to Request for Information – SB 1407 Funding for the San Diego New Central Courthouse

Dear Justice Hill:

On behalf of the San Diego Superior Court, we would like to thank you and the Court Facilities Working Group (CFWG) for the opportunity to provide information regarding our New Central Courthouse project. We recognize the tremendous challenges faced by the CFWG in light of the reduced availability of SB 1407 court construction funds, however we strongly believe that continuation of the New Central Courthouse project is of critical importance to our local court, and the citizens of San Diego County.

We will summarize the New Central Courthouse project, and discuss the overriding importance of this project to our court. We will present a number of factors that we believe illustrates the critical need to continue funding this project, and will discuss the risks and costs that will accrue should the project be delayed.

PROJECT OVERVIEW[1]

San Diego's New Central Courthouse provides for 71 courtrooms in a 704,000 gross square foot high-rise facility. The site, which was transferred to the State of California/Judicial Council by the County of San Diego in December 2009 as part of the overall agreement to transfer responsibility of San Diego's court facilities from the county to the state, is adjacent to the existing Downtown Courthouse, the Hall of Justice and the Central Jail. The Environmental Impact Report (EIR) on the site was successfully concluded in December 2010 with a finding that there are "no areas of controversy for the New Central Courthouse project." All preliminary city/county permits have been obtained.

The land acquired for the new courthouse also includes two of the three blocks under which the existing courthouse sits. The sale of these two city blocks will help offset costs associated with the New Central Courthouse. This land fronts Broadway, the primary pedestrian and traffic corridor in downtown San Diego, and has high potential for future commercial development.

[1] For Project key facts and issues, please see the *Project Profile (Attachment 1)*.

The new Courthouse will be connected by a pedestrian bridge to the Hall of Justice (a county-owned facility with 16 civil courtrooms and various court support operations plus offices for the District Attorney and Probation Department) and by tunnel to the Central Jail. Central holding capacity for 215 inmates will be provided along with sufficient secure courtroom holding.

The project consolidates operations from four substandard facilities: the county-owned Family Court and the Madge Bradley Building, the existing Downtown Courthouse, and a small claims operation currently operating in a trailer in suburban Kearny Mesa. These combined facilities serve over 76,000 people per month and handle nearly 38,000 new criminal, family law and probate filings every year.

The project team supporting the development of the San Diego New Central Courthouse has worked closely with the City of San Diego to coordinate the development of a "green street", consistent with the city's Downtown Community Plan Update, that will connect the New Central Courthouse with the soon-to-be-completed Federal Courthouse pedestrian plaza.

The project is currently in the Preliminary Plans phase, which we expect to complete in the third quarter of FY 11-12. As we will discuss below, it is absolutely critical that the project move forward to the Working Drawings phase at the conclusion of Preliminary Plans.

PROJECT METRICS

Cost Metrics of New San Diego Central Court Building:

Total Project Cost: This includes cost of site acquisition, professional fees, cost escalation, contingencies, furniture fixtures, and equipment:

Total Project Budget	**$**	642,596,000[2]
Less refund from Acquisition Phase	$	7,100,000
Current Total Project Budget	$	635,496,000

Construction-only Costs: The costs of the Project are in line with the un-escalated construction-only costs (current $) of other large full-service court buildings currently in the design phases:

[2] Per the List of Trial Court Capital-Outlay Projects to be Funded by SB 1407, October 2008, the Escalated Total Project Budget was estimated to be $1,187,880,000.

Project	Hard Construction Cost	$/SF	No. Courtrooms	$/Courtroom
New Sacramento Criminal Courthouse	$ 228,354,035	$ 563	44	$ 5,189,864
New Modesto Courthouse	$ 150,602,536	$ 500	26	$ 5,792,405
New Santa Rosa Criminal Courthouse	$ 100,536,363	$ 579	15	$ 6,702,424
New Central San Diego Courthouse	**$ 377,059,295**	**$ 517**	**71**	**$ 5,310,694**

Note that the new United States Federal Courthouse, San Diego is $618/SF based on the information we have been able to collect.

Other Project Metrics

The project area (building gross square feet) per courtroom for the New Central Courthouse is shown below in comparison with other large pending court projects.

Project	Building GSF	Courtrooms	GSF/Courtroom
New Sacramento Criminal Courthouse	405,500	44	9,215
New Modesto Courthouse	301,464	26	11,595
New Santa Rosa Criminal Courthouse	173,500	15	11,566
New Central San Diego Courthouse	704,000	71	9,915

CRITICAL ISSUES

The life and safety, infrastructure, and operational deficiencies of the four facilities to be replaced have been well documented[3]. The critical issues will be summarized below.

Existing Downtown Courthouse -- 220 West Broadway, San Diego

1. Seismic Safety Risk Level V

[3] Capital Outlay Budget Change Proposal (COBCP), September 2009 (Attachment 2).

A recent engineering assessment[4] concluded that **this building poses significant risk of capital loss, business interruption, and life safety hazard resulting from a moderate earthquake. In any five year period there is approximately a 5% probability that such an earthquake would render the entire existing court building unusable for more than one year.** The existing downtown court building contains 59 courtrooms, or 1/3 of the court departments in San Diego County. It would be extremely difficult and costly to find available space and convert it into a secure, in-custody-holding-capable facility that would be suitable as a replacement facility.

There is approximately a **4% probability [in any five year period] that a moderate earthquake would cause a partial building to collapse**. The existing downtown court building (220 W. Broadway) is used by over 54,000 people per month[5].

In addition to its structural deficiencies, a potentially more significant hazard to the existing complex is present. **The San Diego Fault (Rose Canyon Fault System) runs directly beneath two of the five segments of the existing building.** Geotechnical studies concluded this fault is subject to surface rupture[6]. Should an earthquake cause the San Diego Fault to rupture directly under one of the segment of existing court building, the probability of significant damage or collapse is greatly increased. Lateral movement between the sides of a fault directly under a building is likely to cause significant damage and the potential for collapse.

The existing building structure **cannot be retrofitted** because of the underlying fault.

The Department of Finance required the AOC to purchase **seismic liability risk insurance** for the County Courthouse and other transferred San Diego court facilities with a seismic risk level of V. The **cost of this seismic liability insurance is currently approximately $207,400 annually**. Delay in proceeding with the project will result in the state accumulating ongoing costs and ongoing risk for general liability and personal injury claims related to a seismic event.

2. Safety and Security

Courthouse spans city streets. Courtrooms, judges' chambers and other spaces are in portions of the building located over B and C streets. This is a major security concern should an explosive device be placed beneath the building.

---

[4] Seismic Risk Assessment – existing court complex, 220 West Broadway – Certus Consulting Inc., July 31, 2011 (Attachment 3).
[5] See COBCP September 2009 (Attachment 2)
[6] Geotechnical Investigation and Fault Hazard Assessment, URS, April 1, 2011 (Attachment 4).

Lack of secure prisoner transfer paths. In order to transfer prisoners to trial courtrooms, deputies must walk them in chains through public corridors, judicial corridors, public stairwells and public elevators.

Lack of in-custody holding cells. There are no holding cells or toilet facilities adjacent to the criminal trial courtrooms. Managing in-custody defendants in trial departments requires extra time (for moving defendants to and from secure holding/toilet facilities) and Sheriff's manpower to move and monitor the in-custody population.

Central in-custody holding area deficiencies. Central holding areas are too small and layouts are poor. In-custody defendants must pass through control stations to get to holding cells. Ventilation systems are almost non-existent, and spaces are crowded, hot and stuffy. There are no attorney/client interview rooms.

Fire safety system non-compliance. This facility lacks a complete fire sprinkler, fire detection and notification system. Only the south tower has a functioning fire alarm system.

Fire exiting system violations in courtrooms. Courtrooms do not comply with fire exiting requirements. Only the south tower courtrooms are served by a fire notification system.

Perimeter security. The building includes numerous unsupervised exterior doors, including many glass doors, distributed over three city blocks. Managing these doors often brings security and fire exiting requirements into conflict.

Unprotected Judges' Parking. The judge's parking lot is secured by a chain-link fence and gates and is visible from surrounding streets and buildings.

3. Aging Building Infrastructure

Aging HVAC systems. A number of the building air handlers are the original units from 1961. Chilled water distribution & central plant capacity have been problematic for years.

Aging vertical transportation systems. Escalators and elevators are old and suffer regular breakdowns. Repairs are problematic due to lack of availability of replacement parts. Recently (September 2011), the "up" escalator at the courthouse main lobby suffered a breakdown and extended period out of service, thus shifting heavy public and staff traffic to the south tower elevator bank.

Sewer system backups. Aging sewer infrastructure has resulted in sewage backups, most recently in May and December 2010, that impacted court operations. These recent sewage backups cost the AOC in excess of $50,000 to clean, repair and restore various public, staff and storage areas.

Hazardous materials. Asbestos in the sprayed-on fireproofing hampers maintenance activities above the ceiling and in mechanical rooms. For example, to change light bulbs in courtrooms, certified maintenance personnel must use approved "HAZMAT" procedures and protocols when court is not in session (i.e. at overtime rates) to work on the lighting systems above the ceiling. Asbestos in floor tile is another example of building conditions that require special handling and extra expense.

Shortage of Toilet Facilities. There are insufficient toilet facilities in the building, which has a particular impact on jurors. The north wing floors include seven trial courtrooms that share one women's restroom containing two toilet stalls.

ADA deficiencies. These exist throughout the building and include inaccessible exits and restrooms, jury and witness boxes, and judges benches.

General space shortage. Court operations continue to be hampered by insufficient and undersized public corridors and courtroom waiting areas, facilities for the media, witness and peace officer waiting areas, and file storage rooms.

Family Court – 1555 6th Avenue, San Diego

1. **Seismic Safety Risk Level V.** A 2006 study concluded that a seismic retrofit of this 6-courtroom facility would require closing the building for 12 to 18 months, and thus was judged to be impractical.

2. **Undersized Facility / Major Circulation Problems.** This facility is drastically undersized for the Family Law functions and programs that it contains. Out of necessity, programs and services have been placed in public lobbies and circulation spaces, including the main courtroom lobby that now houses the Family Law Facilitator program.

3. **ADA Deficiencies.** This facility, including the south portion ("B" building) containing Family Court Services, a business office, calendar department and a children's waiting room, is inaccessible to wheelchairs. Customers in wheelchairs who wish to use these services must be escorted by Sheriff's personnel down the public sidewalk approximately 200 feet to a locked street-level door, and be let in to a cramped lobby area.

4. **Roof Leaks.** This facility with rooftop parking facilities has a history of roof leaks during the rainy season.

5. **Mold Growth.** Mold growing in the facility's six courtrooms was a problem in 2003-2006. It is currently under control, but the underlying cause has never been determined.

6. **Internal Building Security.** This is a problematic issue given the contentious nature of family law proceedings. The building's general overcrowding, numerous isolated areas, and narrow hallways and stairwells make monitoring by Sheriff's personnel very difficult.

7. **HVAC.** Over the years, the operation and reliability of the buildings HVAC systems have been erratic.

8. **Roof Structural Problems.** Rooftop parking on the south ("B") building has been abandoned due to insufficient structural support.

Madge Bradley Building – 1409 4th Avenue, San Diego

1. **Undersized Building Lobby.** This 190 square-foot area is extremely undersized for the functions it contains – weapons screening station, public queuing and elevator waiting area.

2. **Vertical Transportation – One Public Elevator.** The only public access into the building is via a single elevator, and there are no public stairs. When the elevator breaks down, the public must use the unprotected fire stair which is accessible only from the city sidewalk.

3. **Security.** The building's inefficient, cramped layout causes major security challenges for the Sheriff as they attempt to monitor public activity in courtrooms, lobbies and corridors.

4. **Functionally Inefficient.** The building's spaces are poorly laid out. These inefficient spaces severely hinder effective court operations.

Kearny Mesa Small Claims Department – Trailer C2

1. **Security.** To access this trailer courtroom, judicial officers must cross the open public courtyard when moving between their chambers in the main building and the courtroom. This open-air courtyard is vulnerable to weapons and other contraband being thrown over the fencing that separates it from the public parking lot.

2. **Substandard Courtroom.** There is limited seating, and no rail separating the public from the well. The bench is a freestanding desk.

3. **ADA & Safety Issues.** The ramp and handrails leading to the entry door are not ADA compliant. Inside the courtroom, there is no ramp leading to the judge's desk platform, and no railing at the step. There is no ballistic material inside the judges' desk.

COST IMPACTS IF PROJECT IS DELAYED

Delays in reaching a contract for construction with a guaranteed maximum cost will incur significant financial penalties. The relatively large scale of the construction budget results in a large loss of purchasing power due to additional construction cost escalation, if the project were delayed. The follow table illustrates those financial impacts[7];

Project delay	**Budget Impact – loss of purchasing power**	
	3.5% annual escalation	5% annual escalation
4 months	$6.1 million	$8.7 million
8 months	$12.1 million	$17.4 million
16 months	$24.9 million	$35.4 million

The project team has developed a methodology to accelerate reaching a contract for construction with a guaranteed maximum cost (GMAX), which would save an additional $13.44 million in construction costs and achieve occupancy of the new court building seven (7) months earlier than the approved schedule[8]. This fast-track approach would also mean that the seismically deficient existing building could be abandoned and the property sold sooner for re-development at the fast-track design and construction.

The project has a good track record of efficiency. The current project status is on time and within budget. $7.1 Million Fund has been returned to ICNA from the Site Acquisition Phase appropriation.

[7] Source: Rudolph & Sletten, construction manager at risk for project; September 8, 2011; Impact of Delay in Project assumed that Preliminary Plans completed - delay at spring 2012 in start of working drawing and subsequent phases

[8] OCCM Fast Track Feasibility Study, October 15, 2010; this methodology is supported by OCCM management, it was discussed with DOF Capital Outlay unit staff on January 26, 2011 – no final decision on using this approach has been made (Attachment 5).

SUMMARY

The project is moving forward and making tremendous progress. The irreplaceable project site has been acquired. The initial EIR has been favorably completed, and all preliminary permits have been obtained. The Preliminary Plans phase will be completed in the first quarter of 2012. The design team has gained detailed knowledge and insight into the requirements and expectations of our court and is engaged and producing excellent work. We are working closely with the City of San Diego to coordinate with other downtown initiatives and maximize the enhancement of the downtown courthouse district.

Delaying the project will cost millions of dollars in escalated construction costs:

- A 4 month delay will cost $6.1 to $8.7 million
- An 8 month delay will cost $12.1 to $17.4 million
- A 16 month delay will cost $24.9 to $35.4 million

Delaying the project will delay the sale of the property under the existing courthouse, proceeds of which will help defray project expenses.

Delaying the project will increase the risk of capital loss, business interruption, life safety hazard, and general liability and personal injury claims resulting from a moderate earthquake:

- In any five year period there is a 5% probability that a moderate earthquake would render the entire existing court building unusable for more than one year.
- There is a 4% probability in any five year period that a moderate earthquake would cause a partial building collapse.
- The San Diego Fault (Rose Canyon Fault System), which is subject to surface rupture, runs directly beneath two of the five segments of the existing building.
- Should the San Diego Fault rupture directly under one of the building segments, the probability of significant damage or collapse is greatly increased.
- The existing building structure cannot be retrofitted because of the underlying fault.
- The annual cost of seismic liability insurance is $207,400. The state faces ongoing risk for general liability and personal injury claims related to a seismic event.
- Finding suitable replacement space for 59 courtrooms plus support space that would meet security requirements (inmate holding capability etc.) would be costly and extremely problematic.
- Inmates would have to be transported to and from the replacement facility, incurring additional cost.

Delaying the project will extend the exposure of the public, staff and judiciary to unsafe conditions (including in-custody movement in crowded hallways and insufficient in-custody holding cells) in our existing facilities.

Delaying the project will extend the state/judicial branch's responsibility (at a high cost) to maintain our aging, problematic facilities that include infrastructure and hazardous material issues.

Delaying the project will negatively impact our Family Law operations and customers. Family Law programs will continue to be spread out among our three downtown facilities, resulting in an inefficient deployment of resources and confusion and frustration for court users and the public.

Delaying the project will break up the design team (team members may be reassigned & unavailable in the future) and disrupt the continuity and momentum, and cost savings that has been achieved to date. It will also significantly impair the effectiveness of our coordination efforts with the City of San Diego.

We appreciate the opportunity given to our court to provide the Court Facilities Working Group with the information and supporting materials which we believe clearly demonstrates the critical and urgent need to continue funding for our New Central Courthouse project. If we can answer any further questions or provide additional information to assist the working group in its deliberations, please do not hesitate to contact us.

Sincerely,

KEVIN A. ENRIGHT
Presiding Judge

MICHAEL M. RODDY
Executive Officer

Attachments

ATTACHMENT 1

PROJECT PROFILE

ADMINISTRATIVE
OFFICE
OF THE COURTS
455 Golden Gate Avenue
San Francisco, CA
94102-3688
Tel 415-865-4200
TDD 415-865-4272
Fax 415-865-4205

Project Profile – SB 1407 Capital Projects

San Diego County — $642.6 million

New Central San Diego Courthouse

71 Courtrooms - 704,000 Gross Square Feet

Courthouse Site is: Owned

Current Phase: Preliminary Plans are scheduled to be completed in FY 11-12 (Q3)

FY 11-12 Issues:
1) Confirm project to complete Preliminary Plans (current phase)
2) Fund or postpone Working Drawings

A. Financial Status

1.	Total Project Budget	$642,596,000
2.	Total Funds Committed (Not Expended - June 30, 2011)	$ 1,151,000
3.	Total Funds Spent to Date (June 30, 2011)	$ 6,246,000

B. Project Features

1. Results of Application of Prioritization Methodology ..... Critical Need

Security	*5.0 of 5.0*
Overcrowding	*3.0 of 5.0*
Physical Condition	*5.0 of 5.0*
Access to Court Services	*0.0 of 5.0*
Total Score	*13.0 of 20.0*

2. New Judgeships Provided in Project ..... 1 (Last 50)
3. Economic Opportunity (e.g. Donated Site) ..... None
4. Consolidation of Existing Facilities ..... 4 Facilities

C. Key Issues

1. A portion of existing County Courthouse sits directly on a seismic fault with surface rupture history. The state acquired title to the entire existing County Courthouse building, the land under two of the three blocks on which the existing courthouse sits, as well as the block across the street where the new courthouse will be built as part of a county-wide deal wherein in exchange the state accepted seismic liability for court facilities countywide. The Department of Finance required the AOC to purchase seismic liability risk insurance for the County Courthouse and other transferred San Diego court facilities with a seismic risk level of V. The cost of this seismic liability insurance is currently approximately $207,400 annually. Delay in proceeding with the project will result in the state accumulating ongoing costs and ongoing risk for general liability and personal injury claims related to a seismic event.

2. Disposition agreements for the three existing court facilities to be replaced by the new courthouse buildings are completed. How the existing County Courthouse will be disposed of is complex, and will involve the sale of 2 of 3 portions of the existing courthouse while the county will retain title to the third portion.

3. In accordance with the transfer agreement, the AOC is responsible for demolishing the existing building (estimated at $25 million and currently not funded) and replacing chilled water piping now in the existing County Courthouse (not funded).

For more information: http: www.courts.ca.gov documents sandiego_budgetpackage.pdf

ATTACHMENT 2

LIST OF TRIAL COURT CAPITAL-OUTLAY PROJECTS TO BE FUNDED BY SB 1407

List of Trial Court Capital-Outlay Projects to be Funded by SB 1407[1]

(Presented in Alphbetical Order by Court)

October 24, 2008

County	Project Name	Project Priority Group	Escalated Total Project Budget (to Construction Midpoint)[3]	Cumulative Escalated Total Project Budget
Council Approved and Authorized in SB 1407 (4 projects) [2]				
Butte	New North Butte County Courthouse	Immediate	$83,367,000	$83,367,000
Los Angeles	New Southeast Los Angeles Courthouse (SE)	Immediate	$129,027,000	$212,394,000
Tehama	New Red Bluff Courthouse	Immediate	$78,131,000	$290,525,000
Yolo	New Woodland Courthouse	Immediate	$172,940,000	$463,465,000
Council Approved and Submitted to Department of Finance (8 projects) [2]				
Imperial	New El Centro Family Courthouse	Immediate	$77,288,000	$540,753,000
Lake	New Lakeport Courthouse	Immediate	$71,744,000	$612,497,000
Monterey	New South Monterey County Courthouse	Immediate	$65,873,000	$678,370,000
Riverside	New Indio Juvenile and Family Courthouse (Desert Reg)	Immediate	$84,415,000	$762,785,000
Sacramento	New Sacramento Criminal Courthouse	Immediate	$549,276,000	$1,312,061,000
Shasta	New Redding Courthouse	Immediate	$211,779,000	$1,523,840,000
Sonoma	New Santa Rosa Criminal Courthouse	Immediate	$240,125,000	$1,763,965,000
Sutter	New Yuba City Courthouse	Immediate	$104,742,000	$1,868,707,000
	Program Management Fee @ 5% for 4 projects listed directly above over $90 million		$55,297,000	$1,924,004,000
Additional Projects to be Funded (29 Projects Listed in Alphabetical Order by Court)				
Alameda[4]	New East County Courthouse	Critical	$50,000,000	$1,974,004,000
Alpine	New Markleeville Courthouse	Critical	$13,515,000	$1,987,519,000
El Dorado	New Placerville Courthouse	Critical	$81,091,000	$2,068,610,000
Fresno	Renovate Fresno County Courthouse	Immediate	$107,365,000	$2,175,975,000
Glenn	Renovation and Addition to Willows Historic Courthouse	Critical	$32,686,000	$2,208,661,000
Inyo	New Independence Courthouse	Critical	$27,030,000	$2,235,691,000
Kern	New Delano Courthouse	Immediate	$37,709,000	$2,273,400,000
Kern	New Mojave Courthouse	Immediate	$25,140,000	$2,298,540,000
Kings	New Hanford Courthouse	Critical	$121,637,000	$2,420,177,000
Los Angeles	New Glendale Courthouse (NC)	Immediate	$128,135,000	$2,548,312,000
Los Angeles	Renovate Lancaster Courthouse (N)	Immediate	$8,431,000	$2,556,743,000
Los Angeles[5]	New Santa Clarita Courthouse (NV)	Immediate	$50,279,000	$2,607,022,000
Los Angeles	New Eastlake Juvenile Courthouse (JDel)	Critical	$67,576,000	$2,674,598,000
Los Angeles	New Los Angeles Mental Health Courthouse (MH)	Critical	$40,545,000	$2,715,143,000
Mendocino	New Ukiah Courthouse	Critical	$121,637,000	$2,836,780,000
Merced	New Los Banos Courthouse	Immediate	$25,140,000	$2,861,920,000
Nevada	New Nevada City Courthouse	Critical	$81,091,000	$2,943,011,000
Placer[1]	New Tahoe Area Courthouse	Immediate	$12,570,000	$2,955,581,000
Plumas	New Quincy Courthouse	Critical	$25,140,000	$2,980,721,000
Riverside	Addition to Hemet Courthouse (Mid-Cnty Reg)	Immediate	$51,224,000	$3,031,945,000
San Diego	New Central San Diego Courthouse	Critical	$1,187,880,000	$4,219,825,000
San Joaquin	Renovate Juvenile Justice Center	Immediate	$6,252,000	$4,226,077,000

List of Trial Court Capital-Outlay Projects to be Funded by SB 1407[1]

(Presented in Alphbetical Order by Court)

October 24, 2008

County	Project Name	Project Priority Group	Escalated Total Project Budget (to Construction Midpoint)[3]	Cumulative Escalated Total Project Budget
Santa Barbara	Renovation and Addition to Santa Barbara Figueroa Courthouse	Immediate	$126,624,000	$4,352,701,000
Santa Clara[6]	New San Jose Family Resources Courthouse	Critical	$44,000,000	$4,396,701,000
Sierra	New Downieville Courthouse	Critical	$13,515,000	$4,410,216,000
Siskiyou	New Yreka Courthouse	Critical	$76,540,000	$4,486,756,000
Solano[7]	Renovation to Fairfield Old Solano Courthouse	Immediate	$27,173,000	$4,513,929,000
Stanislaus	New Modesto Courthouse	Immediate	$113,897,000	$4,627,826,000
Tuolumne	New Sonora Courthouse	Critical	$54,061,000	$4,681,887,000
	Program Management Fee @ 5% for 7 projects listed directly above over $90 million		$95,359,000	$4,777,246,000

Total of Project Budgets for 41 Projects	$4,777,246,000
Program Contingency of 4.46% [8]	**$222,754,000**
Total Budget	**$5,000,000,000**

Footnotes:

1. On September 26, 2008 a $5.0 billion lease-revenue bond (Senate Bill 1407) was enacted to finance the construction of court facility projects. The total escalated project costs of $1.2 billion—for the nine (9) trial court projects started in FY 2007–2008—are not included in this analysis. A total of 41 projects are presented above, and the budget of each project is subject to change and will be verified when a funding request is submitted to the state Department of Finance. A project for Placer has been added to a previous draft list of 40 projects (pending availability of funding). The list above does not include the New Long Beach Courthouse.

2. Each project has escalated phase budgets based upon actual amounts submitted to the Department of Finance (DOF) in September 2008.

3. All Escalated Total Project Budgets will be refined based on confirmed project size and updated escalation rates to construction mid-point based on when the project is submitted to the DOF. Except for the 12 projects noted under Footnote No. 2, the Escalated Total Project Budget is based on providing a courthouse with courtrooms for existing and proposed judgeships from the next 100 new judgeships approved by the Judicial Council. $8.5 million per judgeship has been allocated for the cost of the facility space. For projects with new judgeships that also include a parking structure, 25 parking spaces at $45,100 per space ($1.13 million) has been allocated per new judgeship. Each new construction project is assumed to have Acquisition, Preliminary Plans, Working Drawings, and Construction phases at 14%, 3%, 5%, and 78% respectively of the Total Project Budget, for purposes of escalating the phase budgets. Each addition or renovation/addition project is assumed to have Acquisition, Preliminary Plans, Working Drawings, and Construction phases at 1%, 8%, 6%, and 85% respectively of the Total Project Budget, for purposes of escalating the phase budgets.

Each project phase budget has been escalated—at the rates of 5% for Preliminary Plans and Working Drawings, and 6% for Construction for projects with construction costs of less than $100 million and 8% for projects with construction costs of more than $100 million—based on the number of years from January 2008 to July of the funding year for that particular phase. Acquisition costs have been escalated by 20% beginning in FY 2010-11 (July 2010 to June 2011). Each project is assumed to be initiated in a specific year, with 24 months for site acquisition, 24 months for design, and 24 months for construction, with an average of 60 months from initial funding for acquisition to construction midpoint. Each project is assumed to require four sequential funding requests for each of its four phases, which is consistent with the current approach of the State Department of Finance. Acquisition has been estimated for renovation projects to account for potential buy-out of space occupied by county.

4. State contribution to be confirmed at time of funding request. $50 million state contribution based on project costing approximately $130,000 (Jan 2008 $) based on county estimate for both county and court space and assuming county contribution of $81 million.

5. This project has been resized to become a new four-courtroom courthouse, and its name has been changed accordingly. The original project in the trial court capital-outlay plan was for a renovation to the existing Santa Clarita courthouse.

6. State contribution to be confirmed at time of funding request. Current estimate of state contribution based on subtracting from the estimated Total Project Cost in January 2008 dollars ($162. 005 million) the present valuate ($131.292 million) of County and Court contributions totaling $314.2 million over 30 years ($5.3 million annual lease payments redirected when leased facilities are consolidated in 2015, $3 annual civil assessments in 2009 and 2012-2042, $1.4 million court security savings due to consolidation in 2015). One time contribution of sale of Los Gatos Courthouse estimated at $5.5 million assumed contributed in 2009. One time court contribution of $5.0 million assumed contributed in 2009 in initial funding year for site acquisition/design.

7. Due to the one (1) AB 159 and two (2) FY 08-09 new judgeships being accommodated in a permanent location in Fairfield, the word *Addition* has been removed from its project name, as this project would now only *Renovate* the existing facility for improved court operations. The Total Project Budget of $16.803 million in Jan. 2007 dollars ($15,017,000 + $1,786,000 for seismic strengthening) is based on a cost estimate prepared by Mark Cavagnero Associates and published in a Dec. 2007 draft addendum (two) to the Old Solano Courthouse Feasibility Study.

8. Of the total proposed $5 billion bond bill, a program contingency is set aside at 4.46% of the total program cost.

ATTACHMENT 3

CAPITAL OUTLAY BUDGET CHANGE PROPOSAL (COBCP) SEPTEMBER 2009

STATE OF CALIFORNIA
CAPITAL OUTLAY
BUDGET CHANGE PROPOSAL (COBCP)
COVER PAGE (REV 01/08)

DEPARTMENT OF FINANCE
915 L Street
Sacramento, CA 95814
IMS Mail Code: A15

BUDGET YEAR 2009–10

ORG CODE: **0250** COBCP NO: **09-91-01 G2A** PRIORITY: **01** PROJECT ID: **91-37-001**

DEPARTMENT: **JUDICIAL BRANCH**

PROJECT TITLE: **SAN DIEGO– NEW SAN DIEGO CENTRAL COURTHOUSE**

TOTAL REQUEST (DOLLARS IN THOUSANDS): $ **55,192** MAJOR/MINOR: **MA**

PHASE(S) TO BE FUNDED: **A/P** PROJ CAT: **CRI** CCCI/EPI: **5263**

SUMMARY OF PROPOSAL:

The Judicial Council requests the State Public Works Board establish the scope, cost, and schedule per Chapter 10, Statutes of 2009 (SB 12, 2X) for a new 71 courtroom full service courthouse to be located in downtown San Diego. In addition, the Judicial Council requests appropriation authority from Immediate and Critical Needs Account (Fund 3138) for Acquisition and Preliminary Plans based on the approved project costs. The project will provide a consolidated courthouse providing criminal, probate, small claims, and family court services for the court's central district. This project features substantial economic opportunities in the form of consolidation of four inadequate facilities into the new courthouse resulting in operational and service efficiencies. While several potential downtown San Diego sites have been studied for the proposed new courthouse, the site will be selected pending completion of the CEQA process. The total estimated project cost for the 704,000 gross square foot (sf) courthouse is $660.134 million without financing. The total cost of the project, including financing, will be funded by Senate Bill (SB) 1407 (Chapter 311, Statutes of 2008) resources. This project is ranked in the Critical Need priority group in the Trial Court Five-Year Infrastructure Plan adopted by the Judicial Council in October 2008, and consequently is one of the highest priority trial court capital outlay projects for the judicial branch.

HAS A BUDGET PACKAGE BEEN COMPLETED FOR THIS PROJECT? (E/U/N/?): **Y**

REQUIRES LEGISLATION (Y/N): **N** IF YES, LIST CODE SECTIONS:

REQUIRES PROVISIONAL LANGUAGE (Y/N): **N**

IMPACT ON SUPPORT BUDGET: ONE-TIME COSTS (Y/N): **Y** FUTURE COSTS (Y/N): **Y**

FUTURE SAVINGS (Y/N): **N** REVENUE (Y/N): **N**

DOES THE PROPOSAL AFFECT ANOTHER DEPARTMENT (Y/N): **N** **IF YES, ATTACH**

COMMENTS OF AFFECTED DEPARTMENT SIGNED BY ITS DIRECTOR OR DESIGNEE.

SIGNATURE APPROVALS:

Kelly Quinn	**September 3, 2009**	**Gisele Corrie/Clifford Ham**	**September 3, 2009**
PREPARED BY	DATE	REVIEWED BY	DATE
Lee Willoughby	**September 3, 2009**	**Ronald G. Overholt**	**September 3, 2009**
DEPARTMENT DIRECTOR	DATE	CHIEF DEPUTY DIRECTOR	DATE

****

DOF ANALYST USE

DOF ISSUE # PROGRAM CAT: PROJECT CAT: BUDG PACK STATUS:

ADDED REVIEW: SUPPORT: OTROS: FSCU: OSAE: CALSTARS:

PPBA: DATE:

A. PURPOSE OF THE PROJECT

This project—ranked in the Critical Need priority group in the Trial Court Five-Year Infrastructure Plan adopted by the Judicial Council in October 2008—is one of the highest priority trial court capital-outlay projects for the judicial branch. The project is on the list of 41 projects to be funded by SB 1407, as adopted by the Judicial Council in October 2008.

The proposed new courthouse has many benefits to the court and will enhance its ability to serve the public. The project will:

- Consolidate and replace three unsafe and dysfunctional courthouses and one trailer courtroom in one new building to efficiently and safely provide criminal, probate, small claims, and family court services in the central, downtown area of San Diego.
- Bring to the downtown area a small claims calendar from the Kearny Mesa courthouse, which will improve service to residents of the central San Diego area. This allows the court to move a traffic calendar from a dysfunctional trailer into the main Kearny Mesa Courthouse.
- Terminate state annual cost of earthquake damage and personal liability insurance for the downtown County Courthouse to be replaced by the new courthouse. The Judicial Branch requests initial funding for this project as soon as possible in order to reduce the cost of seismic liability insurance on the County Courthouse to be replaced by the proposed new courthouse. The state is funding the cost of participation in the Earthquake Recovery Indemnity Authority (the Authority) for this building as part of the exchange for title to two of the three blocks now occupied by the County Courthouse and the Stahlman Block. The total annual participation in the Authority for the County Courthouse is approximately $207,337. Delay in proceeding with development of the new courthouse will result in accumulated ongoing costs of participation in the Authority for the County Courthouse, and ongoing risk for general liability and personal injury claims related to a seismic event.
- Pending selection of a site in compliance with the CEQA process, reduce state capital outlay costs, improve court and county efficiency, and reduce county sheriff operating costs by constructing a secure tunnel between the Central Jail and the proposed new courthouse. Ideally the proposed new courthouse will be sited in close proximity to the existing Central Jail, to achieve these benefits.

The facilities to be vacated after the completion of the new courthouse are presented below. The court will fully vacate the County Courthouse, the Madge Bradley Courthouse, and the Family Courthouse. The County Courthouse will be disposed of to the benefit of the state. Both the Madge Bradley and Family facilities will be retained by the County as part of the agreed upon equity exchange agreement. The court will also consolidate one small claims calendar from the Kearny Mesa Courthouse into the new facility, thereby allowing the court to use trailer C-2 for storage and support functions instead of as a courtroom.

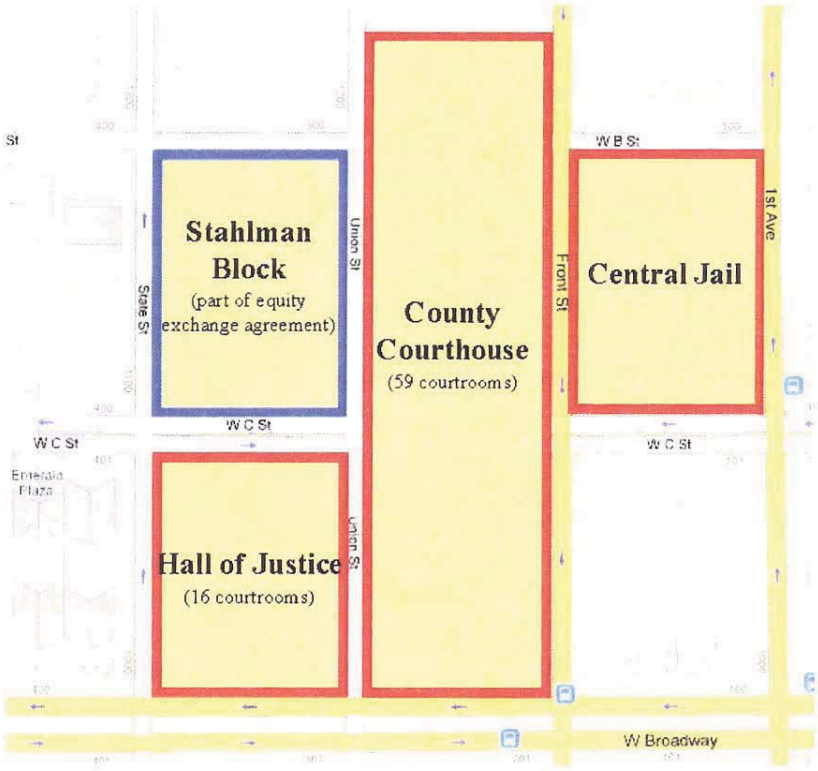
TABLE 1
Facilities Affected by Construction of New Courthouse
Courtrooms, Size, Ownership, Transfer Status, and Disposition Plan

Facility	Location	Number of Existing Courtrooms Affected by This Project	Departmental Square Footage Occupied by the Court and moving to New Courthouse	Type of Transfer[1]	Disposition	Court Space as a Percentage of Total Building Square Footage
County Courthouse.....	San Diego	59	243,266	TOR	Dispose to offset cost of new courthouse	76.2%
Family Courthouse.....	San Diego	6	39,105	TOR	County retains Title per equity exchange agreement	100.0%
Madge Bradley Courthouse .	San Diego	4	20,234	TOR	County retains Title per equity exchange agreement	100.0%
Kearny Mesa Courthouse – Trailer C2	San Diego	1	960	TOR/TOT	Trailer (C2) to be use for storage or court support	100%
TOTALS		70	303,565			

Each of the facilities listed above will be vacated by the court after the new courthouse is completed. The County of San Diego and the AOC negotiated an equity exchange agreement that includes exchange of the county's 24 percent equity share in the existing downtown County Courthouse, the Old Jail, and the Stahlman Block for the state's equity in both the Madge Bradley and Family Courthouses. The equity exchange agreement executed between the AOC and the County of San Diego includes other features, including the state assuming liability for any seismic damage. Figure 1 below presents a plan showing the relationship between the existing County Courthouse, the Hall of Justice, the Central Jail, and the Stahlman Block.

[1] TOR = Transfer of Responsibility
TOT = Transfer of Title

FIGURE 1
Existing Courthouses in San Diego's Downtown Civic Center Area



The court functions to be located in the proposed new courthouse currently occupy 303,565 DGSF as shown in Table 1. The square footage required for the 71 courtroom courthouse is 523,308 DGSF, or 703,925 Building Gross Square Feet (BGSF) for only court functions. This represents a shortfall of 219,743 DGSF to meet the current needs of the court based on the space program for the project.

The four existing court facilities are unsafe, overcrowded, and inadequate for modern court operations. These buildings have numerous deficiencies as outlined below:

A.1. County Courthouse

A.1.1. Current Functions. 59 courtrooms for criminal and civil case types. This is the largest courthouse in the county with an average of 54,500 visitors screened to enter the building each month.

A.1.2. Seismic deficiencies. The existing courthouse has been rated as a seismic Level 5 building by the AOC's consulting structural engineers. A seismic fault line with surface rupture history lies beneath the north tower (Figure 2).

Fig. 2: Seismic fault lies beneath courthouse north tower

A.1.3. Courthouse spans over city streets. A number of courtrooms, judges' chambers, deliberation rooms and public waiting areas are located above B and C Streets, which have public vehicular light rail and pedestrian access. This configuration is the source of major security concerns should an explosive device be placed beneath the building (Figure 3).

Fig. 3: Courtrooms and chambers span over two city streets. Shown above is building spanning B Street as viewed from the corner of "B" and Union Streets.

A.1.4. Lack secure prisoner transfer paths. The courthouse lacks a dedicated prisoner transfer system. In order to transfer prisoners to the trial courtrooms, deputies

must walk them in chains and in front of jurors through public corridors, judicial corridors, public stairways and elevators. There is no vehicle sallyport in the courthouse (Figures 4 to 7).

Fig. 4: Prisoner transfer path (marked by yellow lines) through courtroom waiting/public corridor. Door on right leads to holding corridor/cells.

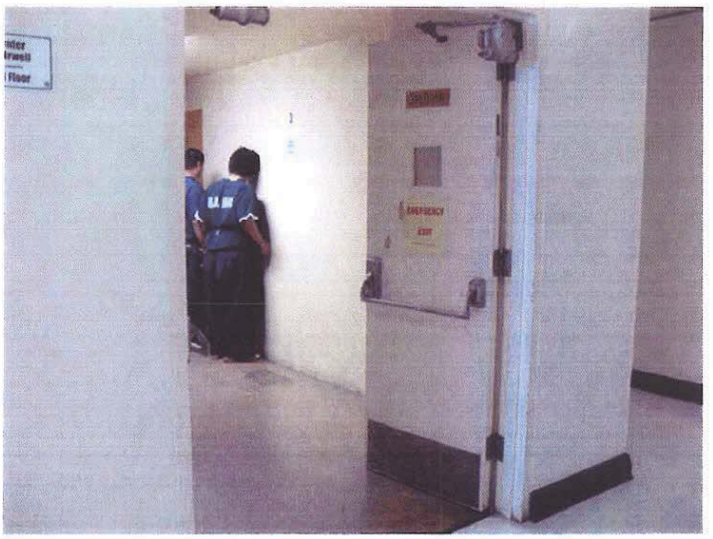


Fig.5: Prisoner transfer through public stairwells.

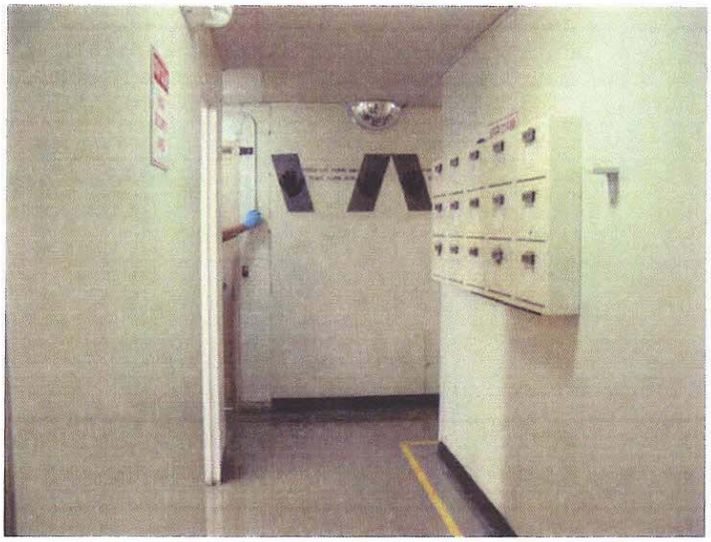


Fig. 6: Prisoner transfer path next to judge's chambers (on left) & gun lockers (on right). Back wall: lineup handprints.

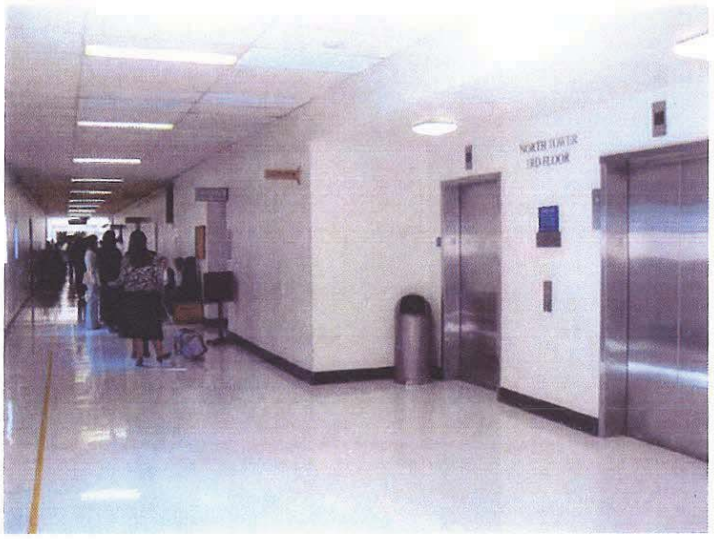


Fig. 7: Public elevators are used for prisoner transfers.

A.1.5. Lack of in-custody holding. There are no holding cells adjacent to the criminal trial courtrooms. If a prisoner needs to use a toilet room during court proceedings, a deputy must escort him/her to the nearest central holding area, often through public and judicial areas. This is extremely unsafe and requires extra sheriff manpower. All standard new courthouses are designed with holding cells adjacent to criminal courtrooms, which improves security, increases efficiency, and reduces the number and expense to the court of funding sheriff

deputies required to staff each criminal court proceeding involving in-custody defendants.

A.1.6. Central in-custody holding area deficiencies. Central holding areas are too small and layouts are poor. Prisoners must pass through the sheriff's control stations to get to the cells. Ventilation and comfort air in the holding areas are almost non-existent. The spaces are always crowded, hot and stuffy. There are no attorney/prisoner interview rooms (Figure 8).

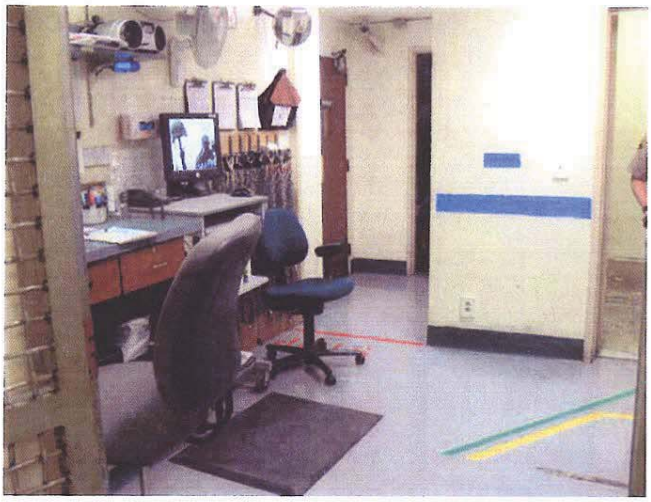


Fig. 8: Sheriff holding area control station: Prisoners must walk through the control station behind the deputies to get to holding cells.

A.1.7. Fire-safety system non-compliance. The City of San Diego Fire Marshal cited the building for fire code violations in 1997 for lacking fire sprinkler, fire detection, and notification systems. Currently, only the south tower is equipped with a basic fire alarm system. This means that, if a fire breaks out in the south tower, occupants in the center block and north tower would not be notified by the existing fire safety systems (Figure 9 right photo).

A.1.8. Fire exiting system violations in courtrooms. Courtroom exit doors are too narrow and do not meet the 36" width requirement; rear doors all swing inward and against the exiting traffic flow; undersized courtrooms do not provide the required exit widths; there is no panic hardware on rear exit doors, and, as mentioned above, only south tower courtrooms are served by fire detection and notification systems (Figure 9 left photo).

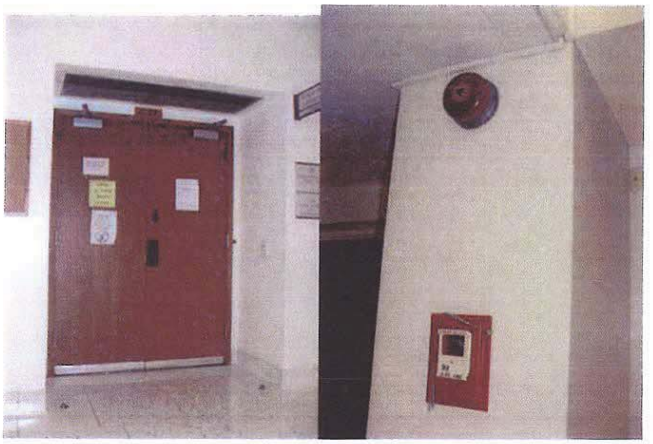


Fig. 9: Typical courtroom entry doors are too narrow and do not meet fire code. Courthouse lacks fire sprinkler and fire alarm systems.

A.1.9. Hazardous materials. Asbestos is present above the ceiling and in the vinyl floor tile adhesive throughout the courthouse. Lead paint was commonly used in the courthouse in the past. When the maintenance crew changes light bulbs in a courtroom, they must shut down the area, put up asbestos signs, wear a bio-hazard suit and then lift the ceiling diffusers to change the light bulbs. The asbestos situation, along with dysfunctional space and mechanical layouts, make remodeling in the courthouse extremely disruptive and costly (Figure 10).

Fig. 10: Due to presence of asbestos above the ceiling throughout the courthouse, cables and conduit are installed below the ceiling, including in exit corridors as shown.

A.1.10. Aging HVAC systems. Many air handlers are still the original units from 1961; the building chill water distribution system has been problematic; fiberglass insulation inside the mechanical ducts has deteriorated to the point that black soot-like material often is blown out of the supply air grilles into habitable spaces; central plant capacity is marginal to inadequate (Figure 11).

Fig. 11: Original air-handlers from 1961 have long exceeded their useful life.

A.1.11. Aging vertical transportation systems. Escalators and elevators are old and problematic. For example, the county permanently shut down one of the three elevators in the north tower so they could use the soon-to-be obsolete parts to maintain the other two. When parts are needed for escalators they must be custom made by a machine shop, and as a result escalators may be taken out of service for weeks at a time in this 59-courtroom building, creating congestion in public hallways and delays in court proceedings when jurors and other courtroom participants cannot arrive in the courtroom on time.

A.1.12. Perimeter security issue. Due to the horizontal layout of the courthouse, there are many unsupervised courthouse exterior doors (many are glass doors) distributed over three city blocks. When the sheriff blocks off public access to these doors from the inside, they sometimes inadvertently violate the fire exiting code (Figure 12).

Fig. 12: Emergency exits are blocked off due to security concerns. This photo also illustrates ADA and fire exiting issues.

A.1.13. Unprotected Judge's Parking. The judge's parking area is secured only with a chain-link fence, and is visible from surrounding streets, sidewalks and buildings. The parking lot is also used by night shift jail staff, with the vehicle rolling gate left open after 5 p.m. each night.

A.1.14. Americans with Disabilities Act (ADA) deficiencies. ADA deficiencies in the building range from inaccessible building exits, restrooms, and doors to inaccessible and undersized jury boxes, witness boxes, and judge's benches.

A.1.15. Toilet facilities shortage. There are insufficient public toilet facilities in the building. For example, there are seven jury trial courtrooms each on the fourth and fifth floors and only two women's public toilet stalls per floor.

A.1.16. General space shortage. Undersized (or lack of) public corridors, courtroom waiting areas, witness and peace officer waiting rooms, media rooms, jury lounge, in-custody holding areas, offices, file storage, etc. continue to hamper efficient court operations (Figure 13).

Fig. 13: Temporary media setup in public corridor (upper left) in an already-crowded main public corridor/courtroom waiting area.

A.2. Family Courthouse

Current Functions: 6 courtrooms. Building expanded awkwardly with connecting stairs to bridge uneven floor levels. On average, over 17,000 visitors are screened to enter this facility each month.

A.2.1. Undersized facility. The Family Courthouse is undersized for its numerous Family Law functions and programs; growth in family law caseloads have forced support and ancillary functions to take up public lobby/circulation space (Figures 14, 17, and 18). The Family Law Facilitator's office, which is located in the public lobby, is staffed by 10 staff including 6 attorneys.

A.2.2. Seismic deficiency. Seismic level V; a county study completed in April 2006 on retrofit concluded that construction necessary to correct deficiencies would require closure of the court building for 12-18 months; thus, retrofit was judged impractical.

Fig. 14: Family Courthouse: Undersized building lobby serves as court building entrance, weapons screening station, Family Law Facilitator's office (10 staff) and service counter, courtroom waiting, attorney/client conference area and the only path to the business office and Family Counselors' offices.

A.2.3. Major circulation problems. The path of travel between the two components of the awkwardly expanded building includes narrow stairwells that are problematic and unsafe for parents with small children and strollers, and opposing parties in contentious divorce/child custody proceedings (Figure 15).

A.2.4. ADA deficiencies. The building addition, which includes the family court services program, family law business office, calendar department, and children's waiting room, is not wheelchair-accessible (Figure 15).

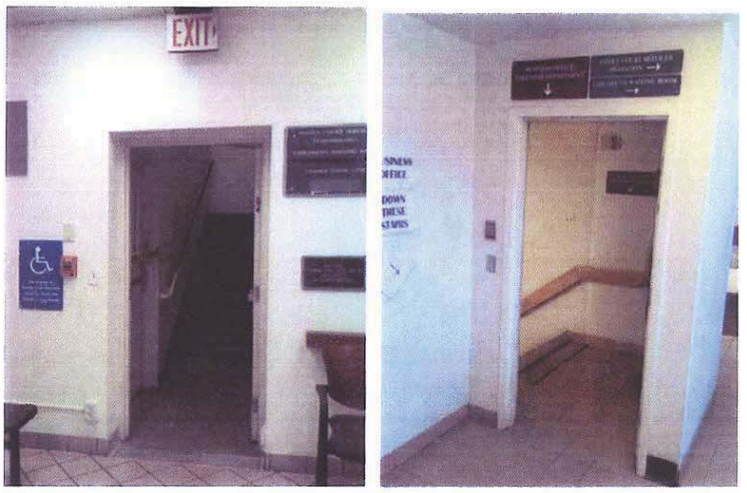


Fig. 15: Family Courthouse: Inaccessible ADA public path (actually fire exit stairs) from courtrooms to family services offices. Public must go up and down two flights of stairs to get to the business office, children's waiting room and Family Court Services due to awkward addition to building.

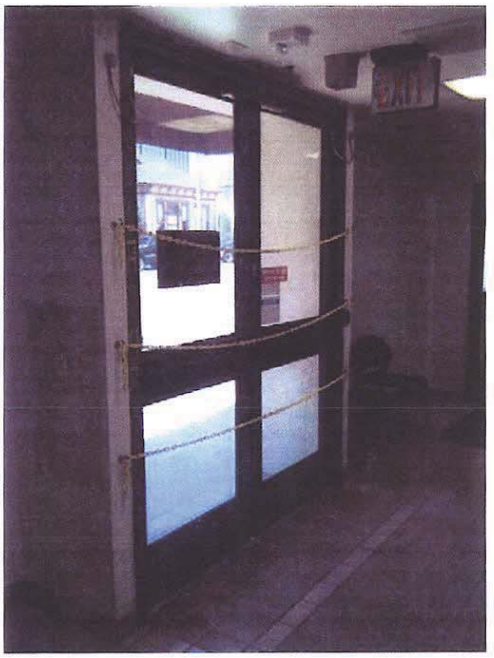


Fig. 16: Family Courthouse: Unsupervised exterior glass doors in public lobby pose perimeter security and exiting concerns.

Fig. 17: Family Courthouse: Exit corridor is used for copy machine, storage and break area due to space shortage.

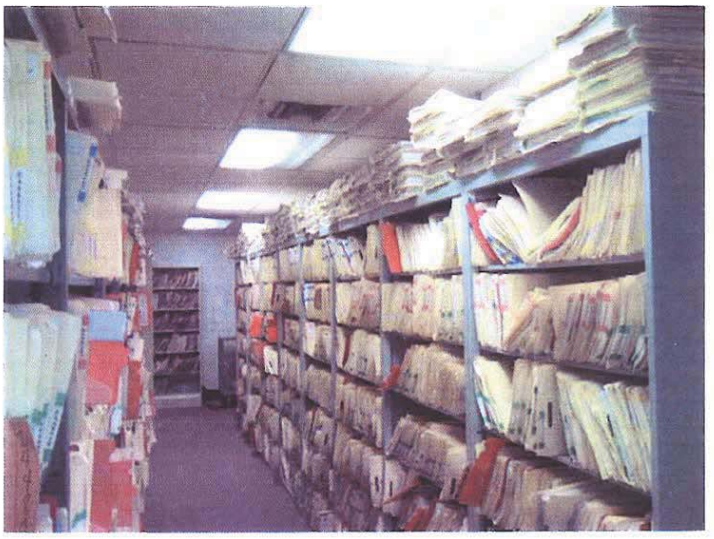


Fig. 18: Family Courthouse: Files are stacked to ceiling due to space shortage.

A.2.5. Roof leaks. Leaks occur regularly during rainy periods.

A.2.6. Mold growth. Mold in the courtrooms had been a problem between 2003 and 2006. While it is currently under control, the underlying cause of the mold growth has never been determined.

A.2.7. Internal building security. This is a problematic area, considering the contentious and emotional nature of family law proceedings. Factors contributing to this include overcrowded conditions, and numerous turns, corners and isolated areas that cannot all be monitored by sheriff's personnel or security systems (Figures 15 and 16).

A.2.8. HVAC. Operation of the building HVAC system has been erratic. Hot/cold complaints are common.

A.2.9. Structural Problem. Rooftop parking has been abandoned due to insufficient structural support (Figure 19).

Fig. 19: Family Courthouse: Rooftop parking has been abandoned due to structural deficiencies.

A.3. Madge Bradley Courthouse

Current Functions: 4 courtrooms

A.3.1. Dysfunctional building layout. Inefficient, cramped layout causes major security problems.

A.3.2. Insufficient lobby space. The building entrance lobby is extremely undersized at 190 square feet, with insufficient space for weapons screening station, queuing area, and elevator waiting area for the average of 2,100 visitors each month to the building (Figure 20).

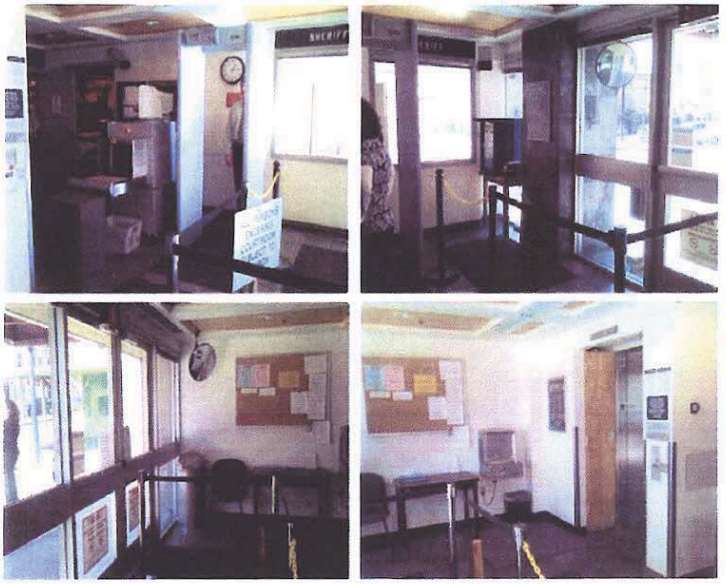


Fig. 20: Madge Bradley: This 10'x19' entrance lobby is extremely undersized, considering its functions as a family law court building lobby, weapons screening station, and elevator waiting area.

A.3.3. One public elevator, no public stairs. The only public access into the building is via a single elevator; there are no public stairs. When the elevator is out of service, the public has to use the unprotected fire stair which is only accessible from the city sidewalk (Figure 21).

Fig. 21: Madge Bradley: Lack of back up vertical transportation forces the use of an unsecure fire stair (white door at left) when the only public elevator breaks down.

A.3.4. Small, isolated circulation areas. It is difficult for the sheriff to monitor public activity in the courtrooms and business office lobbies and corridors.

A.3.5. Inefficient building layout. The building suffers from poorly laid out; inefficient spaces that hinder optimal court operations.

A.4. Kearny Mesa Trailer C2

Current Function: one courtroom (Department KM3)

This facility will no longer be used for court proceedings when the proposed new courthouse is completed. The new courthouse will provide a courtroom for a small claims calendar now located in the main Kearny Mesa Courthouse, which will allow the traffic calendar now housed in trailer C2 to be moved into the main Kearny Mesa Courthouse. The court plans to use trailer C2 for storage or overflow court support space when the traffic calendar is moved into the Kearny Mesa Courthouse. Below are the reasons why trailer C2 is not a safe and secure facility for court proceedings.

A.4.1. Security. Judicial officers must cross the open public courtyard (which is not monitored by any surveillance cameras) when moving between their chambers in the main Kearny Mesa building and the trailer courtrooms including trailer C2. Weapons and other contraband could be thrown over the existing fencing from the public parking lot into the open-air courtyard. One wall of trailer C2, including windows and a door, is exposed to the public-accessible parking lot. (Fig. 22, 23)

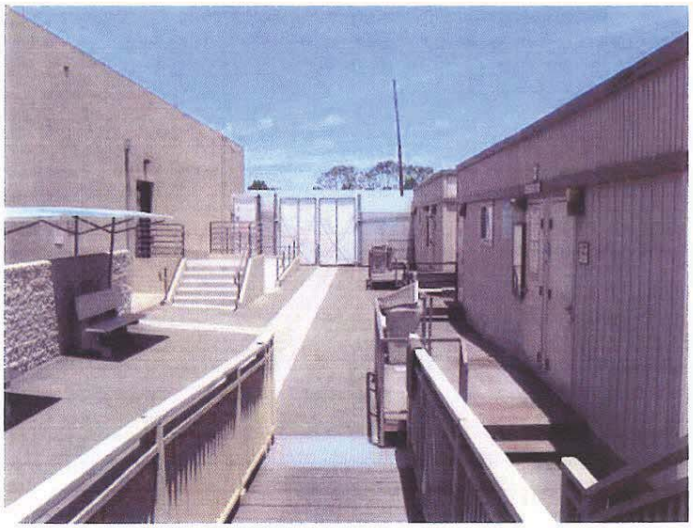


Fig. 22: Public courtyard that judicial officers cross to reach Trailer C2.

Fig. 23: Trailer C-2 backs up to public-accessible parking lot.

A.4.2. Substandard courtroom. There is a limited amount of freestanding seating for the public. The bench is a desk. There is no wall or rail separating the public from the well. (Fig. 24).

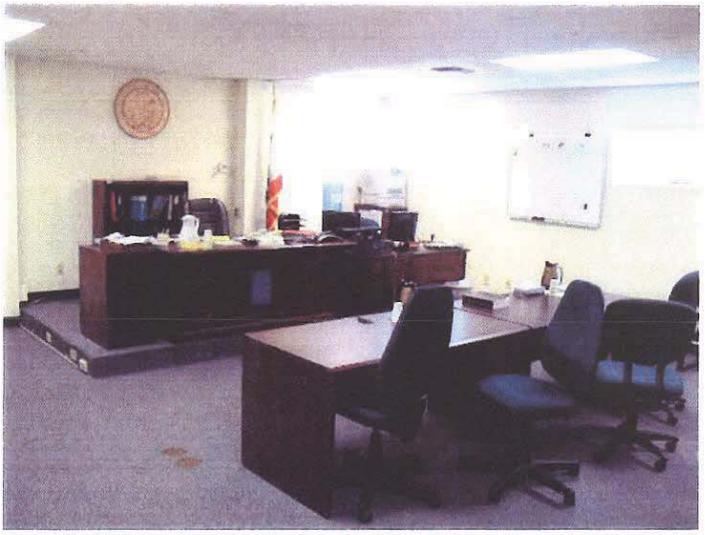


Fig. 24: Substandard Trailer C2 courtroom -- Desk for Judge's bench, no ramp or rail, limited public seating. Windows facing public parking lot create security risk.

A.4.3. ADA/safety issues. The ramp and handrails outside are not up to current ADA standards. Inside the courtroom, there is no ramp at the step up to the Judge's

bench, and no railing up to the Judge or down to the clerk. There is no ballistic material inside trailer C2's bench, which is a standard desk. (Fig. 22, 24).

A.5. Judicial Positions

Current and projected Judicial Position Equivalents (JPEs)[2] are the basis for establishing both the number of courtrooms and the size of a proposed capital-outlay project. Projected JPEs are determined by the Update of the Judicial Workload Assessment (the 2008 assessment) as adopted by the Judicial Council in October 2008. This updated assessment identified 327 currently needed new judgeships. These 327 currently-needed new judgeships do not include either the 50 SB 56 (Chapter 390, Statutes of 2006) or the 50 Assembly Bill (AB) 159 (Chapter 722, Statutes of 2007) judgeships but do include the last 50 new judgeships that are still to receive legislative authorization and funding.[3]

The San Diego court is scheduled to receive one new judgeship from the last 50 new judgeships. Table 2 below provides information used to determine the near-term need for this project, which includes 71 JPEs.

TABLE 2
Current JPEs and Projected JPEs (Including Proposed New Judgeships)

Location	Current JPEs	AB 159 New Judgeships	Proposed last 50 New Judgeships	Future Growth	Total JPEs	Basis for Proposed Project
Central Courthouse	59	0	1	0	60	60
Family Courthouse	6	0	0	0	6	6
Madge Bradley Courthouse	4	0	0	0	4	4
Kearny Mesa Courthouse – Trailer C2	1	0	0	0	1	1
TOTAL	**70**	**0**	**1**	**0**	**71**	**71**

B. RELATIONSHIP TO THE STRATEGIC PLAN

The Judicial Council, as the policymaking body for the judicial branch, has the following responsibilities and authorities with regard to court facilities, in addition to any other responsibilities or authorities established by law:

- Exercise full responsibility, jurisdiction, control, and authority as an owner would have over trial court facilities whose title is held by the state, including, but not limited to, the acquisition and development of facilities;

[2] JPEs are defined as the total authorized judicial positions adjusted for vacancies, assistance rendered by the court to other courts, and assistance received by the court from assigned judges, temporary judges, commissioners, and referees.

[3] The last 50 (of the 150) new judgeships were proposed for funding in FY 2008–2009 through the authorization of SB 1150 (Corbett); however, the state legislature did not pass this bill.

- Exercise the full range of policymaking authority over trial court facilities, including, but not limited to, planning, construction, acquisition, and operation, to the extent not expressly otherwise limited by law;
- Establish policies, procedures, and guidelines for ensuring that the courts have adequate and sufficient facilities, including, but not limited to, facilities planning, acquisition, construction, design, operation, and maintenance;
- Allocate appropriated funds for court facilities maintenance and construction;
- Prepare funding requests for court facility construction, repair, and maintenance;
- Implement the design, bid, award, and construction of all court construction projects, except as delegated to others; and
- Provide for capital outlay projects that may be built with funds appropriated or otherwise available for these purposes according to an approved five-year and master plan for each court.

The provision of this capital outlay request is directly related to the Judicial Council's strategic plan Goal VI: "Branch-wide Infrastructure for Service Excellence." By providing the trial courts with the facilities required to carry out the Judiciary's constitutional functions, the proposed project immediately addresses this goal, but it would further all of the Council's goals. The proposed project supports the Judicial Council's commitment to Goal I, "Access, Fairness, and Diversity" and Goal IV, "Enhancing the Quality of Service and Justice" provided to the public.

Chapter 1082, Statutes of 2002 (SB 1732, Escutia) creates a process by which the state will assume the responsibility for transfer of responsibility and/or title to all court facilities. This program, the responsibility of the Judicial Council, was authorized to begin on July 1, 2003. AB 1491 (Ch. 9, Statutes of 2008) was enacted in April 2008 and extends the deadline for completing transfers to December 31, 2009. A list of all courthouses in San Diego County is provided for reference on the last page of this document.

This project is included in the Superior Court of California, County of San Diego Court Facility Master Plan, guided by a steering committee comprised of members of the court and the County Administrative Office. This project is also included in the Critical Need priority group in the prioritized list of trial court capital projects in the Judicial Council's FY 2010-11 Five-Year Infrastructure Plan submitted to the Department of Finance on August 6, 2009. This project is a top priority for the Judicial Branch.

C. ALTERNATIVES:

The AOC and the court examined two facility development options to provide adequate space for court functions in the central district of the San Diego Superior Court:

- Project Option 1: Construct a new courthouse with 71 courtrooms;
- Project Option 2: Remain in four separate unsafe and inadequate facilities

These options are evaluated below.

C.1. Project Option 1: Construction of a new courthouse with 71 courtrooms

In Option 1, a building of approximately 703,925 BGSF with 71 courtrooms and associated support space will be constructed on a site in the downtown civic center of San Diego ideally in close proximity to the Central Jail. With Project Option 1, the court will vacate three facilities now used by the court for criminal and family court operations and administrative functions in downtown San Diego and vacate a trailer courtroom in Kearny Mesa.

C.1.1. Pros.

- This option consolidates four unsafe and inadequate facilities into a consolidated courthouse serving criminal, probate, small claims, and family matters. This will result in increased court operational efficiency and greatly enhanced service to the public.
- This option brings to the downtown area a small claims calendar from the Kearny Mesa courthouse, which will improve service to residents of the central San Diego area. This allows the court to move a traffic calendar from a dysfunctional trailer into the main Kearny Mesa Courthouse.
- This option allows the AOC to dispose of the existing County Courthouse property, located along Broadway—a prime commercial office street in San Diego—to the benefit of the state.
- The goal of locating the new courthouse as close as possible to the Central Jail has several advantages. Construction of a tunnel connecting the Central Jail to the new courthouse would provide efficiencies for the court and county sheriff.
- If the state were to acquire property at a location several blocks from the Central Jail—eliminating the ability to construct a tunnel—a substantial capital investment would be required to build a full complement of detention cells in the new courthouse. The proposed new courthouse is programmed to hold approximately 300 prisoners. By way of comparison, the 31-courtroom Long Beach Courthouse has a capacity of approximately 300 individuals in the central holding cell area to serve a courthouse less than half the size of the proposed new San Diego courthouse. The Long Beach Courthouse central holding cell area is sized at 10,500 NSF to serve 31 courtrooms, while the central holding cell area for the proposed new San Diego courthouse is planned at 9,510 NSF to serve 71 courtrooms due to the goal of siting the new courthouse in close proximity to the Central Jail. This results in significant cost savings to the project.
- Locating the proposed new courthouse on a site close to the Central Jail and constructing a tunnel connecting the Central Jail to the new courthouse also

reduces the sallyport requirements for the proposed new courthouse. The new courthouse will require a sallyport for only one full-sized bus to support local police, US Immigration, state prison, and other county jail buses delivering both state and county prisoners to the courthouse. In comparison, the Long Beach Courthouse's sallyport is sized for three full-sized buses to handle the many buses that bring in-custody defendants from around the county and incarcerated persons from state prisons.

- Terminates state annual cost (approximately $207,337) of earthquake damage and personal liability insurance for the downtown San Diego buildings to be replaced by the new courthouse. Reduces risk of state liability related to a major seismic event on the fault beneath the existing downtown County Courthouse.

C.1.2. Cons.

- This option requires authorization of SB 1407 funds for site acquisition and related soft costs (including CEQA compliance), design, and construction.

C.2. Project Option 2: Remain in four separate unsafe and inadequate facilities

In this option, the status quo is maintained and unsafe and inadequate space in four different facilities will continue to be occupied by the court.

C.2.1. Pros.

- This option does not require a state contribution at this time.

C.2.2. Cons.

- This option does not consolidate facilities, but prolongs inefficient court operations, especially for the family law area of court services that when consolidated can maximize serve quality and efficiency for families and children.
- This option requires the continued use of a trailer courtroom in Kearny Mesa and inability of the court to return a small claims calendar to central San Diego.
- This option requires indefinite state annual payments of approximately $207,337 for earthquake damage and personal liability insurance for the downtown San Diego buildings to be replaced by the new courthouse. This option also puts the state at risk indefinitely for liability related to a major seismic event on the fault beneath the existing downtown County Courthouse.

D. RECOMMENDED SOLUTION:

1. Which alternative and why?

The recommended option is Option 1. This option provides the best solution for the current court operations, providing consolidated court service for the benefit of all county residents. The proposed new courthouse will accomplish the following:

- Replace four facilities to create a consolidated downtown courthouse with adequate space for criminal, probate, small claims, and family court services, which will facilitate improved service quality and efficiency.
- Bring to the downtown area a small claims calendar from the Kearny Mesa courthouse, which will improve service to residents of the central San Diego area. This allows the court to move a traffic calendar from a dysfunctional trailer into the main Kearny Mesa Courthouse.
- Terminate state annual cost (approximately $207,337) of earthquake damage and personal liability insurance for the County Courthouse to be replaced by the new courthouse. Reduces risk of state liability related to a major seismic event on the fault beneath the existing downtown County Courthouse.
- Reduce state capital outlay costs, improve court and county efficiency, and reduce court county sheriff operating costs by constructing a secure tunnel between the Central Jail and the proposed new courthouse, pending selection of a site in compliance with the CEQA process that is in close proximity to the Central Jail.

2. Detailed scope description.

The proposed project includes the design and construction of a New San Diego Central Courthouse for the Superior Court of California, County of San Diego. The project replaces four court facilities to consolidate criminal, probate, and family court and central court administrative operations. The project will also bring one small claims courtroom from Kearny Mesa to the central court district, and therefore allow the court to move a courtroom out of a dysfunctional trailer.

The project will include 71 courtrooms; court support space for court administration, court clerk, court security operations, jury assembly, building support space. The proposed new building will be approximately 703,925 BGSF. Secure parking for up to 112 cars, a sallyport, and prisoner holding will be provided below grade. The project does not include any additional parking for staff, the public, or jurors, in support of the City of San Diego Redevelopment Agency's Downtown Community Plan goal to increase reliance on public transportation.

The project scope includes—pending selection of a site in close proximity to the Central Jail in compliance with CEQA— replacing the prisoner bridge that currently connects the San Diego Central Jail to the existing County Courthouse, by creating a new tunnel from

the Central Jail to the new courthouse to maintain the secure underground connection to the Jail. This secure tunnel would be constructed simultaneously with the construction of the new courthouse and may have to be constructed beneath the existing County Courthouse depending on the site selected and acquired for the new courthouse based on the transfer agreement between the County and the AOC. The project cost estimate includes a budget for demolition of existing buildings, which are likely to be found on a downtown site near the Central Jail, site preparation, and site improvements to the street front and on-site utilities. All CEQA environmental studies and requirements are the responsibility of the AOC as lead agency for the project. CEQA will be completed during the acquisition phase of the project.

3. Basis for cost information.

Estimated total project costs are based on the scope of work described above, the space program presented in the project feasibility report submitted with this document, and the construction cost estimate as prepared by the Cumming Corporation. Construction costs are in July 2009 dollars and escalated to construction mid-point based upon an analysis of recent construction industry economic trends and other factors.

Estimated total project cost for the new courthouse is $660.134 million.

A site has not been selected for this project. The site acquisition budget requested in this document assumes the acquisition of approximately one city block in the downtown civic center area of San Diego. To determine a budget for site acquisition, staff reviewed current property sales comparables and listings for several properties in this area. The budget for site acquisition is based on $25 million for one block of developed property and also includes associated soft costs for title work, architectural services, special consultants, geotechnical services, land surveying, materials testing, CEQA, property appraisals, and legal services.

The project cost estimate includes funds in the event a tunnel connecting the new courthouse to the Central Jail cannot be completed on schedule, to cover the County of San Diego Sheriff's related extra transportation costs in the unlikely event that the secure tunnel is not operational when the new courthouse opens.

The project costs DO NOT include demolition of the existing County Courthouse, demolition of the existing bridges from the existing County Courthouse to the Hall of Justice and the Main Jail, nor relocation of chilled water lines to those buildings.

4. Factors/benefits for recommended solution other than the least expensive alternative.

Option 1, the construction of a 71 courtroom courthouse in the City of San Diego provides the best solution for meeting the needs of the court and the public in downtown San Diego.

The proposed new courthouse will:

- Consolidate and replace three unsafe and dysfunctional courthouses and one trailer courtroom in one new building to efficiently and safely provide criminal, probate, small claims, and family court services in the central, downtown area of San Diego.
- Bring to the downtown area a small claims calendar from the Kearny Mesa courthouse, which will improve service to residents of the central San Diego area. This allows the court to move a traffic calendar from a dysfunctional trailer into the main Kearny Mesa Courthouse.
- Terminate state annual cost of earthquake damage and personal liability insurance for the downtown County Courthouse to be replaced by the new courthouse. The Judicial Branch requests initial funding for this project as soon as possible in order to reduce the cost of seismic liability insurance on the County Courthouse to be replaced by the proposed new courthouse. The state is funding the cost of participation in the Earthquake Recovery Indemnity Authority (the Authority) for this building as part of the exchange for title to two of the three blocks now occupied by the County Courthouse and the Stahlman Block. The total annual participation in the Authority for the County Courthouse is approximately $207,337. Delay in proceeding with development of the new courthouse will result in accumulated ongoing costs of participation in the Authority for the County Courthouse, and ongoing risk for general liability and personal injury claims related to a seismic event.
- Pending selection of a site in compliance with the CEQA process, reduce state capital outlay costs, improve court and county efficiency, and reduce court sheriff operating costs by constructing a secure tunnel between the Central Jail and the proposed new courthouse. Ideally the proposed new courthouse will be sited in close proximity to the existing Central Jail, to achieve these benefits.

5. Complete description of impact on support budget.

Impact on the trial court and the AOC's support budgets for FY 2010–2011 will not be material. It is anticipated that this project will impact the AOC and the trial court support budgets in fiscal years beyond the current year as certain one-time costs, debt service, and ongoing costs are incurred. In the long term, a new facility will be more efficient to operate due to improved systems and use of space. This will result in lower operating costs if reviewed on a per square foot basis. Any operational cost savings that result from the new facility will be redirected to offset the ongoing facility operational costs of the new courthouse.

The county facility payments established pursuant to Government Code Section 70353 with the transfer of each county facility replaced by this project will be used to offset ongoing operations and maintenance costs of the new facility.

6. **Identify and explain any project risks.**

Any construction project carries risk of increased scope due to discovery of unknown conditions throughout the design and construction process that can alter the projected construction cost. These risks can be mitigated or minimized by concurrently developing a prioritized itemization of project features that can be reduced in scope, alternatively approached, or eliminated without affecting the building functionality. The list should be updated at the completion of each stage of the design process in connection with the preparation and review of the updated estimates. Risk is always inherent in the construction and ownership of real property and improvements. Standard risk management procedures will be instituted to control and/or delegate these risks. Architect and contractor contracts will also allocate risks respectively.

7. **List requested interdepartmental coordination and/or special project approval (including mandatory reviews and approvals, e.g., technology proposals).**

Inter-agency cooperation will be required among state, county, and local jurisdictional authorities for successful completion of this new courthouse. Under AOC responsibility, all standard procedural reviews and approvals will be adhered to. The construction documents will be reviewed by the State Fire Marshal and Department of State Architect for fire/life/safety and accessibility.

E. **CONSISTENCY WITH CHAPTER 1016, STATUTES OF 2002 – AB 857**

1. **Does the recommended solution (project) promote infill development by rehabilitating existing infrastructure and how? Explain.**

The recommended solution does not include the rehabilitation of existing infrastructure. An ideal site for the new courthouse is an urban site near the existing Central Jail and Hall of Justice. Therefore, the project would be considered an infill project.

2. **Does the project improve the protection of environmental and agricultural resources by protecting and preserving the state's most valuable natural resources? Explain.**

As indicated above, the ideal site for the proposed new courthouse will be an urban site. The judicial branch is committed to developing projects on sites with no or least impact to natural resources by utilizing previously developed land with existing infrastructure. All projects will be subject to thorough and responsible CEQA processing.

3. **Does the project encourage efficient development patterns by ensuring that infrastructure associated with development, other than infill, support efficient use of land and is appropriately planned for growth? Explain.**

Pending selection of a site in compliance with CEQA, the courthouse will ideally be located in the San Diego civic center area near the Hall of Justice and the County Central Jail. Development of civic center area sites contributes to the future development of the

surrounding area. The development of the proposed new courthouse in this area also reinforces demand for and use of available public transit serving the area. The proposed new courthouse, which does not include construction of parking for court visitors, is consistent with City of San Diego Redevelopment Agency's Downtown Community Plan goal to increase activity in the civic center core area and support reliance on public transportation.

Existing Courthouses in San Diego County

Bldg ID	Facility			Courtrooms
37-A1	County Courthouse	220 West Broadway	San Diego	59
37-A2	Hall of Justice	330 West Broadway	San Diego	16
37-B1	Madge Bradley Building	1409 Fourth Avenue	San Diego	4
37-C1	Kearny Mesa Court	8950 Clairemont Mesa Boulevard	San Diego	4
37-C2	Traffic Court KM3 Trailer	8950 Clairemont Mesa Boulevard	San Diego	1
37-C3	Traffic Court KM4 -Trailer	8950 Clairemont Mesa Boulevard	San Diego	1
37-C4	Traffic Court KM5 and KM6 - Trailer	8950 Clairemont Mesa Boulevard	San Diego	2
37-D1	Family Court	1501-1555 Sixth Avenue	San Diego	6
37-E1	Juvenile Court	2851 Meadowlark Drive	San Diego	8
37-E2	Department 11	2901 Meadowlark Drive	San Diego	1
37-E3	Department 9 Trailer	2851 Meadowlark Drive	San Diego	1
37-E4	Department 10 Trailer	2851 Meadowlark Drive	San Diego	1
37-F1	North County Regional Center - South	325 South Melrose	Vista	12
37-F2	North County Regional Center - North	325 South Melrose	Vista	18
37-F3	Annex	325 South Melrose	Vista	2
37-F4	Department 34 Trailer	325 South Melrose	Vista	1
37-F5	Department 35 Trailer	325 South Melrose	Vista	1
37-F6	Storage A Trailer	325 South Melrose	Vista	0
37-F7	Office Trailer	325 South Melrose	Vista	0
37-H1	South County Regional Center	500 Third Avenue	Chula Vista	15
37-I1	East County Regional Center	250 East Main Street	El Cajon	20
37-J1	Ramona Courthouse	1428 Montecito Road	Ramona	1
	Total Courtrooms			174

ATTACHMENT 4

SEISMIC RISK ASSESSMENT SUMMARY

Certus Consulting, Inc.

Evan Reis, SE
Kevin Moore, SE

SEISMIC RISK ASSESSMENT SUMMARY

California Administrative Office of the Courts
Existing San Diego Central Courthouse Complex

Prepared For:

Skidmore, Owings and Merrill

Prepared By:

Certus Consulting, Inc.

July 31, 2011

Certus Consulting, Inc. performed a seismic risk assessment of the existing San Diego Central Courthouse Complex. The objective of this study was to estimate the seismic risks associated with the existing complex of courthouse facilities located at 220 West Broadway in San Diego. The assessment is consistent with the evaluation of the new San Diego Court facility performed by Certus Consulting in March, 2011. The opinions in this report should be considered estimates only.

Our assessment of the existing courthouse complex indicates that it poses significantly more risk than the proposed new facility, in terms of capital loss, business interruption and life safety hazard. In the table below, an estimate of losses and the probability of collapse for each facility is compared for three recurrence intervals of 100, 500 and 2500 years.

Annual recurrence Interval	Probability of occurrence in five years	Expected Loss ($ in Million, Downtime in Days)	Proposed Facility	Existing Complex
		Building Valuation		
		AREA:	764,386	400,000
		BUILDING VALUE:	$ 709M	$ 371M
		REPLACEMENT TIME	1,080 Days	1,080 Days
100 YR	5.0%	CAPITAL:	$18M	$ 57M
		BUSINESS INTERUPTION:	$ 0	$ 62M
		DOWNTIME:	0	392 Days
		COLLAPSE PROBABILITY:	0%	4%
500 YR	1.0%	CAPITAL:	$ 60M	$ 93M
		BUSINESS INTERUPTION:	$ 97M	$76M
		DOWNTIME:	148 Days	678 Days
		COLLAPSE PROBABILITY:	0%	7%
2,500 YR	0.2%	CAPITAL:	$135M	$136M
		BUSINESS INTERUPTION:	$120M	$ 90M
		DOWNTIME:	400 Days	978 Days
		COLLAPSE PROBABILITY:	1%	13%

Table 1 – Comparison of courthouse facility risks

In the table above, the 100 year event represents a level of ground shaking that has approximately a 5% probability of occurrence in a five year period. This is typically considered a moderate sized event under which modern, Code complying buildings are expected to suffer only minimal damage and downtime.

The 500 year event represents a level of ground shaking that has approximately a 1% probability of occurrence in a five year period. This is considered a large event and is typically the design basis earthquake used for a new building. Code complying buildings may suffer considerable damage and downtime, but are expected to present an insignificant risk of collapse.

The 2500 year event represents a level of ground shaking that has approximately a 1% probability of occurrence in a twenty-five year period. This is considered a maximum credible event. Code complying buildings may suffer damage that triggers replacement, but are expected to present a relatively small risk of collapse.

The design of the new courthouse facility complies with the current edition of the California Building Code (2010 Edition). A higher performing, base isolated system for the new facility was considered by the AOC, but ultimately was not selected. Therefore, the new facility as currently designed can be assumed to be a proxy for a standard Code compliant structure, employing state-of-the-art design methods, modern detailing and the expectation of good performance.

In comparison, the existing courthouse facility is expected to perform considerably more poorly than a current Code compliant structure. From the table above, the following observations can be made:

- Life safety hazard – The existing complex poses a significantly higher risk of collapse in a design level event (500 year frequency) than a typical building complying with current Code design.

- Capital losses – The building value of the proposed facility is about twice that of the existing complex, as it is about twice the size. However, in the 500 and 2500 year events, the capital losses for each facility are comparable, indicating a substantially higher loss per square foot of space for the existing complex. Particularly, in smaller, more frequent events such as the 100 year event, damage to the existing complex is likely to be considerable higher.

- Downtime – Even in relatively common events (100 year frequency), downtime resulting from building damage to the existing complex may be substantial, on the order of a year or more.

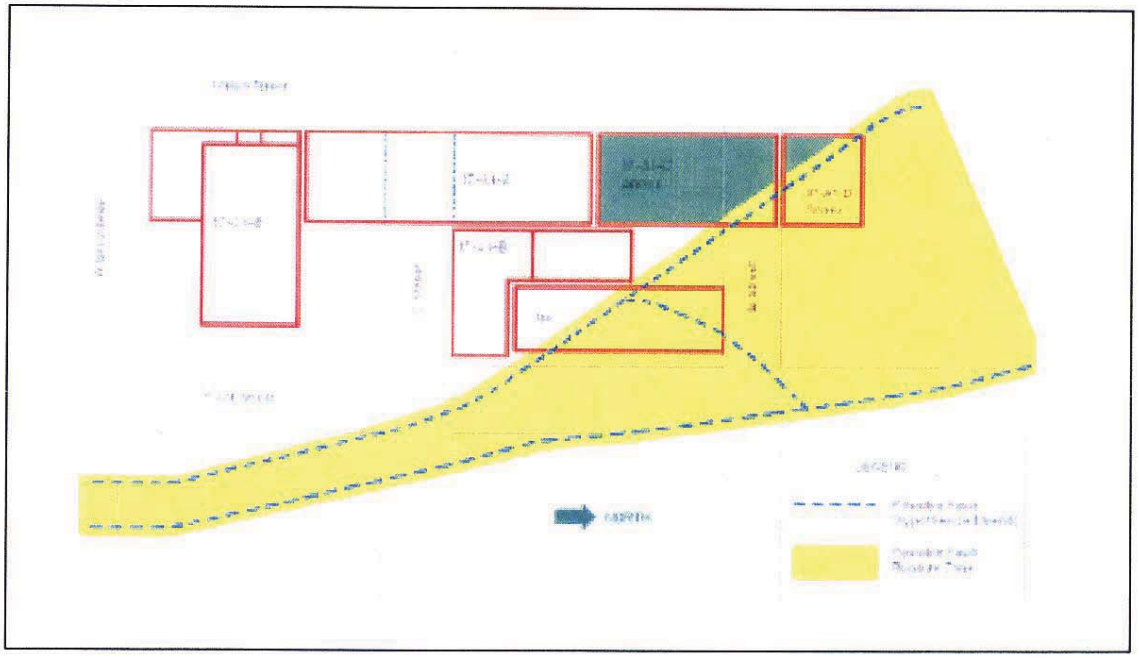
- Business Interruption – Business interruption losses are estimated based on the need to temporarily relocate court functions to alternate space in the event the building must undergo significant repairs. Once building damage has exceeded a given threshold, it is assumed that the entire space will need to be relocated. Of particular difficulty in the case of the existing court facility will be the ability to find

space and convert it into a condition suitable to replace the 59 courtrooms currently in operation.

Previous structural evaluations of the existing court complex identified several structural deficiencies that significantly increase the risk of life safety hazards and damage under large, long duration seismic forces. These deficiencies are severe enough that the existing courthouse complex was designated a Seismic Risk Level of V (5), indicative of buildings that do not meet the minimum life safety standards acceptable to the AOC.

In addition to its structural deficiencies, a potentially more significant hazard to the existing complex is present. The San Diego Fault (Rose Canyon Fault) runs along the eastern edge of the site. According to a previous geotechnical investigation, it is possible or probable that the fault runs directly beneath three of the five complex buildings. Figure 1 shows the location of the fault relative to the site.

In addition to damage caused by ground shaking, should an earthquake occur on the San Diego Fault causing it to rupture directly under one of the existing court buildings, the probability of significant damage or collapse is greatly increased. The length of fault rupture is a function of the magnitude of the earthquake. The characteristic magnitude of a large earthquake on the San Diego Fault is approximately 6.8 according to the USGS. The length of rupture for a magnitude 6.8 earthquake may be on the order of one to two meters. This amount of lateral movement between the sides of a fault directly under a building is likely to cause significant damage and the potential for collapse.



MACTEC

Figure 1 – Existing Court Complex Site Plan

ATTACHMENT 5

GEOTECHNICAL INVESTIGATION & FAULT HAZARD ASSESSMENT

REPORT

GEOTECHNICAL INVESTIGATION AND FAULT HAZARD ASSESSMENT SAN DIEGO CENTRAL COURT SUPERIOR COURT OF CALIFORNIA COUNTY OF SAN DIEGO ADMINISTRATIVE OFFICE OF THE COURTS SAN DIEGO, CALIFORNIA

Prepared for

Mr. Steven Sobel
Skidmore, Owings, & Merrill, LLP
One Front Street
San Francisco, CA 94111

URS Project No. 27661014.10000

April 1, 2011

URS

4225 Executive Square, Suite 1600
La Jolla, California 92037
858.812.9292 Fax: 858.812.9293

URS

April 1, 2011

Mr. Steven Sobel
Skidmore, Owings, & Merrill, LLP
One Front Street
San Francisco, CA 94111

Subject: Geotechnical Investigation and Fault Hazard Assessment
San Diego Central Court
Superior Court of California
County of San Diego
Administrative Office of the Courts
URS Project No. 276661010.10000

Dear Mr. Sobel:

URS Corporation Americas (URS) is pleased to present this Geotechnical Investigation and Fault Hazard Assessment report for the above referenced project. This submittal is intended to support the 100 percent Schematic Design Submission. URS prepared this report in accordance with our proposal dated May 25, 2010. Submittal of this report provides the final deliverables for Tasks 1, 2 and 3 referenced in the proposal.

We appreciate the opportunity to work with you on this project. If you have any questions, please contact us.

Sincerely,

URS CORPORATION

REGISTERED PROFESSIONAL ENGINEER CHARLES R. STROOP NO. 2298 Exp. 3/31/12 GEOTECHNICAL STATE OF CALIFORNIA

Charles Robin (Rob) Stroop, CEG 2298
Senior Project Geotechnical Engineer

CRS/DLS:mv

CERTIFIED ENGINEERING GEOLOGIST DAVID L. SCHUG No. 1212 Exp. 5/31/11 STATE OF CALIFORNIA

David L. Schug, C.E.G. 1212
Principal Engineering Geologist

URS Corporation
4225 Executive Square, Suite 1600
La Jolla, CA 92037
Tel: 858.812.9292
Fax: 858.812.9293

TABLE OF CONTENTS

Tables

Figures

Appendices

ASTM	American Society for Testing and Materials
CBC	California Building Code
FHWA	Federal Highway Administration
Kk	Modulus of Vertical Subgrade Reaction
MSL	Mean Sea Level
MW	monitoring wells
pcf	pounds per cubic foot
PGA	Peak Ground Acceleration
psf	pounds per square foot
PSHA	Probabilistic Seismic Hazard Assessment
ROW	Right-of-Way
SOM	Skimore, Owings & Merrill
SPT	Standard Penetration Test
URS	URS Corporation Americas

SECTION 1 INTRODUCTION

This report presents the geotechnical investigation and fault hazard assessment completed by URS Corporation Americas (URS) at the site proposed by the Judicial Council of California for the new San Diego Central Court. The site is bounded by Union, State, B and C Streets in downtown San Diego, California. Figure 1 shows the vicinity of the site.

1.1 PROJECT DESCRIPTION

The new Central Courthouse will have a total building area of about 704,000 gross square feet. The structure will be 22 stories high with two levels of subterranean parking. The project includes a pedestrian bridge that will cross over C Street from the new Central Courthouse to the Hall of Justice along with a tunnel that will connect the new Central Courthouse to the existing County of San Diego detention facilities. URS has prepared a separate report for the geotechnical investigation and fault hazard assessment of the proposed tunnel. We have based our understanding of the project on a description in the Schematic Design structural drawings prepared by Skidmore, Owings & Merrill (SOM).

The project site encompasses approximately 1.4 acres with surface elevations ranging from about +38 to +42 feet Mean Sea Level (MSL). The site is currently occupied by a parking lot. Three existing buildings ranging from one to five stories occupy the northeast portion of the site. Our understanding of the site is based on a Land Title Survey prepared by RBF Consulting and dated August 13, 2007. Figure 2 shows the existing conditions of the site.

1.2 PURPOSE AND SCOPE OF INVESTIGATION

The purpose of this investigation was to provide geotechnical recommendations for schematic design and assess the potential for fault rupture within the site. The scope of services included:

- Reviewing our project files for available subsurface information.
- Supervising the drilling and logging of five test borings.
- Supervising the excavation and logging of a fault trench.
- Performing laboratory testing on samples obtained from the borings.
- Performing a ground motion study (provided as a separate report).
- Preparing this report with findings, conclusions and geotechnical recommendations.

SECTION 2 GEOTECHNICAL INVESTIGATION

The geotechnical investigation included reviewing and interpreting previous subsurface investigations testing and completing additional subsurface explorations and laboratory testing.

2.1 PREVIOUS STUDIES

A previous fault investigation near the proposed San Diego Central Courthouse was completed by Law Crandall (Law Crandall, 2000). Their investigation covered the area between Broadway, A, Union and Front Streets. They reviewed previous fault hazard investigations in the area and completed numerous continuous core borings to depths ranging from 35 feet to 70 feet, and two trenches ranging in length from 110 feet to 195 feet. Law Crandall borings B2-1 through B2-11 provide data relevant to this project. These continuous core borings are aligned on the south side of B Street and are spaced east to west covering most of the area between State Street and Union Street. Subsurface anomalies (i.e., stratigraphic discontinuities) in the subsurface between borings) were suspected to represent possible faults, as further discussed below.

Figure 3 shows the locations of previous subsurface explorations. Appendix A provides copies of the logs of these explorations.

2.2 CURRENT SUBSURFACE EXPLORATIONS

Current subsurface explorations consisted of logging a trench (designated T-1, excavated with a backhoe along the southern perimeter of the site) to depths ranging from 15 to 18 feet and logging and obtaining soil samples from five test borings (designated Boring B4 through B8) that were advanced to depths ranging from 50 to 100 feet. The deepest test boring was instrumented with a groundwater monitoring well (MW). A rising head permeability test was conducted in this well.

Figures 2 and 3 show the locations of the current explorations. Appendix B provides logs of the trench and the test borings. Appendix B provides further discussion regarding the methods of subsurface explorations.

2.3 LABORATORY TESTING

Geotechnical laboratory testing was completed on representative soil samples to review the field classifications and to evaluate the physical and engineering characteristics of the subsurface materials. Representative soil samples were tested for moisture content, dry unit weight, plasticity index, grain size distribution, shear strength (direct shear), stiffness (consolidation), compaction characteristics (maximum dry unit weight and optimum moisture content relationship), pavement subgrade characteristics (R-value) and corrosion potential. Testing was performed in general accordance with the American Society for Testing and Materials (ASTM) International standards. The test results are shown at the corresponding sample locations on the log of explorations in Appendix B. Appendix C provides detailed laboratory test results.

SECTION 3 SITE CONDITIONS

Knowledge of the site conditions was developed by reviewing local geology and available information, site reconnaissance, and interpreting previous and current subsurface explorations.

3.1 GEOLOGIC SETTING

The downtown area is located in the coastal plain sub-province of the Peninsular Ranges Physiographic Province. The Peninsular Ranges consist of a series of elongated northwest-trending mountain ranges with intervening valleys and structural basins. The coastal plain runs parallel to the coastline and flanks the western edge of the Peninsular Ranges in San Diego County.

The coastal plain sub-province is characterized by a broad wedge of Tertiary age sedimentary deposits that increase in thickness to the west and which are capped by Quaternary terrace deposits. The terrace deposits define broad, relatively flat mesa surfaces. Rivers and secondary drainages have subsequently incised these Quaternary and Tertiary deposits to create the mesa and valley physiography that is characteristic of the San Diego area.

The downtown area of San Diego is a low relief coastal plain that gains elevation towards the low mesas bordering the area to the north and east. The coastal plain is underlain by the Bay Point Formation, a sedimentary deposit of Pleistocene age. The Pliocene age San Diego Formation is a sedimentary formation that underlies the Bay Point Formation at depth. Kennedy (1975) mapped all of downtown San Diego (inland of the historic high tide line) as the Bay Point Formation. The age of the Bay Point Formation is considered to span a fairly wide range. Kern (1977) interpreted much of the Bay Point Formation as being deposited about 125,000 years ago corresponding to a major high stand of sea level. Studies by Deméré (1981) and Artim and Streiff (1981) have yielded estimates of up to 560,000 years before present for marine deposits mapped as the Bay Point Formation in areas of downtown San Diego.

3.2 TECTONIC SETTING

The tectonic setting of the San Diego area is influenced by plate boundary interaction between the Pacific and North American lithospheric plates. This crustal interaction occurs along a broad zone of northwest striking, predominantly right slip faults that span the width of the Peninsular Ranges and extend offshore into the California Continental Borderland Province. At the latitude of San Diego, this zone extends from the San Clemente fault zone, located approximately 60 miles offshore of the San Diego coastline to the San Andreas fault, located about 70 miles east of San Diego.

Geologic, geodetic, and seismic data indicate that the faults along the eastern margin of the plate boundary, including the San Andreas, San Jacinto, and Imperial faults, including their associated branches, are currently the most active and appear dominant in accommodating the majority of the motion between the two adjacent plates. A smaller portion of the relative plate motion is being accommodated by northwest-striking faults to the west, including the Elsinore, Rose Canyon, San Miguel, and Agua Blanca fault zones; and offshore faults, including the Coronado Bank, San Diego Trough, and San Clemente fault zones. Many of these faults have experienced historic seismic activity.

3.2.1 Rose Canyon Fault

Downtown San Diego is generally considered to lie within the Rose Canyon Fault Zone. The on-shore portion of the Rose Canyon Fault Zone (RCFZ) extends along the northeast flank of Mount Soledad at La Jolla and continues southward along the eastern margins of Mission Bay (just west of Interstate 5) towards downtown San Diego (as shown on Figure 4). Between Mission Bay and San Diego Bay, the zone appears to widen and diverge. At least three principal faults extend across San Diego Bay to Coronado and beyond to the south. The three principal faults identified in San Diego Bay are the Spanish Bight, Coronado, and Silver Strand Faults.

3.2.2 Other Faults

Onshore in downtown San Diego there are two active fault zones that are designated as Alquist Priolo Earthquake Fault Zones (EFZ) by the California State Geologist. Active[1] faulting has been demonstrated in these zones and any development within the designated zones requires fault hazard investigations. Figure 4 shows the locations of the EFZ zones in the downtown San Diego. The main fault in the western EFZ is known as the San Diego Fault and is considered active in the locations mapped (Treiman, 2002). This fault has a north trend with a slight west component. As shown in Figure 4, it projects across downtown towards the southern end of the RCFZ. This projection extends to the east of the proposed San Diego Central Courthouse.

Figure 3 shows the approximate extent of the EFZ near the project site. The EFZ in this area bounds the northernmost known location of the San Diego fault, as encountered in a sewer trench excavation along Broadway, approximately mid-block between Front Street and First Avenue (Treiman, 2002). Law Crandall's previous fault investigation (2000) indicated several subsurface anomalies, thought to be possible continuations of the San Diego fault north of Broadway, as shown on Figure 3. None of these suspected faults appear to trend towards the site. Subsurface anomalies were not indicated in the line of closely spaced borings (Law Crandall's Borings B2-1 through B2-11) located along B Street along the north edge of the site (Figure 3). Faults were not suspected based on these borings.

3.2.3 Historical Seismicity

The site could be subject to moderate to strong ground shaking from a local or more distant, large magnitude earthquake occurring during the expected life span of the development. Figure 6 presents the locations of regional faults and historical earthquake epicenters in southern California.

To the east is the Salton Trough, a very active seismic zone that contains high slip rate faults including the southern San Andreas, Imperial and San Jacinto faults. The Imperial fault has ruptured twice in the last 70 years and the San Jacinto has displayed the highest activity level of any fault in the State. The recent Sierra El Major earthquake event occurred to the south of the Salton Trough in Mexico.

San Diego has experienced strong seismic shaking and minor damage from local and distant earthquakes, but none have been very destructive (Agnew and others, 1979). A large earthquake in 1862 may have

[1] "Active" faults are defined as faults that have moved in the past 11,000 years (Holocene epoch). The city of San Diego considers faults that have moved in the past approximately 2 million years to be "potentially active".

been centered locally (Anderson and others, 1989), and some researchers have suggested the 1862 event could have been in or near San Diego Bay. Paleoseismic studies suggest that the last large event on the Rose Canyon may have occurred on the order of 300 years ago.

3.3 GEOLOGIC UNITS

Within the depths of the explorations completed, the site is underlain by undocumented fill, alluvium, and the Bay Point Formation. Figure 5 provides a cross section with interpreted subsurface profiles; Figure 2 shows the location of the cross section. The following paragraphs briefly describe these units.

3.3.1 Undocumented Fill

Undocumented fill is soil placed with no records of observation and compaction testing by a Geotechnical Engineer. Across most of the site, undocumented fill was encountered to depths of about 5 to 7 feet. In trench T-1, the fill appeared to be placed in two phases since it is expressed as two distinct layers. The upper layer was observed to consist of reddish brown, clayey sand with gravel with random asphalt pieces and other debris. It typically extended to a depth of about 2 feet. The lower layer was observed to consist of dark brown, fine sandy clay with red brick fragments and other debris. In this urbanized setting localized zones of deeper fill may be present.

3.3.2 Alluvium

Alluvium underlies the undocumented fill across most of the site. The thickness of the alluvium is about 8 to 13 feet. The alluvium was observed to consist of yellowish brown, loose to medium dense, silty to clayey sand to soft sandy silt. Within Trench T-1, the alluvium was observed to be relatively homogeneous (un-stratified) silt, with scattered small gravel.

3.3.3 Bay Point Formation

The Bay Point Formation underlies the alluvium across the site. Within trench T-1, the upper portion of the Bay Point Formation was observed to consist of light reddish brown, fine to coarse sand with gravel and cobbles. The coarser materials likely represent minor channel fill and higher energy deposition of eroded terrace materials inland. Based on the borings, the Bay Point Formation was generally observed to consist of irregular layered sequences of silty sand, clayey sand, or sandy clay. Based on resistance to sampling, the relative density/consistency of these materials is typically dense to very dense or very stiff to hard.

3.4 GROUNDWATER

Groundwater was measured during drilling in July 2010 at depths ranging from about 39 to 40 feet (about 0 feet MSL). There is an existing monitoring well (installed by others) located in the northern portion of the site. Table 1 provides a summary of groundwater measurements. Figure 2 provides the locations of the borings and the monitoring wells.

SECTION 4 DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

The discussions, conclusions, and recommendations presented in this report are based on the information provided to us, results of previous and current subsurface explorations, laboratory testing, engineering evaluations and analyses, literature research, empirical correlation, and professional judgment. In our opinion, the site is geotechnically suitable for the proposed building and subterranean levels. The following sections of this report provide recommendations for schematic design and a discussion of construction considerations.

4.1 SEISMIC HAZARDS

4.1.1 Fault Rupture

Mapped faults in the downtown San Diego region typically have a north to northwest trend. Some short faults may also trend northeast. Fault hazard investigations in the downtown area attempt to expose subsurface materials in an east-west orientation in order to maximize the opportunity to capture transecting faults. Law Crandall's (2001) borings B2-1 through B2-11, located in B Street to the north of the project site (see Figure 3) indicate laterally consistent soil stratigraphy throughout the series of borings. A second series of closely spaced borings by Law Crandall, B3-1 though B3-12, just south of C Street, (see Figure 3) also did not indicate possible faults that (if present) would project towards the site.

Faults were not observed in a multi-block long trench along Broadway and E Street that, if present would project towards the site (Artim and Streiff, 1981). The active San Diego Fault was previously observed in the Broadway trench, approximately mid-block between Front and First Streets (Artim and Streiff, 1981). Based on additional subsurface investigations (URS, 2011a), as shown on Figure 3, the San Diego fault at its closest point to the site is mapped about one-half of a city block east of the site, and does not project towards the proposed courthouse site.

For this investigation, trench T-1 was excavated in an east-west orientation in the southern portion of the existing parking lot within the proposed footprint of the San Diego Central Courthouse. Below fill, the trench extended into a relatively massive (i.e., without sedimentary structure) pebbly silt with some coarse sandy gravel layers. The silt was mostly yellowish brown, containing reddish, oxidized-appearing sand and gravel. The upper portion of the silt was clay-rich, suggestive of soil profile development. The silt layer was described as "alluvium" based on the apparent mode of deposition. Judging from the material redness and oxidation, the silt layer appears to be appreciably older than the 8,200 year old radiocarbon-dated alluvium at the County Detention Center (Woodward-Clyde, 1993) and may be of late Pleistocene or possibly early Holocene age. There were no shears or other discontinuities observed that would suggest faulting within the pebbly silt layer.

The silt overlies oxidized gravels at the bottom of the trench assigned to the Pleistocene age Bay Point Formation. The trench depth provided an adequate exposure to observe and map the top of the gravels. The top of the gravels appears to locally mark an erosion surface, inasmuch as the top of the gravels appear to be cut by a channel between about the 20- to 30-foot trench stations (see Figure B-1). Otherwise, the gravels at the trench bottom were nearly horizontal, with no shears; gouge or other planar

features observed that would suggest faulting. The Bay Point Formation exposed in the lower portion of the trench showed stratigraphic continuity for the entire length of the trench, with no indications of a fault.

As discussed above, the age of the Bay Point Formation is reported to span a fairly wide time frame within the middle to late Pleistocene. Within the depth of the trench T-1 trench, probable late Pleistocene age materials are not faulted. The deeper correlative intervals of Law Crandall's borings along B Street also indicate the absence of faulting in older Pleistocene age materials (i.e., significantly older than the deposits exposed in the trench).

In our opinion, the site is not underlain by an active fault or potentially active fault. No other faults are known to project towards the site. The fault rupture hazard is considered low.

4.1.2 Strong Ground Motions

A site-specific Probabilistic Seismic Hazard Analysis (PSHA) has been completed (as a separate report, URS, 2011) incorporating the latest information on seismic sources and recently developed ground motion attenuation relationships. The objective of this analysis is to estimate the levels of ground motions that could be exceeded at the specified frequencies of 2% and 10% in 50 years (return periods of 2,475 and 475 years, respectively) and based on these results, develop a design response spectrum in accordance with ASCE 7-05 "Site-Specific Ground Motion Procedures for Seismic Design."

Table 2 provides probabilistic Peak Ground Acceleration (PGA) and 1.0 second Spectral Acceleration (SA) values for return periods of 475 and 2,475 years. For reference, Table 3 provides seismic design coefficients from the 2007 California Building Code (CBC). Values for Site Class C and D are provided to incorporate the uncertainty in this value and the variability across the site, and to be consistent with range of shear wave velocity (Vs30) of 275 and 375 meters/seconds adopted in the site specific PSHA.

4.1.3 Liquefaction

Groundwater only occurs within the Bay Point Formation, which is an older geological formation consisting of consolidated sediment, and therefore the potential for liquefaction and its secondary effects should be very low. Liquefaction is a phenomenon where loose, saturated coarse-grained soils (with less than 50% passing the No. 200 sieve) lose their strength and acquire some mobility from strong ground motion induced by earthquakes. The secondary effects of liquefaction include sand boils, settlement, reduced soil shear strength, lateral spreading and global instability due to liquefaction (flow slides) in areas with sloping ground.

4.1.4 Tsunami

The potential for large waves from a tsunami to affect the site is low. The site is located near the San Diego Bay, which is protected from ocean waves by Point Loma, North Island, and Coronado Islands. Tsunamis are seismically induced waves generated by sudden movements of the ocean bottom during submarine earthquakes, landslides, or volcanic activity.

4.2 DESIGN GROUNDWATER LEVEL

The stable groundwater level should be near 0 feet MSL but may be subject to tidal influence. Since fluctuations of the groundwater level are likely due to seasonal effects, changes in land use, and other factors, the maximum long-term groundwater level should be assumed to be at +3.0 feet MSL. This value should be used in the design of subterranean structures.

4.3 FOUNDATIONS

The proposed 22 story structure may be supported on a mat foundation at the lowest subterranean level (assumed to be no more than two levels). We understand cast-in-drilled-hole (CIDH) piles will support the pedestrian bridge crossing over C Street from the new Courthouse to the existing Hall of Justice.

4.3.1 Mat Foundations

Reinforced concrete mat foundations founded within the Bay Point Foundation are commonly used in downtown San Diego to support mid to high rise structures. An allowable vertical bearing pressure of 7,000 pounds per square foot (psf) may be used for the preliminary design of a mat foundation.

The geotechnical analysis of mat foundations typically uses the Modulus of Vertical Subgrade Reaction (k) developed from evaluations of settlement that consider actual loads, the plan layout of the mat and local variations in subsurface conditions. During design development, URS should provide estimates of the Modulus of Vertical Subgrade Reaction and review the plots of mat contact pressures and deflections for compatibility with the geotechnical assumptions used to develop the modulus and the strength and stiffness characteristics interpreted to exist within the materials supporting the foundation.

For this method, we recommend using more than one modulus, where the modulus typically increases from the center to the outer zones of the mat. Structural Engineers can apply the modulus as an average across the entire mat or divide the mat into two or more concentric zones and assign a specific modulus value to each zone, increasing the modulus from the inner to outer zones. This later method of application models the influence between adjacent "springs" that can develop from variations in contact pressure, deformation and other factors.

4.3.2 Cast-In-Drilled-Hole (CIDH) Piles

4.3.2.1 Axial Load Capacity

CIDH piles can derive support from friction and adhesion (shaft resistance) along the sides of the shaft and end bearing at the bottom of the shaft for the portion of the shaft that is embedded in the Bay Point Formation. The depth to the Bay Point Formation in the area of the proposed pedestrian bridge crossing over C Street may be assumed to be 15 feet below the existing ground surface. The CIDH pile should be embedded into the Bay Point Formation a minimum of two times the shaft diameter or five feet, whichever length is greater. The depth to the Bay Point Formation used for design should be confirmed by the Geotechnical Engineer. Groundwater will likely be deeper than the bottom of the foundations and do not need to be considered in the analyses.

An allowable shaft resistance of 500 psf and an allowable end bearing of 10,000 psf may be used to preliminarily evaluate the vertical capacity of CIDH piles. These parameters were developed using correlations between Standard Penetration Test blow count (SPT N) and shaft resistance and end bearing provided by Xanthakos (1995) and our previous experience in the area. Load capacities may be increased by one-third for short-term wind and seismic loads. The allowable soil resistances assume the pile center to center spacing is greater than eight pile diameters.

The allowable uplift resistance of a CIDH pile may be estimated using 70 percent of the allowable shaft resistance provided above. The calculation for allowable uplift capacity may add in the weight of pile.

The structural capacity of the pile shaft should be checked to ensure the maximum permissible compressive stress is not exceeded.

The settlement of a singly arranged CIDH pile designed and constructed using the geotechnical recommendations in this report should be less than one inch, excluding elastic deformation of the pile shaft.

4.3.2.2 Lateral Load Capacity

Resistance to lateral loads may be preliminary evaluated using an allowable passive pressure that is equivalent to a fluid weighing 200 pounds per cubic foot (pcf), which assumes the upper portion of the pile is embedded in stiff clay located above the groundwater level. This value also assumes CIDH piles will be spaced no closer than 6 feet on-center. To account for three-dimensional effects, the design can assume the area generating the passive resistance will have a width equal to twice that of the concreted pile diameter.

The acceptable horizontal deflection, rather than the geotechnical strength or structural capacity of the pile section, usually controls the lateral load capacity of piles. A common design practice is to limit the deflection at the pile head to less than ¼- to ½-inch. As part of design development, URS can provide soil resistance-pile deflection modeling (p-y analyses) when preliminary pile diameters and depths have been determined.

4.4 PERMANENT SUBTERRANEAN WALLS

Cast-in-place concrete or shotcrete walls have typically been used for permanent subterranean walls. The walls will be supported vertically by the mat foundation.

4.4.1 Lateral Earth Pressures

Permanent subterranean walls should be designed for lateral earth, seismic, and surcharge pressures. Figure 7 provides a lateral earth pressure diagram that may be used for preliminary design. Additional lateral earth pressure diagrams should be developed during design development to model geotechnical variability and the actual wall configuration.

4.4.2 Subsurface Drainage and Waterproofing

Design of basement walls above the design groundwater level elevation of +3 feet MSL should incorporate adequate drainage behind the wall to collect water from possible sources, such as irrigation or surface runoff, to reduce the potential for hydrostatic pressure buildup behind the wall. The drainage should consist of backfill materials that conform to the gradation requirements specified in Section 300-3.5.2 (Pervious Backfill) of the current "Standard Specifications for Public Works Construction." As an alternative to a pervious backfill, a prefabricated geocomposite drainage strip may be used if the wall is cast directly against the shoring. If prefabricated geocomposite drainage strips are adopted, the Geotechnical Engineer should review such details as the product ultimately selected, strip spacing and the tie into the collector drainage systems. Subsurface drainage should be directed to a suitable outlet.

Basement walls should be waterproofed for end use. Because of the potential for increased moisture from landscaping and underground utilities, it may be necessary to place the waterproofing over the entire height of the walls, depending on the functionality of the wall surface needed. A high degree of waterproofing may be needed if functionality requires the interior of the basement wall surface to be free of all leakage, seepage and damp patches. The lowest degree of waterproofing typically allows damp patches and minor leakage through construction joints.

4.5 EARTHWORK

Earthwork is expected to consist of excavations for subterranean levels and the mat foundation. Minor backfill of utility trenches and basement walls may also be required.

4.5.1 Site Preparation

Prior to grading operations, any existing pavements, structures, abandoned utilities and improvements, vegetation, and other debris and rubble should be removed and disposed of offsite. Soils containing organic matter should be removed from the proposed development area.

Upon reaching foundation subgrade levels, the exposed soils should be proof-rolled with heavy rubber-tired equipment to locate any loose or soft areas observed by a Geotechnical Engineer or field designate. Any loose or soft areas identified should be overexcavated and replaced with compacted fill soils, as directed by the Geotechnical Engineer.

To provide a relatively non-yielding and stable working surface during construction of the mat foundation, it may be desirable to place a thin layer of concrete slurry (waste slab), graded gravel, or decomposed granite at the bottom of the excavation. The final evaluation of this requirement should be made by the Contractor during excavation of the site.

4.5.2 Fill and Backfill

All fill and backfill should be compacted to a minimum relative compaction of 90 percent at a moisture content that is above the optimum moisture content. Relative compaction is defined as the ratio of the in-place dry unit weight to the maximum dry unit weight as determined by ASTM D1557. Fill soil should

be placed in loose lifts no thicker than 8 inches. A Geotechnical Engineer (of field designate) should observe all earthwork operations and test the compacted fills.

All engineered fill placed at the site should meet the criteria listed below:

- No oversize materials greater than 6 inches in maximum dimension.
- An Expansion Index (EI) less than 30 and a Plasticity Index less than 25.
- A relatively well-graded particle size distribution with at least 60 percent (by weight) passing a 1-inch sieve and fines content (percent, by weight, passing the No. 200 sieve) not exceeding 30 percent.

4.6 SHORING

Most of the previous developments in downtown San Diego have used driven steel H-piles or drilled and concreted H-piles (soldier piles) with wood or steel lagging between the soldier piles to provide temporary support for "bottom-up" construction. The shoring will require lateral support to construct a basement that extends more than one level. Most San Diego based Contractors use temporary ground anchors (tiebacks) behind the wall, rather than internal bracing (struts and walers) in front of the wall. The most common anchors are auger drilled and pressure grouted tendons. The number of levels of tiebacks will depend on the depth of excavation, lateral and other loads, and the serviceability requirements of nearby infrastructure.

4.6.1 Lateral Pressures

Shoring should be designed to resist the pressure exerted by the retained soils plus any additional lateral forces resulting from loads placed near the top of the excavation. It is recommended that cantilever shoring be designed for an active earth pressure that can be modeled as an equivalent fluid weighing 40 pounds per cubic foot (pcf). Tied-back shoring walls with a level backfill surface should be designed for a uniform lateral earth pressure of 25H pounds per square foot (psf) where H equals the height of the retained earth in feet. Figure 8 provides lateral pressures that may be used for the preliminary design of tieback walls.

Shoring where traffic and typical construction surcharges (e.g., concrete trucks) will be next to the excavation should be designed for an additional horizontal pressure of 100 psf as shown on Figure 8. Horizontal pressures should also be developed for other surcharge loads, such as rail lines, or crane and concrete pumps. The effect of these loads can be evaluated using Boussinesq distribution, or similar methods.

The above pressures assume there is level ground behind the wall and the depth of dewatering (if required) extends below the base of the excavation. The shoring wall should be embedded a sufficient depth beneath the bottom of the excavation to provide structural stability.

A coefficient of friction between the lagging and retained soil of 0.4 may be used in the design. The coefficient is equivalent to an interface friction angle (δ) of 21 degrees. It is typical to use 75% of the soil

friction angle for a soil-timber interface. The corresponding soil friction angle would be 28 degrees, which is conservative, considering the physical characteristics of the retained soils.

4.6.2 Tieback Anchors

The shoring will require tiebacks to provide lateral restraint. The most common tieback systems include auger-drilled pressure-grouted reinforced tendons and/or deformed bars. The drilled systems require the advancement of auger flights, removal of soil spoils, insertion of reinforcement, injection of grout within the design bonded length, a curing period for the grout, load testing of the anchor, grout injection of the unbonded length, and locking-off the anchor at the design load.

Federal Highway Administration (FHWA, 1999) recommends presumptive ultimate bond stresses for the ground/grout interface of pressure grouted anchors ranging from about 20,000 psf to 5,200 psf for dense to very dense, medium to coarse sand and about 7,300 psf to 3,000 psf for very stiff clay. These materials are typical of the materials encountered in the Bay Point Formation. We recommend an allowable unit shaft resistance of 4,000 psf for design of the tiebacks, assuming the bond zone is entirely within the Bay Point Formation.

The tieback boreholes should be at least 6 inches in diameter and drilled at an angle between 15 and 30 degrees below horizontal. The frictional resistance should be provided by competent materials of the Bay Point Formation. Local increases in anchor inclination may be needed to accommodate right-of-way (ROW) or utility restrictions. However, as the anchor inclination increases from the horizontal, there is a decrease in lateral efficiency with an increase in the vertical component. The ability of the shoring system to resist the anchor downward load components should be considered in the shoring design.

For the design of grouted tieback anchors, the bond between anchor and soil be considered effective only beyond the inclined "slip plane" shown in Figure 8. All anchor excavations should be properly cleaned of loose material within the bonded length. The unbonded length between the slip plane and the wall should not be assumed to provide anchorage for the wall. Before testing, the anchors should be grouted only to the slip plane.

4.6.3 Load Testing

All anchors should be tested to an appropriate overload based on the judgment of the Shoring Engineer before they are accepted. The anchors should be performance and proof tested in accordance with FHWA (1996) or Post Tensioning Institute (PTI, 1996) recommendations. Modification to the anchor design and/or additional load tests may be required depending on the results of the load testing program. URS should observe and record the installation of the anchors to verify the assumed soil and geologic conditions. URS should also observe and record the testing and lock-off of the anchors.

4.6.4 Installation Considerations

Fill and alluvium extend to depths of 15 to 20 feet that could cave during drilling for the installation of tiebacks and soldier piles. In addition, stressing against these soils may require "stressing walers" or "stressing frames" to reduce the potential for excessive deflections during tieback testing. Considering the low strength of these soils, the bond zone for the upper level of tiebacks should be restricted to the

portion of the anchor that is embedded within the Bay Point Formation, or a lower soil-grout shear resistance should be used to design anchors with bond zones in fill and/or alluvium. The Geotechnical Engineer should review the shoring design relative to tieback embedment within alluvium and provide additional recommendations, if needed.

The City of San Diego restricts the use of tiebacks in their Right of Way (ROW). The Shoring Designer and Contractor should review the latest City guidelines (City of San Diego, 2011) and plan the design and construction of the shoring accordingly.

4.6.5 Solider Piles

The shoring system will provide resistance to lateral pressures using passive soil pressures against the embedded portions of the soldier piles. An allowable passive soil pressure that is equivalent to a fluid weighing 400 pcf may be used for dense formational soils located above the groundwater level and an allowable passive soil pressure that is equivalent to a fluid weighing 200 pcf may be used for soils below the groundwater level. These values assume that the soldier piles will be spaced no closer than 6 feet on-center. To account for three-dimensional effects, it can be assumed that the area generating the passive resistance will have a width equal to twice that of the concreted pile diameter.

Soldier pile locations should be drilled and filled with concrete for the full depth of the passive resistance zone. The design value assumes a horizontal surface for the soil mass extending at least 10 feet in front of the face of the pile, or three times the height of the surface generating passive pressure, whichever is greater.

The vertical component of the tieback load should be evaluated to minimize the potential for bearing failure and/or excessive vertical wall movement. An allowable shaft resistance of 600 psf may be used on the embedded portion of the soldier pile to evaluate allowable bearing capacity.

4.6.6 Shoring Stability

Most shoring systems should be stable against geotechnical failure mechanisms, such as external stability, foundation heave and hydraulic failure. Such failure mechanisms are unlikely at the site due to the shear strength of the Bay Point Formation.

The Shoring Engineer is responsible for evaluating structural failure mechanisms, such as the lateral and axial capacity of the soldier pile (bending or penetration failure), rupture of the temporary anchorage and yielding of the lagging.

4.7 GROUNDWATER CONTROL

Groundwater control should not be necessary considering the two levels of subterranean parking and the current design groundwater levels. If construction extends below groundwater, the area ahead of the excavation must be dewatered to reduce the possibility of soil instability at the bottom of the excavation and to allow for dry, firm working conditions. In these instances, the groundwater surface should remain at least 5 feet below the bottom of the excavation until the foundations are poured and adequate building loads are in place to resist hydrostatic uplift. URS can provide additional evaluations and

recommendations for groundwater control if the design of the project should change such that it may be necessary to globally dewater the site for construction.

4.8 MONITORING OF DEEP EXCAVATION

The Contractor typically implements a monitoring program that should mitigate the risk of distress to existing infrastructure from potential horizontal or vertical movement (subsidence) of the ground surrounding the excavation to an acceptable level. The program usually incorporates deformation monitoring points installed on the shoring and on the ground behind the shoring. A baseline dataset is established before excavation begins with weekly, or more frequent readings during the stages of underground construction that have the potential to cause subsidence.

For this project, assuming that dewatering is not necessary, the critical stages of underground construction are installation of the shoring components (soldier piles, lagging and ground anchors) and excavation. The following subsections provide a discussion of these mechanisms, followed by a summary of the types nearby infrastructure and published tolerable deformations.

4.8.1 Installation

Subsidence from installation of the shoring components should be negligible to low with proper design and construction. Subsidence should be confined to disturbance of local areas near the installation from construction methods, such as drilling and grouting. To reduce the potential for excessive subsidence from caving soils, it may be necessary to use temporary casing to install tiebacks and soldier piles through alluvium. To reduce the potential for sloughing, lagging should be installed soon after excavation to minimize the duration the excavation is unsupported.

4.8.2 Excavation

Lateral deflection of the shoring as excavation proceeds downward should be the primary cause of excavation-induced subsidence. The potential for adverse subsidence should be low with proper design, construction, and monitoring during installation of the shoring and construction of the permanent walls. Maximum deflection of the shoring is anticipated to occur before installation of the upper row of tiebacks when the shoring above the excavation bottom is cantilevered. Typically, the Shoring Engineer adopts a maximum lateral deflection of less than 1 inch for the cantilevered portion of the shoring, considering structural mechanisms. For the full depth of excavation, FHWA (1999) reports that subsidence of the ground surface immediately behind tieback shoring that is properly constructed in "sand" should average about 0.15% of the height of the excavation, which is estimated to be less than one inch for a 25-foot deep excavation. Subsidence of the ground surface attenuates with distance from the edge of the excavation.

4.8.3 Nearby Infrastructure

Infrastructure that is within the zone of influence of excavation consists of the trolley tracks on C Street and underground utilities in the City streets surrounding the site. The trolley tracks are located near the edge of the zone of influence, which is typically considered as a horizontal distance from the edge of the excavation that is equal to the depth of the excavation. Within City streets, the primary underground utilities are storm drains, sewer, water, and gas lines, and a variety of electric and telecommunication

lines. Unless the utilities are very old, or already damaged or deteriorated, they have tolerated the ground deformation from similar deep excavations in downtown San Diego without distress. Design development should accurately locate the portion of utilities and assess their condition.

4.8.4 Excavation Monitoring

A survey monitoring program for the Shoring should be jointly developed by the Shoring Engineer and the Geotechnical Engineer and shown on the shoring drawings. The monitoring program should adopt the following provisions:

- A pre-excavation site meeting should be held to review and finalize the monitoring program.
- The locations of survey monitoring points should be reviewed and finalized. In addition, the Contractor should independently assess the monitoring program and confirm that the program is sufficient to monitor the effects of the method of shoring and dewatering (if required), considering the serviceability of all infrastructure that is within the zone of influence, or submit proposals for additional and/or different types of instrumentation as necessary. The Contractor is responsible for any additional monitoring considered necessary for construction safety.
- A "baseline" set of readings should be established for all monitoring points that are not installed directly on the shoring. Baseline monitoring should begin at least four weeks before commencement of dewatering and/or installation of the shoring, whichever activity starts first.
- The horizontal position and elevation of the monitoring points should be referenced to a stable datum outside of the zone of influence (from shoring and dewatering) in areas not subject to ground movement or other forms of disturbance.
- Groundwater levels should be monitored weekly in available wells. If wells are not available, additional wells should be installed for monitoring purposes (if global dewatering is needed).
- The Contractor should immediately advise the Shoring Engineer and Geotechnical Engineer of horizontal or vertical movement in any monitoring point (incremental or cumulative) that approaches ¾ inch, which assumes a serviceability limit equal to a total settlement of 1 inch.
- The Contractor should immediately implement actions to reduce the potential for further movement, if the cumulative reading in a monitoring point approaches ¾ inch. The frequency of reading should be increased as recommended by the Shoring Engineer and/or Geotechnical Engineer.
- The Shoring Engineering and/or the Geotechnical Engineer should instruct the Contractor to install and monitor additional monitoring points, if needed, considering such factors as the trend that develops from monitoring or subsurface conditions exposed during excavation.

4.9 FLEXIBLE PAVEMENTS

The structural design of Asphalt Concrete (AC) flexible pavement depends primarily on anticipated traffic conditions, subgrade soils, and construction materials. We have assumed a Traffic Index (TI) of 5.5 for the passenger car traffic and 7.0 for the heavy truck and bus traffic, which should be confirmed by the project Civil Engineer. We have assumed an R-value of 20 as representative of the as-graded condition of

the pavement subgrade. Additional R-value testing should be performed on samples obtained from the finished subgrade.

Table 4 provides recommended flexible pavement structural sections. The design assumes a pavement life of 20 years with normal maintenance. The sections assume properly prepared subgrade consisting of at least 12 inches of soil compacted to a minimum of 95% relative compaction, as determined by the latest version of ASTM D1557. The Aggregate Base should be placed at a minimum relative compaction of 95%. Aggregate Base should conform to Section 26 of the Caltrans Standard Specifications or Section 200-2 of the "Standard Specification for Public Works Construction".

4.10 CORROSION POTENTIAL

Table 5 provides a summary of the resistivity, pH, and water-soluble sulfate and chloride test results. It has been our experience with local Corrosion Engineers that resistivity results between 1,000 and 2,000 ohm-cm may be considered moderately corrosive to metallic utility piping and conduits. Resistivity results between 500 and 1,000 ohm-cm may be considered corrosive to metallic utility piping and conduits. A Corrosion Engineer should be consulted for additional design recommendations.

The results of the tests indicate that the soil has low potential for chloride attack and that sulfate attack to concrete may be considered low. Table 7-2 the Portland Cement Association's (PCA) publication "Design and Control of Concrete Mixtures", states that sulfate exposure from concentrations less than 0.10 percent is considered negligible (PCA, 1988).

Elements exposed to groundwater should be designed to resist an environment similar to seawater exposure. This will likely require a Type II or V Portland cement to be used in the concrete placed against soil.

4.11 ADDITIONAL GEOTECHNICAL SERVICES

Development of the project will require further geotechnical services. Based on other projects in downtown San Diego, geotechnical services for design are anticipated to consist of the following:

- Providing estimates of the Modulus of Vertical Subgrade Reaction and reviewing the plots of mat contact pressures and deflections for compatibility with the geotechnical assumptions used to develop the modulus.
- Soil resistance-pile deflection modeling (p-y analyses) for CIDH piles.
- Developing lateral earth pressure diagrams to model geotechnical variability and the actual wall configuration.
- Developing sets of acceleration time histories matched to the design response spectrum.
- Reviewing grading, shoring and structural plans and specifications relative to the recommendations of the geotechnical report.
- Finalizing the geotechnical report as needed for the grading and shoring permit and structural building permit.

- Responding to comments by the reviewing agencies.

4.12 CONSTRUCTION OBSERVATION AND TESTING

Based on our experience working on other projects in downtown San Diego, geotechnical services during construction are anticipated to consist of the following:

- Observation and compaction testing during earthwork. Typically only minor compaction testing should be required since the project does not include the placement and compaction of large quantities of fill.
- Continuous onsite evaluation during grading and installation of the shoring system to verify the lack of faulting within the building footprint. The City of San Diego requires this type of observation to obtain a grading and shoring permit.
- Observation to verify that the foundation excavations extend to proper depth and bearing strata.
- Continuous observation of soldier beam and tieback installation to verify soldier pile embedment depths and to observe tieback anchor installation and load testing.
- Materials testing and inspection related to the shoring construction. This activity requires a technician to prepare grout cubes for compressive strength testing in a laboratory. A technician will also perform welding inspections.
- Verification that the tiebacks have been disengaged following completion of the project.
- Evaluation of monitoring data. For this activity, URS should be provided with timely copies of all shoring monitoring data.
- Preparation of an "As-Graded Soils and Geological Report."
- Preparation of an "As-Graded Fault Report."

SECTION 5 LIMITATIONS

We observed only a very small portion of the pertinent subsurface conditions. The recommendations made herein are based on the assumption that soil conditions do not deviate appreciably from those found during our field investigation.

Geotechnical engineering and geologic sciences are characterized by uncertainty. Professional judgments presented herein are based partly on our understanding of the proposed construction and partly on our general experience. Our engineering work and judgments rendered meet current professional standards; we do not guarantee the performance of the project in any respect.

SECTION 6 REFERENCES

Agnew, D. and others, 1979. "Earthquake History of San Diego in Earthquakes and Other Perils, San Diego Region," Abbott, P.L. and Elliott, W.J. ed, p. 11-21.

Anderson, J. G., T. Rockwell, and D. C. Agnew, 1989. "A Study of the Seismic Hazards in San Diego," Earthquake Spectra, Vol. 5, No. 2.

Artim, E. and D. Streiff, 1981. Trenching the Rose Canyon Fault Zone. United States Geological Survey, USGS Contract No. 14.

ASCE/SEI, 2005. "American Society of Civil Engineers/Structural Engineering Institute 7-05, Minimum Design Loads for Buildings and Other Structures".

Bowles, Joseph E., 1996. "Foundation Analysis and Design," Fifth Edition, McGraw-Hill, Inc.

City of San Diego, 2011. "Guidelines for Geotechnical Reports" www.sandiego.gov/development-services/industry/pdf/geoguidelines.pdf.

Deméré, T., 1981. "A Newly Recognized late Pleistocene Marine Fauna from the City of San Diego," in Geologic Investigation of the Coastal Plain, Abbott, P.L., and O'Dunn, eds.

FHWA, 1999. "Geotechnical Engineering Circular No. 5, Ground Anchors and Anchored Systems," Federal Highway Administration, U.S. Department of Transportation, Report No.FHWA-IF-99-015, June 1999.

Kennedy, M.P. 1975, "Geology of the San Diego Metropolitan Area", California Division of Mines and Geology, Bulletin 200.

Law Crandall, 2000. "Report of Fault Surface Rupture Investigation. County of San Diego Property Between Broadway and A Street and Union Street and Front Street, City of San Diego, California," prepared for the County of San Diego, dated September 2000.

NAVFAC, 1982. Foundations and Earth Structures, Design Manual 7.2. Department of the Navy, Naval Facilities Engineering Command, May 1982.

PTI 1996. "Recommendations for Prestressed Rock and Soil Anchors" Post Tensioning Institute, March 1996.

Reichle, M., P. Bodin and J. Brune, 1985. "The June 1985 San Diego Earthquake Swarm (abstract)," EOS Transactions, American Geophysical Union, Vol. 66. p. 952.

Treiman, J. A., 2002. "Silver Strand Fault, Coronado Fault, Spanish Bight Fault, and Downtown Graben, Southern Rose Canyon Fault Zone, San Diego, CA," California Division of Mines and Geology, Fault Evaluation Report FER

URS, 2011. "Site-Specific Seismic Hazard Analyses and Development of Design Response Spectra for the San Diego Central Courthouse, San Diego, California," draft in progress report dated March 2011.

URS, 2011a. "Fault Hazard Assessment, Pedestrian Tunnel San Diego Central Court, Superior Court of California, County of San Diego, Administrative Office of the Courts,'" report dated April 1 2011.

URS, 2001. "Geotechnical Investigation, Santa Fe Place Property, Parcel 4, San Diego, California," dated August 30, 2001.

Xanthakos. 1995. Bridge Substructure and Foundation Design, Prentice Hall, 844p.

Table 1
Summary of Groundwater Measurements
San Diego Central Courthouse

Boring	Date Measured	Depth of Groundwater (ft. bgs)
URS B-5/MW-1	July 6, 2010	36.3
Existing MW	July 6, 2010	37.1
URS B-5/MW-1	Aug 25, 10	35.9
Existing MW	Aug 25, 10	37.9
URS B-5/MW-1	March 21, 2011	35.5
Existing MW	March 21, 2011	36.1

Table 2
Probabilistic Ground Motions
San Diego Central Courthouse

Return Period (years)	PGA [a,b] (g)	1.0 Sec SA [a,c] (g)
475	0.37	0.33
2,475	0.75	0.82

Notes:
a. Draft subject to finalizing PSHA (URS, 2011)
b. PGA = Peak horizontal ground acceleration
c. SA = Spectral acceleration

Table 3
2007 California Building Code (CBC) Seismic Coefficients
San Diego Central Court House

Parameter	Value		2007 CBC Reference
Site Class	C	D	Table 1613.5.2
Mapped Spectral Acceleration - Short Period, S_s (g)	1.568	1.568	Figure 1613.5 [a]
Mapped Spectral Acceleration - 1 Sec. Period, S_1 (g)	0.614	0.614	Figure 1613.5 [a]
Site Coefficient - Short Period, F_a	1.000	1.00	Table 1613.5.3(1) [a]
Site Coefficient - 1 Sec. Period, F_v	1.300	1.50	Table 1613.5.3(2) [a]
MCE [b] Spectral Response Acceleration - Short Period, S_{MS} (g)	1.568	1.568	Equation 16-37, $S_{MS}=F_aS_S$
MCE [b] Spectral Response Acceleration - 1 Sec. Period, S_{M1} (g)	0.798	0.921	Equation 16-38, $S_{M1}=F_vS_1$
Design Spectral Response Acceleration - Short Period, S_{DS} (g)	1.046	1.046	Equation 16-39, $S_{DS}=2/3*S_{MS}$
Design Spectral Response Acceleration - 1 Sec. Period, S_{D1} (g)	0.532	0.614	Equation 16-40, $S_{D1}=2/3*S_{M1}$

Notes:
a. Calculated using USGS program "Earthquake Ground Motion Parameters" Version 5.0.9a.
b. MCE – Maximum Considered Earthquake.
c. Site coordinates used were 32.717296, -117.166217

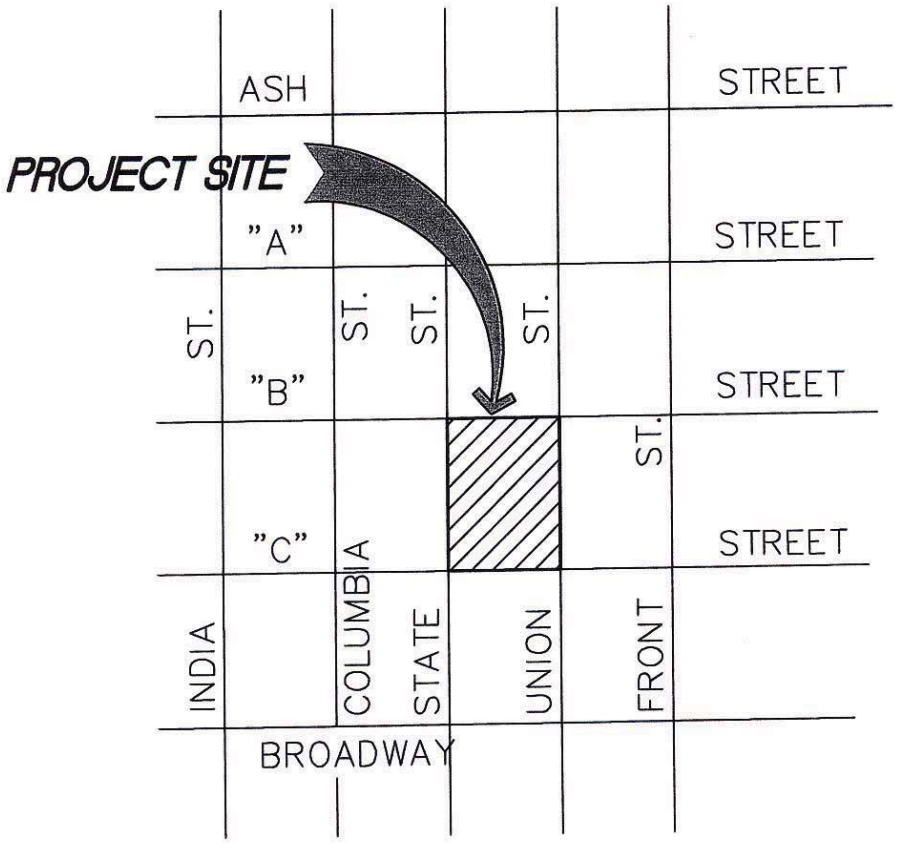
Table 4
Flexible Pavement Structural Sections
San Diego Central Courthouse

Area	Traffic Index	Asphalt Thickness in	Base Thickness in.
Passenger Car Traffic	5.5	3	7
Driveways and Bus Traffic	7.0	4	12

Table 5
Summary of Soil Corrosivity Test Results
San Diego Central Courthouse

Sample	USCS Symbol	pH	Minimum Resistivity (ohm-cm)	Sulfate Content (ppm)	Chloride Content (ppm)
B-1 @ 15 ft.	SP-SM	8.0	2,550	ND	90
B-2 @ 15 ft.	SP-SM	7.6	5,250	81	60
B-4 @ 5 ft.	CL	7.1	2,000	15	120
B-2 @ 2 ft.	CL	6.4	1,550	24	135
B-6 @ 3 ft.	CL	7.1	3,500	6	75
B-7 @ 10 ft.	SM	7.7	3,500	ND	75

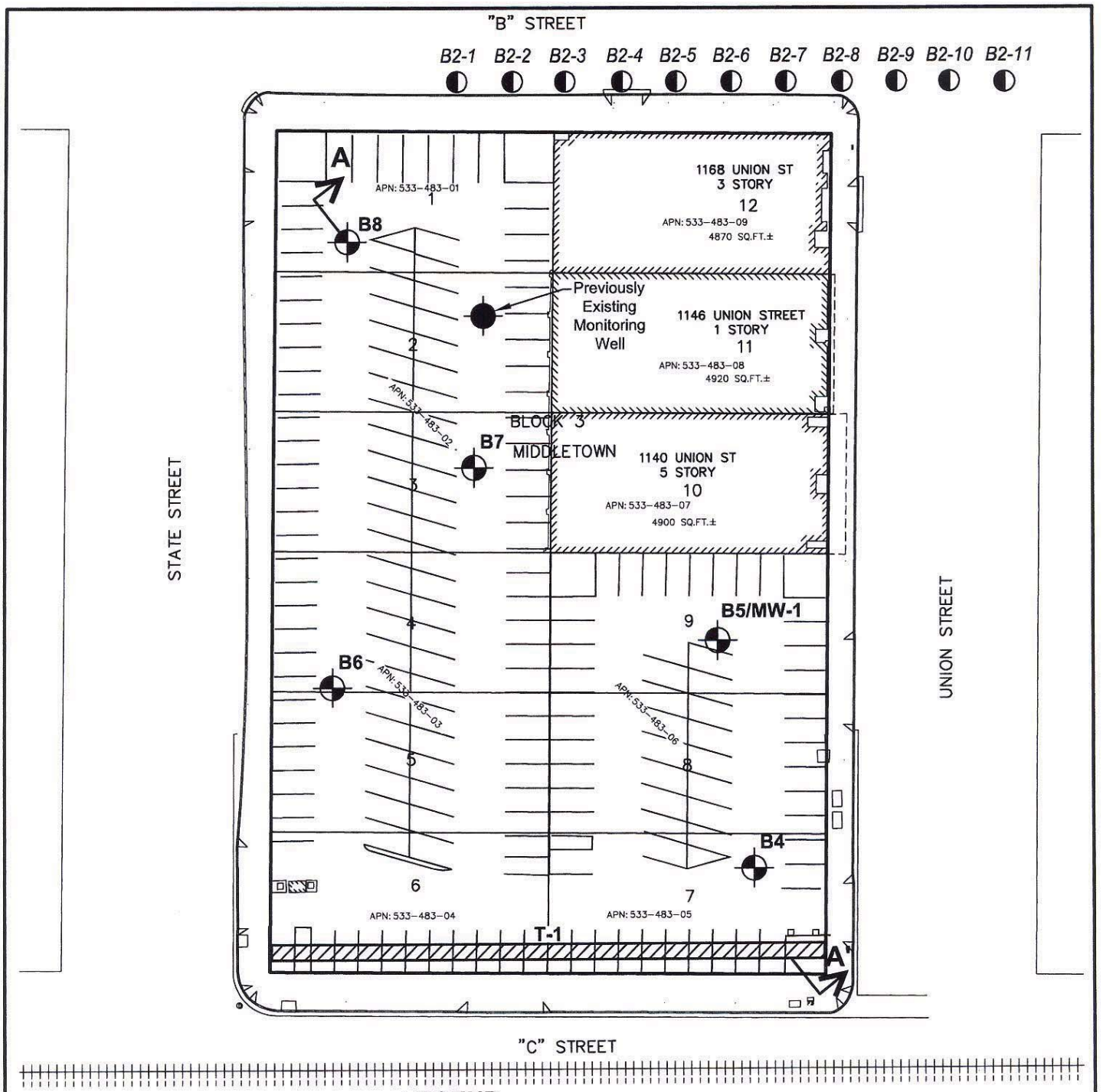
ND = Not Detected



VICINITY MAP
SAN DIEGO CENTRAL COURT
SAN DIEGO, CALIFORNIA

URS	NOT TO SCALE	CHECKED BY: CRS	DATE: 04-01-11	FIG. NO: 1
		PM: CRS	PROJ. NO: 27661014.10000	

X:\27661014\Courthouse VicMap and Site Plan.dwg Mar 30, 2011 - 10:14am



LEGEND

- INDICATES APPROXIMATE LOCATION OF TEST BORING (URS, 2010)
- INDICATES APPROXIMATE LOCATION OF CONTINUOUS CORE BORING (LAW CRANDALL, 2000)
- INDICATES APPROXIMATE LOCATION OF TEST TRENCH (URS, 2010)
- A — INDICATES APPROXIMATE LOCATION OF GEOLOGIC CROSS SECTION

REFERENCE: "ALTA/ACSM Land Title Survery", RBF Consulting, dated August 13, 2007

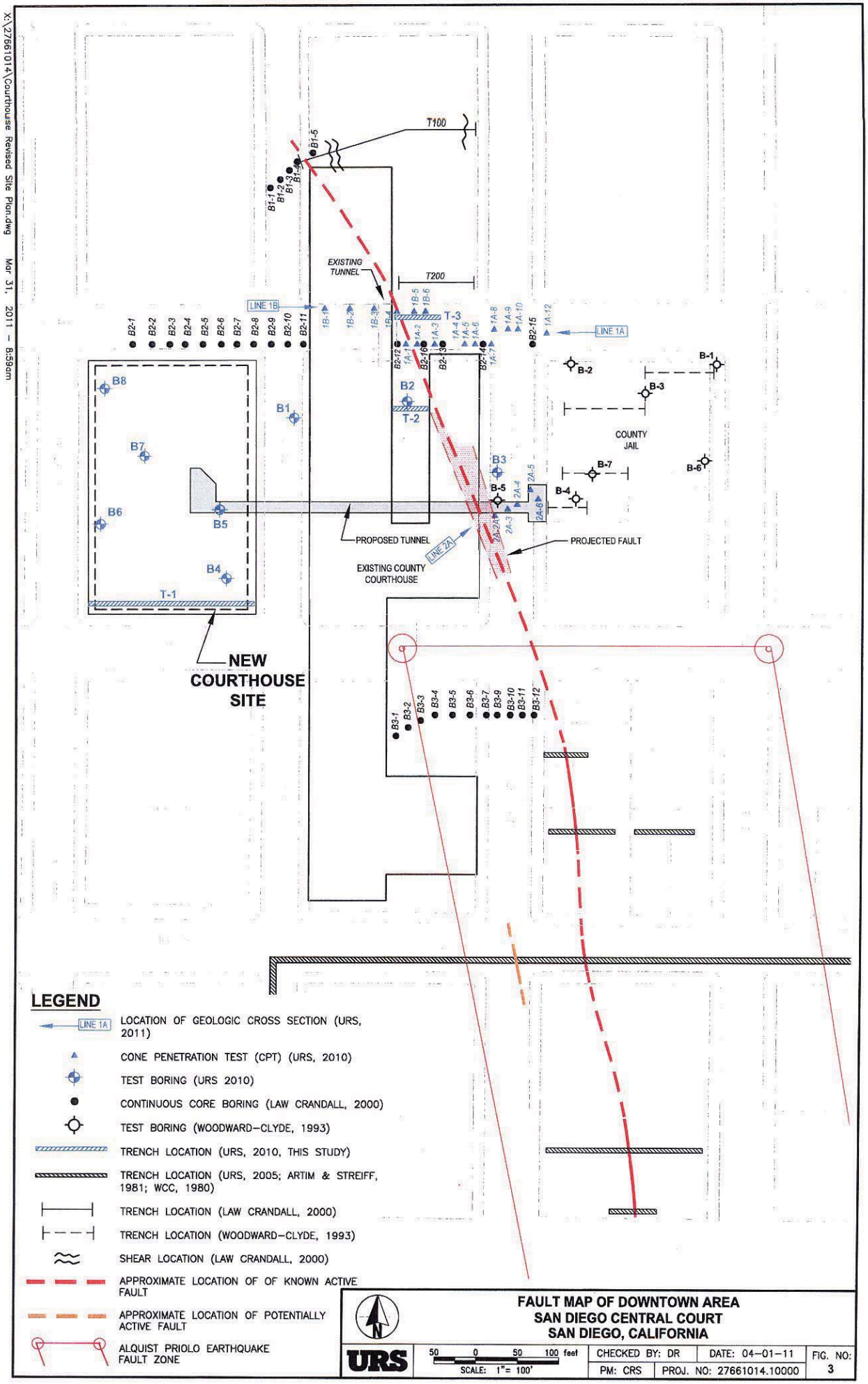
SITE PLAN
SAN DIEGO CENTRAL COURT
SAN DIEGO, CALIFORNIA

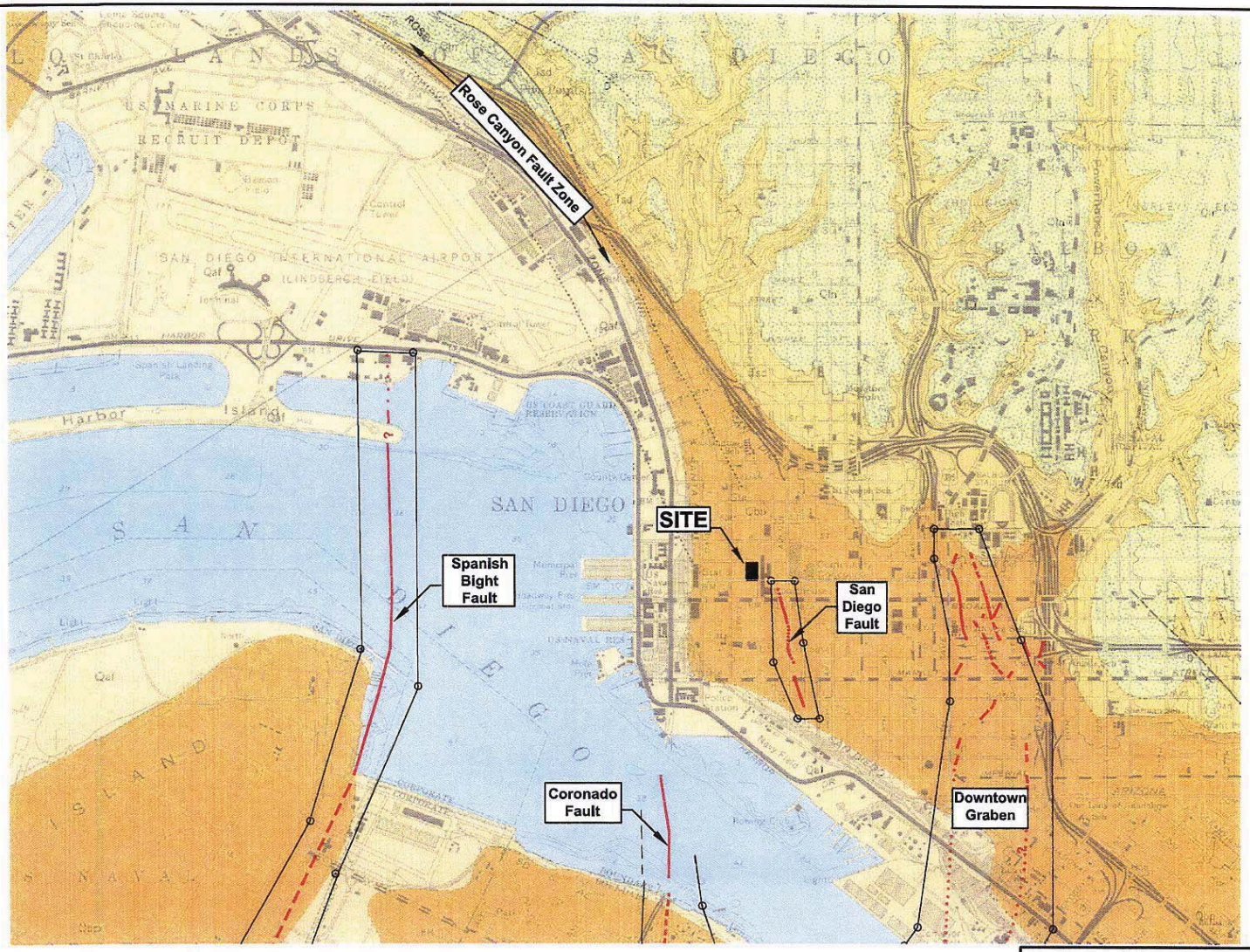
URS

25 0 25 50 Feet
SCALE: 1"= 50'

CHECKED BY: CRS	DATE: 04-01-11	FIG. NO:
PM: CRS	PROJ. NO: 27661014.10000	2

X:\27661014\Courthouse VicMap and Site Plan.dwg Mar 30, 2011 - 11:28am


X:\27661014\Courthouse Revised Site Plan.dwg Mar 31, 2011 - 8:59am
T100
T200
T-3
T-2
T-1
EXISTING TUNNEL
LINE 1B
LINE 1A
LINE 2A
B1-1
B1-2
B1-3
B1-4
B1-5
B2-1
B2-2
B2-3
B2-4
B2-5
B2-6
B2-7
B2-8
B2-9
B2-10
B2-11
B2-12
B2-13
B2-14
B2-15
B2-16
1B-1
1B-2
1B-3
1B-4
1B-5
1B-6
1A-1
1A-2
1A-3
1A-4
1A-5
1A-6
1A-7
1A-8
1A-9
1A-10
1A-12
B1
B2
B3
B4
B5
B6
B7
B8
B-1
B-2
B-3
B-4
B-5
B-6
B-7
COUNTY JAIL
2A-1
2A-2
2A-3
2A-4
2A-5
2A-6
B3-1
B3-2
B3-3
B3-4
B3-5
B3-6
B3-7
B3-9
B3-10
B3-11
B3-12
PROPOSED TUNNEL
PROJECTED FAULT
EXISTING COUNTY COURTHOUSE
NEW COURTHOUSE SITE
LEGEND
LINE 1A LOCATION OF GEOLOGIC CROSS SECTION (URS, 2011)
CONE PENETRATION TEST (CPT) (URS, 2010)
TEST BORING (URS 2010)
CONTINUOUS CORE BORING (LAW CRANDALL, 2000)
TEST BORING (WOODWARD-CLYDE, 1993)
TRENCH LOCATION (URS, 2010, THIS STUDY)
TRENCH LOCATION (URS, 2005; ARTIM & STREIFF, 1981; WCC, 1980)
TRENCH LOCATION (LAW CRANDALL, 2000)
TRENCH LOCATION (WOODWARD-CLYDE, 1993)
SHEAR LOCATION (LAW CRANDALL, 2000)
APPROXIMATE LOCATION OF OF KNOWN ACTIVE FAULT
APPROXIMATE LOCATION OF POTENTIALLY ACTIVE FAULT
ALQUIST PRIOLO EARTHQUAKE FAULT ZONE
N
FAULT MAP OF DOWNTOWN AREA
SAN DIEGO CENTRAL COURT
SAN DIEGO, CALIFORNIA
URS
50 0 50 100 feet
SCALE: 1"= 100'
CHECKED BY: DR
DATE: 04-01-11
PM: CRS
PROJ. NO: 27661014.10000
FIG. NO: 3



LEGEND

- Qaf — Artificial Fill
- Qbp — BayPoint Formation (Pleistocene)
- Qln — Lindavista Formation (Pleistocene)
- Tsd — San Diego Formation (Pleistocene)
- Contact (dashed where approximate, dotted where concealed)
- Fault (dashed where approximate, dotted where concealed: U=upthrown, D=Downthrown)
- Strike and Dip of bedding
- Approximate location of known fault
- Alquist Priolo Earthquake Fault Zone

REFERENCE: Kennedy, M.P., 1975 Geology of the Point Loma Quadrangle. San Diego County, California. CDMG Bulletin 200.

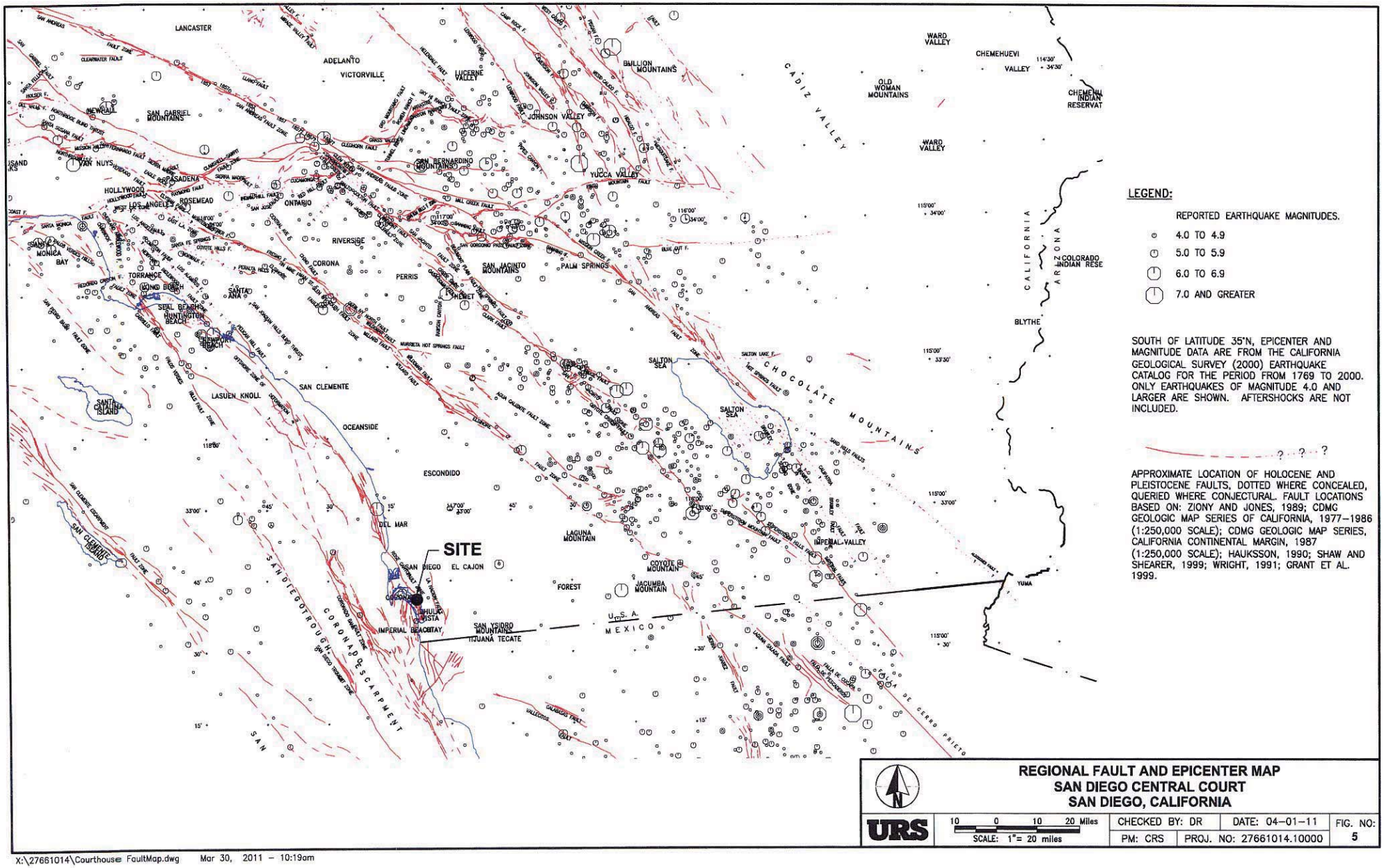
LOCAL GEOLOGY MAP
SAN DIEGO CENTRAL COURT
SAN DIEGO, CALIFORNIA

URS

1000 0 1000 2000 Feet
SCALE: 1"= 2000'

CHECKED BY: DR | DATE: 04-01-11 | FIG. NO: 4
PM: CRS | PROJ. NO: 27661014.10000

X:\27661014\Courthouse Geology Map.dwg Mar 31, 2011 - 9:08am



REGIONAL FAULT AND EPICENTER MAP
SAN DIEGO CENTRAL COURT
SAN DIEGO, CALIFORNIA

URS

10 0 10 20 Miles
SCALE: 1"= 20 miles

CHECKED BY: DR	DATE: 04–01–11	FIG. NO:
PM: CRS	PROJ. NO: 27661014.10000	5

X:\27661014\Courthouse FaultMap.dwg Mar 30, 2011 – 10:19am

ATTACHMENT 6

OCCM FAST TRACK FEASIBILITY STUDY

Fast Track Feasibility Study
New San Diego Central Courthouse

Superior Court of California,
County of San Diego

Developed by: Rudolph and Sletten, Incorporated
General and Engineering Contractors

October 15, 2010

ADMINISTRATIVE OFFICE
OF THE COURTS

OFFICE OF COURT CONSTRUCTION
AND MANAGEMENT

San Diego Central Courthouse Project

I. Executive Summary

The study has found that use of "Fast Track" processes to accelerate the conventional construction delivery process for the new San Diego Central Courthouse would reduce construction costs by between$13.4 million and $20.3 million, improve quality, and shorten the project delivery duration by between 7 and 11 months depending on the approach that is ultimately pursued. This report on the Fast Track options is intended as an AOC OCCM management decision-making tool.

With the primary goals of improving this delivery duration, decreasing total project cost, and improving project quality, a wide variety of design, procurement and delivery options were studied. Initial evaluations narrowed the likely field of options to two potential strategies...

Early Guaranteed Maximum Price (GMAX at 75% Complete CD) Option

- Initial GMAX (I-GMAX) commitment by CM at Risk based on 75% complete contract documents (CD).
- I-GMAX submission provides GMAX cap. With AOC acceptance and DOF approval, this would authorize construction funding.
- Traditional methods for procurement and release of individual trade packages continue after I-GMAX based on design completion levels and project critical path.
- Final GMAX (F-GMAX) provides documentation of procurement process for all trades, and adjusts I-GMAX value to F-GMAX value.

Design Assist / Design Build Option

- Procurement and award of key construction trade subcontracts at the end of the Preliminary Plan Phase.
- Integrates key trade input into the Working Drawing Phase design, value engineering and coordination process.
- Includes submittal and procurement of long lead critical path materials during the Working Drawing Phase.
- GMAX submission includes all agency approvals and benefits of design phase subcontractor input

Summary of Study Results:

AOC San Diego	Current Authorized	Design Assist-Design Build	Early GMax 75%
9/16/2010			
Acceleration of Start Date:			
Mobilize	12/2/2013	1/8/2013	4/30/2013
Complete	4/15/2016	5/25/2015	9/14/2015
Midpoint	2/7/2015	3/17/2014	7/7/2014
Years of Escalation	4.40	3.50	3.81
Escalation/yr	5.00%	5.00%	5.00%
Escalation Factor	1.24	1.19	1.20
Present Value	$399,452,464	$399,452,464	$399,452,464
Total, Escalated	**$495,000,000**	**$473,843,473**	**$480,985,932**
Reduction	**0**	**($21,156,527)**	**($14,014,068)**
SOM Impact	0	**$350,000**	**$350,000**
Addt'lTrade Design Cost		**$2,500,000**	**$0**
CM Early Design / Mgmt		**$150,000**	**$0**
Additional Procurement	0	**$180,000**	**$220,000**
Offsets	**$0**	**$3,180,000**	**$570,000**
Early Material Released	$ -	$ 65,000,000.00	$ -
Date Released	12/11/2013	4/20/2012	4/30/2013
Yrs Saved by Release	-	0.72	-
Escalation/yr	5.00%	5.00%	5.00%
Escalation Factor	1.00	1.04	1.00
Escalated Total		$67,325,760	
Early Material Savings	**$0**	**($2,325,760)**	**$0**
Additional Reduction	**$0**	**($2,325,760)**	**$0**
Total Potential Savings		**($20,302,287)**	**($13,444,068)**

Detailed backup is attached in the report body and appendices.

Recommended Approach: GMAX at 75% complete contract documents

At the 75% CD milestone of the Working Drawing Phase, a comprehensive Initial Guaranteed Maximum Price (I-GMAX) developed by the CM at Risk would be submitted to the DOF via the AOC. This packet would consist of a committed maximum price for the completion of the project. Details would include a mixture of competitive bids for select trades, detailed estimates where design is not yet biddable, and contingencies for areas still requiring development and finalization. The I-GMax is a contractual commitment by the CM at Risk for completion of the project within the total value of the I-GMAX. This I-GMAX would be submitted through the AOC to DOF for authorization of expenditures.

The Initial GMAX option is not as aggressive as the Design Build/ Design Assist; it does not yield the largest financial or schedule savings; but this recommended option entails a moderate

amount of administrative changes to current AOC OCCM practices, and therefore was judged to be easier to implement.

Key findings for this approach include:

Benefits:

- CM at Risk I-GMAX cap is in place prior to release of construction funds.
- This F-GMAX would, by contract, mandated to be at a value less than or equal to the I-GMAX.
- Potential savings of over $13.4 million dollars by reduction of escalation due to improved start date.
- Occupancy of the court building 7 months ahead of current schedule.
- Full documentation of competitive procurement submitted at conclusion of procurement process via the Final GMAX.

Procedural Exceptions Required:

- Moderate amount of administrative changes relative to current AOC OCCM practices
- Commitment of certain construction funds required 7 months earlier than currently scheduled. Anticipated cash flow prior to Final GMP is estimated at $83 million dollars.
- Authorization of I-GMAX would be based on 75% CD design intent, the detailed cost mode, and only a few trade bid results.
- AOC would have authority to release funds under the I-GMAX for key trade awards as they occur on a continual basis prior to the Final GMAX.
- Specific design contingencies would be a part of the I-GMAX in order to accommodate completion of project documents and authority approvals subsequent to the I-GMAX. Unexpended contingencies revert to the AOC's project budget.

Risk and Mitigation

- Risk 1: Possible adjustments required for unforeseen regulatory modifications to early committed trades.
- Mitigation: Early involvement by regulatory agencies to provide rulings and upper level buy in.

- Risk 2: AOC, and Court reviews must be completed at the 50% complete CD milestone and resolved prior to the time that the I-GMAX is identified. Potential adjustment of early GMAX scopes if significant adjustments are made by AOC in the final design stages.
- Mitigation: Increase early training of the reviewers via formal sessions. Utilize 3-D modeling to improve comprehension of early design reviews by end users. Require detailed scope review meetings with upper level representatives of each firm on a monthly basis after I-GMAX to identify and validate scope change.
- Inherent in the proposed early GMP at 75% is the required adjustment to the standard construction document review and comment process the AOC and regulatory agencies are used to. The early GMP will require review and final comment by all parties on the 50% complete construction documents in order to have them incorporated in the 75% GMP documents

The AOC/Courts ability to understand the design and formulate appropriate and focused comments will be a challenge. Use of 3D models, physical models and process mapping/role

playing can help in explaining the specific design solutions but the ability to manage and control comments outside of the scheduled review and comment period is critical to maintaining the project schedule and maximizing the potential cost savings.

Similarly, agreements with the SFM, DSA and CSA on early review timing and durations on less than complete documents is critical as is their ability to provide final comments and back checks in a timely manner.

Alternate Option: Design Assist / Design Build Approach (DA/DB)

Key construction trade subcontractors such as structural steel, mechanical / electrical / plumbing and building skin would be awarded early trades, then begin to participate in the ongoing design activities, function as a partner in the remainder of the design delivery process, and accelerate key long lead item procurement processes. Consistent with design build and design assist practices, subcontractors will be contracted to offer their insight and expertise as well as producing coordinated and complete documents. Specific key trades have been suggested as candidates (page 9) based on improving the risk factors for the project and addressing long lead procurement aspects. Design Assist / Design Build will also work to reduce the overall design duration.

Key findings for this approach include:

Benefits:

- The projected results for this strategy include a reduction of total project duration and time to occupancy by 11 months.
- Potential savings of over $20.3 million dollars in reduced escalation due to improved construction start date.
- Improved quality results from incorporating into the architect's and engineer's drawings and specifications specific CM @Risk/ general contractor (and subcontractor) comments and suggestions during the design phases on issues of constructability, materials and equipment selections and usage. This information allows the bid documents to be better coordinated which will reduce field coordination conditions and RFI's.

Procedural Exceptions:

- This proposed method for procurement of the DA/ DB subcontractors would be by the Best Value process used by AOC in CM at Risk selection.
- Design Build and Design Assist are contractual models that the AOC does not currently employ – however both are construction industry standards.
- Early trade award based on combination of quality score and costs. Cost would be based on fees and management costs, with open book solidification of key trade GMAX values at the completion of Working Drawings.
- Cash flow projection of $200 million in design, procurement, and construction expense prior to GMAX submission, taking place one year ahead of current funding dates.
- Funding for construction phase would be required earlier than the current schedule project fund release. Design and procurement would commence in 2012, with an improved construction start in January of 2013.

Risk and Mitigation Summary

- Risk 1: Unforeseen regulatory modifications to early trades due to plan-check on fully complete CD's after design build or design assist contracts are confirmed.
- Mitigation: Early involvement by regulatory agencies including rulings and upper level buy in. Increased input from trades on regulatory issues during design.

- Risk 2: Early trade packages exceed Budget which impacts later packages
- Mitigation: DA / DB trades are contractually responsible for target based design along with the architect and CM at Risk for budget compliance of their components. Detailed tracking of design decisions and effect on budget would be conducted on a monthly basis via budget forecasting updates.

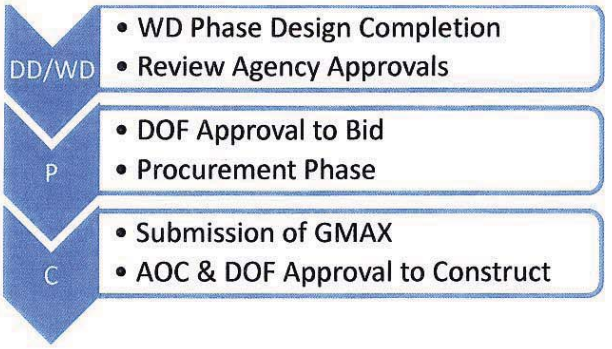
II. Detailed Evaluation of Baseline and Options

This section explores the specifics of each fast track concept. It analyzes the each approach by evaluating the following:

- Current pre-construction milestones and timelines
- Design-assist alternatives to conventional delivery means.
- Benefits with an early GMAX commitment.

a. Current Schedule and Contracting Strategy

Current Procurement and Authorization Overview



The current projected duration of the San Diego Central Courthouse from Acquisition Start in November 1, 2009 through Move-In on May 30, 2016 is 6.56 years (341 weeks).

Milestone dates from the current design-bid-build delivery method schedule contained in Project Authorizations from AOC Management and DOF are:

ID	Task	Target Date
107	100% Design Development	11/11/11
149	100% CD Products	7/12/13
151	Regulatory Approvals	9/06/13
212	GMAX submission [total]	11/9/13
214	DOF Approval	11/21/13
229	Construction Start	12/02/13
377	Substantial Completion	4/16/16

a. Procurement and Commitments

1. Consistent with all current AOC procurement processes. Expenditures per current financial projections for the immediate and critical needs account.

b. Benefits

1. Generally consistent with the traditional State of California Capital Outlay Method as modified by AOC Contracting Policy and SB-1407, with continuous appropriations.
2. Allows full approval by agencies of complete CD's prior to committing construction funds. Minimizes the possibility of review agency driven changes to the project after GMAX.
3. Committed Bids in the GMAX vs. combination of cost model and bids in early GMAX option.

c. Risks/Cons

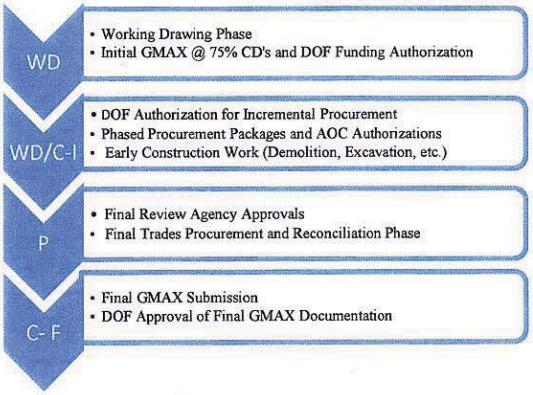
1. Standard delivery time for the products and project Exposes project to cost escalation subject to material resources, labor and inflation;
2. State has more and CM at Risk has less financial risks than with other options;
3. Does not maximize design phase trade coordination, full implementation of BIM modeling during design, or subcontractor design input.
4. Short timeframe – from DOF approval to start of construction - drives accelerated material and equipment procurement, therefore increasing procurement costs. This is especially relevant as no pre-order of long lead materials can be accomplished in the current method.
5. Longest path to facility court occupancy of facility; adds time to project for AOC management, administration and resources.

d. **Project Delivery:** Per current schedule and project budget.

e. **Changes to Authorities, Approvals, and Commitments:** No changes required.

b. Option 1: Early GMAX

Early GMAX Procurement and Authorization Overview



In the Early GMAX method, the CM at Risk would provide two specific approval packets to the AOC and then DOF. The initial submission would request authorization and commitment of funds; the second submission would detail the complete design, approval, and procurement process.

At the 75% CD milestone of the Working Drawing Phase, a comprehensive Initial Guaranteed Maximum Price (I-GMAX) developed by the CM at Risk would be submitted to the DOF via the AOC. This packet would consist of a committed maximum price for the completion of the project. Details would include a mixture of competitive bids for select trades, detailed estimates where design is not yet biddable, and contingencies for areas still requiring development and finalization. This packet would include a contractual commitment by the CM at Risk for completion of the project within the total value of the I-GMAX. This I-GMAX would be submitted through the AOC to DOF for authorization of construction expenditures.

A design contingency is typically a part of any I-GMAX. This contingency may vary depending on the timing of the GMAX during design, and the actual completion level of the documents:

Design Progress:	75% CD Set	90% CD Set	100% CD Set
Typical Design Contingency within I-GMAX	2.5% to 6.5%	1.0% to 3.5%	0% -1%

Once the I-GMAX was approved, the project team would proceed through the identified critical trade list to focus on timely bid and award of subcontracts to achieve maximize the feasible time and cost savings to the project. As individual trades reached a critical stage of design completion, competitive bidding would be conducted and a recommended scope of authorization submitted to AOC for incremental release of each competitively bid work package.

As soon as the full scope of design and agency approvals was completed, and the final remaining trades bid and reviewed, a Final Guaranteed Maximum Price (F-GMAX) would be submitted to the DOF. This F-GMAX would, by contract, mandated to be at a value less than or equal to the I-GMAX. It would include all progressive authorizations, final bidding results, and agency sign offs for final review and approval of the AOC. This program is similar to the process utilized for compliance with Department of Energy requirements under the US DOE Title XVII Energy Policy Act Loan Guarantee Program Funding administration.

The Early GMAX concept can be applied at various stages of design completion; after review of multiple options, an I-GMAX submission based on a 75% complete CD's during the Working Drawing Phase has been modeled. An I-GMAX at this stage minimizes unknowns of the major systems, while allowing a very significant development of savings from avoided escalation via earlier construction starts and material procurement.

a. **Procurement and Commitments**

The procurement process and documentation in this method would be very similar to the current approach utilized in the AOC. Bid packages would be bought out in the conventional manner with competitive bids produced from working document phase process. A contingency would be held for final completion of documents and reconciliation of agency comments and approvals. This early GMAX would allow the project to proceed and could save 7 months of escalation. Final agency timelines, such as State Fire Marshal, CSA, and DSA will require a lengthy waiting period for review and back check, but are not likely to affect the months of demolition, excavation, and foundations work that must occur for this large high rise project. DOF and AOC OCCM approvals for the I-GMAX will follow the same process as shown in the Current method, with the exception that agency approvals and bidding documentation will follow as deferred items in the F-GMAX.

b. Benefits

1. $13.4 million in estimated cost savings from improved schedule.
2. 7-month earlier commencement and completion of project.
3. Maintains traditional CM at Risk procurement methodology and documentation.
4. Shifts construction cost risk to CM.

c. Risks/Cons

1. Possible adjustments required for unforeseen regulatory modifications to early committed trades.
    i. Mitigation: Organize early involvement by regulatory agencies to provide input. With design development and early working drawings, seek rulings and upper level buy in from agency to better budget modeling and minimize surprises during the final review process.
    ii. Mitigation: Project team focus directly on early elements to ensure buyout of any trade ahead of regulatory approval is based on a detailed and accurate scope of work.
    iii. Extensive use of unit cost commitments for subcontracts.
2. User and client reviews are not complete at the time that the I-GMAX is identified. Potential adjustment of early GMAX scopes if significant adjustments are made by AOC in the final design stages.
    i. Mitigation: Increase early training of the reviewers via formal sessions.
    ii. Utilize 3-D modeling to improve comprehension of early design reviews by end users.
    iii. Require additional detailed scope review meetings with upper level representatives of design and CM firms on an increased basis to identify and validate scope change.

iv. Gather, categorize and review causes of scope change from 4 recent major courthouses to identify and anticipate trends in design completion and acceptance. Utilize this information in assembling the total cost model in the early stages of the project.

v. Current terms of the Architect's contract requires redesign should the project exceed its budget.

vi. Inherent in the proposed early GMP at 75% is the required adjustment to the standard construction document review and comment process the AOC and regulatory agencies are used to. The early GMP will require review and final comment by all parties on the 50% complete construction documents in order to have them incorporated in the 75% GMP documents

The AOC/Courts ability to understand the design and formulate appropriate and focused comments will be a challenge. Use of 3D models, physical models and process mapping/role playing can help in explaining the specific design solutions but the ability to manage and control comments outside of the scheduled review and comment period is critical to maintaining the project schedule and maximizing the potential cost savings.

Similarly, agreements with the SFM, DSA and CSA on early review timing and durations on less than complete documents is critical as is their ability to provide final comments and back checks in a timely manner.

d. **Project Delivery**

We have compared the current schedule with a detailed schedule for this option as included in later sections of this report. The start of construction is improved by approximately 7 months, which equates to $13.4 Million in potential project savings due to decreased escalation.

Early GMAX at 75% CD

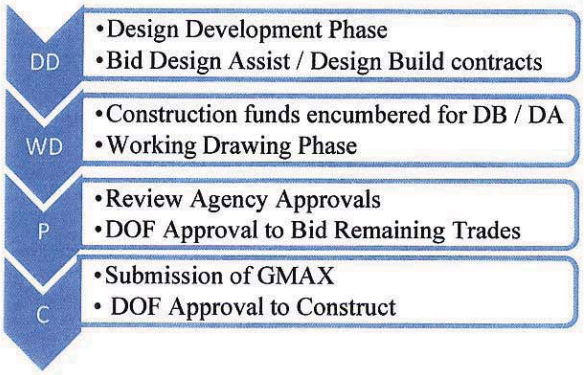
I-GMAX Funding Authorization:	4/29/13
Anticipated Cash Flow Prior to F-GMAX	$83 M
Mobilization:	4/30/13
Final GMAX Submission	8/14/13
Full Funding Authorization	8/28/13
Acceleration of work	7 months
Completion:	9/14/15
Savings	$13.444M

e. **Changes to Authorities, Approvals, and Commitments**

1. Construction funding is encumbered approximately 7 months earlier that current schedule.
2. Contract for CM at Risk would modified to stipulate that F-GMAX cannot exceed I-GMAX for consistent scope description.
3. Design scope control authority to involve the CM at Risk (after I-GMAX submission) to maintain budget control.
4. I-GMAX review process to be established.
5. AOC would require authority to approve contracting of individual trades after I-GMAX approval within the confines of the total budget.

c. Option 2: Design Assist and Design Build

D/A & D/B Procurement and Authorization Overview



In the Design Assist method, an initial group of trades are awarded under a best value procurement process in keeping with the AOC CM at Risk procurement process. In this scenario, an initial authorization would be required for the selected D/A and D/B trades upon completion of the Schematic Design Phase.

The format for this competitive procurement would consistently rate the various sections of the proposal according to a specified value and criteria, and divide the submitted fees and management cost by the number of points to determine the successful proposal. This competitive method is the basis of the current AOC CM at Risk procurement process and would be specified in the bid documents for these trades. This process would allow early award and participation in design, thereby shortening the timeframe of design, procurement and accelerating the project completion. These gains result in potential savings to the project budget by reducing the project exposure to escalation.

The involvement of subcontracted design professionals also would allow an increase in cost saving measures prior to GMAX. The subcontracted firms would also share a liability for the quality of documents and planning of the work, creating a reduction in potential design based change orders on the project.

In order to maximize the efficiency of the process, a handful of early trades that would not have design duties would also be included in the early authorization package. Traditionally procured trades included in this early authorization would be limited to those necessary for maximizing the gains to the start date, such as the demolition, grading and excavation scope, and the site preparation scope.

Design related trades selected on a best value basis would include:

Design Assist: Structural Steel, Misc Steel, Mechanical, Electrical, Plumbing

Design Build: Building Skin (Glazing, Precast, Stone, Etc), Tunnel, Fire Protection, Exit Stairs, Shoring

a. Procurement and Commitments

1. Best Value procurement used for CM at Risk selection by the AOC; best Value similar to the pilot program at UCSF
2. Competitive costs on fee, management costs, and unit costs for DB / DA contracts.
3. Early trade bid includes a not-to-exceed GMAX cap; Actual GMAX would be verified with unit pricing and detailed review at the start of construction to provide a final GMAX.

This clear and competitive process would select proposed subcontractors. The involved key trades would represent approximately 55% of the construction value. Utilizing a best value process is common within the industry for major subcontractor selection on large scale projects, due to the greater performance risk and partnership required in projects of this scale.

These early awarded trades would begin to participate in the ongoing design activities, function as a partner in the remainder of the design delivery process, and accelerate key long lead item procurement processes. Consistent with design build and design assist practices, subcontractors will be contracted to offer their insight and expertise as well as producing coordinated and complete documents. Specific key trades have been suggested as candidates above based on improving the risk factors for the project and addressing long lead procurement aspects. This will also work to reduce the overall design duration.

A significant risk is the design review conducted by the State Fire Marshall for the high rise fire life safety and smoke control systems, the early involvement of the electrical and mechanical subcontractors will significantly accelerate the detailing of the system particulars, allowing early feedback by the State Fire Marshall, reducing project risk of change after the design phase.

b. Benefits

1. Earlier construction start times and completion dates
2. Reduces escalation costs to major awarded trades
3. With subcontractor design participation during working drawings, use of early Building Information Modeling can be incorporated, which has been shown to significantly decrease field conflicts, enhances project quality, improves field production (and therefore total cost), and mitigates risk of design based change orders.
4. Increases responsibility of trades to contribute in development of solutions to design issues.
5. Improved quality results from incorporating into the architect's and engineer's drawings and specifications specific CM @Risk/ general contractor (and subcontractor) comments and suggestions during the design phases on issues of constructability, materials and equipment selections and usage. This information allows the bid documents to be better coordinated which will reduce field coordination conditions and RFI's.

c. Risks/Mitigations

1. Possible adjustments required for unforeseen regulatory modifications to early committed trades.
    a. Mitigation: Organize early involvement by regulatory agencies to provide input. With design development and early working drawings, seek rulings and upper level buy in from agency to better budget modeling and minimize surprises during the final review process.
2. Design, detailing and procurement funding will need to be committed during the early phases.
    a. Mitigation: Evaluate and modify cash flow for early trade design work and procurement during the Working Drawings phase by utilizing only those trades necessary to provide the targeted savings. Segregate and prioritize system components to ensure that only the design and procurement work required for the critical path items is included in the early scope.
3. Production of Design Assist and Design Build procurement documents and bidding distract the team at the end of the Preliminary Planning phase, compromising the design focus.
    a. Mitigation: Segregate core team members into teams to produce the documents to isolate the level of distraction. Treat the activity appropriately by scheduling a period for the procurement documents and activities that is not concurrent with the preliminary plan phase or the working drawing phase, in between those phases.
4. Construction starts prior to GMAX approval: Risk of cost Overrun
    a. Mitigation: By involving the cost estimating teams from the architect and CM at Risk full access to the project from conceptual design, the cost model contains not only the known design progress, but also design assumptions to complete the full scope of work and provide a budget to represent the entire scope of work. Appropriate application of design contingencies is a part of the solution along with continuous tracking of ongoing impacts to the budget. This effort is applied via budget review workshops in order to ensure the prescribed cap is not exceeded. Because the design assist and design build trades are among those having the most potential for design influenced cost swings, early involvement allows early identification of cost drivers and a more detailed approach to value engineering decisions in those trades.

d. Project Delivery

We have compared the current schedule with a detailed schedule for this option as included in later sections of this report. The start of construction is improved by approximately 11 months, which yields an estimated savings of $20.3 million due to decreased escalation.

DA/DB Option

Initial Funding Authorization DA/DB Trades	4/20/2012
Anticipated Cash Flow Prior to GMAX	$200M
Mobilization	1/8/2013
GMAX Submission	8/14/2013
Full Funding Authorization	8/28/2013
Acceleration of Work	11 months
Completion	5/25/2015
Savings	$20.302 M

e. Changes to Authorities, Approvals, and Commitments

1. This option requires procurement of the design assist and design build trades on a best value basis.
2. This option requires encumbrance of a significant portion of the construction funding for key trades on an earlier basis than current schedule.
3. This option requires cash flow for all portions of the project on an earlier time frame than currently scheduled project fund release due to the earlier projected construction start.
4. This option requires a pre-GMAX cash flow projected at $200 Million prior to conclusion of the GMAX in August 2013.

III. RECOMMENDATIONS

a. Comparison of Options

In comparing the Design-Assist and Early Bid Package (GMAX) schedules to the Current method, this report concentrated mostly on the relationship of cost and time saving opportunities. It should be noted that that in all case studies, a competitive buy out procedure will be conducted. Solicitation and prequalification of vendors for each scope will be required to ensure taking advantage of the competitive market.

Method:	**Design Build/Design Assist**	**Early GMAX 75% CD**
$ Potential Savings:	**($20,302 ,000)**	**($13,444,000)**

Risk / Value:	Low as design intent is included in the pricing.	Design risk mitigated by control procedures and contingency.
Procurement Justification:	Complies with AOC standards; SB 1407 Fund – early expenditure	Extension of intent of the CM at Risk contract principle.

b. Conclusion

This study supports that the Initial GMAX at 75% complete construction document as offering the most benefits for the risk outcome.

Potentially saving project cost of $13.4 million, coupled with early start and an 7 month earlier completion, is clearly a benefit of the State. At the same time, this strategy enhances quality through early coordination and 3-D BIM modeling. This strategy could be conducted utilizing proven best value procedures as in the AOC CM at Risk program. The risk is minimal, as it utilizes the current CM at Risk agreement to ensure a GMAX cap is in place prior to release of any construction funds.

The Initial GMAX option is not as aggressive as the Design Build/ Design Assist; it does not yield the largest financial or schedule savings; but this recommended option entails a moderate amount of administrative changes to current AOC OCCM practices, and therefore was judged to be easier to implement.

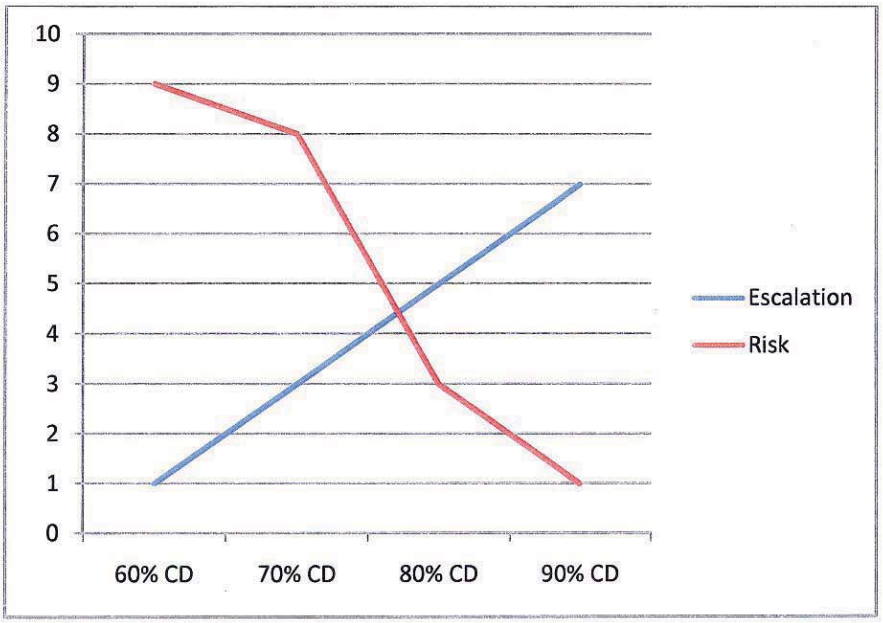
IV. Options Studied But Rejected

i. **Selected Early Procurement Option Summary**
Selected Early Procurement or Early Bid Package methods improve schedule by pulling forward the commitment dates of Structural Steel and Building Skin systems and a few early trades in order to streamline the construction schedule and start. The results reveal time savings with the competitive procurement of the large trade scopes mentioned, however the time savings are significantly less than seen in the Design-Build/Design-Assist scenario. An early set of foundation and structural documents would be required. Selected key subcontractor bids would be sought with a partial100% CD document package for those trades. Rejected as savings was very

minimal ($50-100k), and risk and effort were among the greater of the considered options.

ii. **Early Site Preparation Package**
Procurement and award of demolition, excavation, shoring, dewatering, and tunnel construction ahead of the completion of Working Drawings was considered in order to illustrate a early start of low risk work. This option has minimal risk as it includes only trades not typically affected by agency review and approval processes. The option also has very minimal design implications as these trades are not highly dependent on the specifics of the building design, other than the footprint. The challenge with this option is that structural steel continues to drive the procurement process, and lies directly on the critical path of the project. Therefore, accelerating the demolition and excavation aspects of the project has no effect on the completion of the courthouse unless paired with early release of structural trades.

iii. A range of Early GMAX strategies were considered, with specific analysis for 50%, 75%, 90% and 99% prior to Agency Approval. The proposed 75% CD Early GMAX appears to produce significant savings in escalation while mitigating some of the strongest risk factors.



V. Tables and Schedules

a. Commitments and Cash Flows for Fast Track Options

EXHIBIT A
GMAX OUTLAY AND CASH FLOW CHART

		D/B - D/A Scenario		Early Procurement Scenario	
		3/5/2013	GMAX - 11/06/2013	8/1/2013	F-GMAX - 12/1/2013
	Trade	Early Awards: Committed Contract Value	Cash Flow prior to GMAX	Comitted Contract Values prior to F-GMAX	Cash Flow after I-GMAX prior to F-GMAX
01050	FIELD ENGINEERING				
01500	TEMPORARY CONSTRUCTION				
01700	FINAL CLEANING				
02300	EARTHWORK / DEMO / SWPPP				
02350	BUILDING DEMOLITION				
02550	SITE UTILITIES				
02600	SITE CONCRETE				
02740	A.C. PAVING & PAVEMENT MARKINGS				
02900	LANDSCAPE & IRRIGATION				
03200	REINFORCING STEEL			$5,581,750	$2,232,700
03300	BUILDING CONCRETE	$19,004,718	$6,651,651	$19,004,718	$570,142
	PRECAST	$12,683,843	$4,819,860	$12,683,843	$190,258
04200	MASONRY	$8,430,757	$3,372,303	$8,430,757	$2,107,689
	EXTERIOR STONE	$8,113,310	$2,799,092	$8,113,310	$60,850
	INTERIOR STONE			$13,858,922	$103,942
05100	STRUCTURAL STEEL	$46,152,562	$19,845,602	$46,152,562	$9,576,657
05300	METAL DECKING	$3,498,931	$104,968	$3,498,931	$26,242
05500	MISCELLANEOUS IRON	$10,710,972	$665,634	$11,042,239	$33,127
06100	ROUGH CARPENTRY				
06400	FINISH CARPENTRY			$28,612,308	$85,837
	WATERPROOFING	$1,974,835	$1,777,352	$1,974,835	$44,434
07200	INSULATION				
07550	ROOFING			$0	$0
07600	SHEET METAL AND SIDING			$5,058,103	$75,872
08100	DOORS, FRAMES AND HARDWARE			$5,952,567	$44,644
08800	GLASS AND GLAZING	$42,921,970	$14,164,250	$42,921,970	$386,298
09200	PLASTER				
09250	METAL STUDS AND DRYWALL			$28,871,878	$866,157
09300	TILE			$2,499,236	$37,489
09500	ACOUSTICAL TREATMENT				
09600	FLOOR COVERING				
09900	PAINTING				
10100	MISCELLANEOUS SPECIALTIES				
11600	OWNER FURNISHED EQUIPMENT COORDINATION				
	DETENTION EQUIPMENT				
12495	WINDOW SHADES				
15300	FIRE SUPPRESSION	$3,864,082	$169,903	$4,830,103	$1,023,982
15400	PLUMBING	$7,028,554	$2,319,423	$10,040,791	$3,132,727
15800	H.V.A.C.	$33,623,058	$9,633,006	$33,623,058	$13,852,700
16100	ELECTRICAL	$47,098,062	$17,897,264	$72,458,557	$26,229,998
	Tunnel, Earthwork, Shoring, Demolition, Utilities, R&S	$106,465,708.25	$79,849,281.19	$37,262,997.89	$22,357,798.73
	TOTAL	$351,571,362	$164,069,588	$ 402,473,437.28	$ 83,039,539.84

Potential cost savings summary :

DB-DA procurement
Early Procurement

Participants and Authors of this Study

b. Developed for: The Administrative Offices of the Court
c. Presented by: Rudolph and Sletten, Inc.
d. Reviewed by: Skidmore, Owings, and Merrill LLP

"I have spoken with all four legislative leaders and we are committed to acting quickly on removing regulatory and statutory hurdles that hinder investment in new construction in both the public and private sector. We will continue to identify other steps we can take to stimulate our economy." -Governor Schwarzenegger, "Gov. Schwarzenegger Announces Action to Combat Increased Unemployment Rate," Press Release, 1/18/08

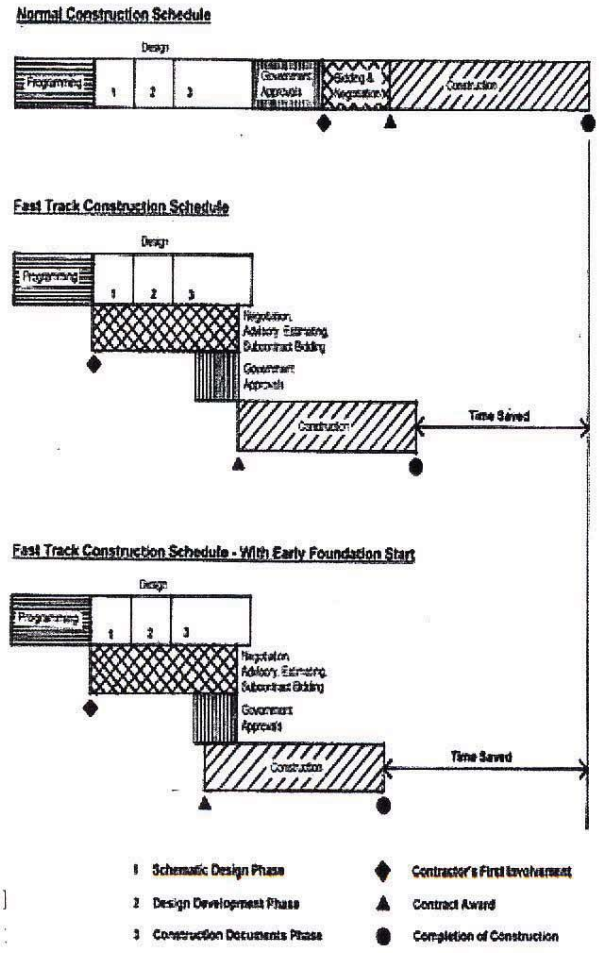
END OF REPORT

Appendix A: Defining Fast Track

The normal process of construction scheduling involves the performance of a series of discrete functions, one after the other, in a predetermined sequential order. The customary logical order of these functions is programming, design, governmental approvals, bidding and negotiation, contract award, construction, and finally, completion. This is shown on the first line of the accompanying diagram (Normal Construction Schedule). Each activity is virtually completed before the next may be commenced. To perform all of these functions will take a certain amount of time as further illustrated in our evaluation titled "Project Development w/ Current Schedule".

In evaluating ways to improve on the current schedule, one can consider Working Faster - the usual way of shortening the time scale is by increasing productivity, that is, by completing each function as efficiently as possible and starting each new phase immediately upon completion of the preceding phase. Everything is done in proper order and no time is wasted.

Concurrent Work - Another way of saving total elapsed time would be by compression of the time schedule. That is, by overlapping some of the functions, doing two things at the same time. This would be accomplished by starting a new phase of work where possible before the preceding phase is completed. This is a typical approach embraced by many previous planned projects and is the basic premise of both options presented. Time saved by concurrent work will accumulate and appear at the end of the construction period in the form of early overall completion.



Organizing the project to produce early completion by the technique of concurrent or overlapping time scheduling is the essence of fast track construction.

How Can This Be Done?

The usual procedure for overlapping functions will involve the Construction Manager bringing in subcontractor skills and activities earlier in the project while reducing design times for critical path items. Because each project is unique, there is no universally applicable standard approach. Multiple variations of the selected schedules presented herein were researched and developed in order to reach the recommendations of this report.

One strategy for achieving fast tract is to involve subcontractors in the design activities of the working drawing phase. After reaching the 100% level of design development documents, Rudolph

and Sletten, Inc. would seek subcontractor interest and perform a best value evaluation of unit prices, fees, teams, resumes, approach, and allowances in a best value selection process. At this juncture the size and character of the project will have been fairly well determined and described. The architectural, structural, mechanical and electrical systems, materials, and other elements will have been resolved in principle, but the drawings and specifications will not yet be sufficiently advanced for actual construction or for submittal to governmental agencies for their review.

In a traditional procurement scenario, the construction documents are fully complete and have been submitted to governmental authority for review, approval, and issuance of building permits when a GMAX is issued. In another fast track option, an earlier I-GMAX can be built even though the contract documents are still incomplete. This initial GMAX provides an upper limit, as the final GMAX (F-GMAX) is prohibited by contract from exceeding the I-GMAX. The I-GMAX is necessarily predicated upon contingencies, estimates, and allowances which encompass the team's insightful assumptions and accurate predictions of what will be included in the final state of the documents. The earlier in the design process that the I-GMAX is submitted the larger contingency and higher risk that is incurred. Included in the GMP shall be all work that is shown on the drawings and in the specifications at that time, but also that which is reasonably inferable or expected.

Rudolph and Sletten, Inc. would utilize the Initial-GMAX release to procure competitive bids at the last responsible moment for each trade. This would allow the most design progress to be reflected in the bid documents for each trade. The start of construction would follow swiftly, with submittals and shop drawings underway while the final design completes and governing agencies finalize approvals. This results in an earlier project commencement and therefore significant savings in avoided escalation.

Numerous delivery methods are utilized in California for a wide variety of projects, many subject to similar approvals and criteria as the AOC OCCM projects. In this analysis, we begin by removing from the alternative methods list the public private partnerships, design/build turnkey projects, and the sole sourcing and unique source projects. These projects are not applicable to the phase and initial procurement aspects of this project.

Note: Preceding research for Defining Fast Track utilizes excerpts from the article; Fast Track Construction, *Is It Too Good To Be True? Can It Really Deliver?* By Arthur O'Leary, FAIA

Appendix B: Key Examples of Alternate Procurement Methods

a. **University of California**
   i. **UCSF**
      1. Best Value Procurement via SB 667 Chapter 367, 2006
      2. Extensive use of best value for both CM / GC and subcontractor procurement
      3. Proven competitive process and results.
      4. See attached report detailing methods and results of this pilot program for both contractors and subcontractors.
   ii. **UC Berkeley**
      1. Progressive GMAX: UCB awarded early contracts for grading, shoring and key trades such as steel, mechanical, electrical, plumbing and glazing prior to the GMAX.

      2. Incremental Funding of Fixed Price Construction Subcontracts at Lawrence Livermore National Laboratory
         a. Standing Orders 100.4 (dd)(1) and (8), and subject to appropriate University pre-bid concurrence and approval of the Department of Energy, the Lawrence Livermore National Laboratory be authorized to solicit and execute incrementally funded fixed price construction subcontracts at LLNL for Facility and Infrastructure Recapitalization Program.

b. **California State University**
   i. **Sonoma State CM at Risk**
      1. Phase I site preparation released ahead of full GMAX as an early award. Utilized separate project for this action, separate contract agreement to the CM at Risk.
      2. Pre-purchased the indicator pile program as part of design activities.
   ii. **Cal-Poly Pomona**
      1. CM at Risk: Early procurement on demolition, abatement and structural steel trades
         a. Structural steel schedule and procurement times led to a need to improve traditional release process.
         b. Documents and advertisements, CSUP allowed the early procurement and contracting. Each trade was locked as a committed portion of the GMAX when authorized through the Chancellor's Office for release.

c. **Community College**
   i. Design / Build:
      AB1000 passed and eventually became Education Code §81700, naming San Mateo County Community College District, San Jose-Evergreen CCD and LACCCD as three districts who could use design-build in a pilot program to ascertain if this delivery method could be successful in community college construction.

ii. **AB 2753 (Furutani) – IN COMMITTEE AS OF JULY 2010 - *Los Angeles Community College District: design-assist contract pilot program.***

1. LEGISLATIVE COUNSEL'S DIGEST - AB 2753, as amended, Los Angeles Community College District: design-assist contract pilot program in which factors in addition to price and cost may be considered in awarding a contract for the design and construction of a community college facility for an amount that exceeds $2,500,000. Design-assist capital outlay must wait until the Department of Finance and State Public Works Board have approved performance criteria and concept drawings.

d. **California Cities Permitted to Enter into Design-Build Contracts**

i. Public Contract Code §20175.2 was amended to allow any California city to utilize design-build contracting on building construction projects costing $1 million or more, subject to a sunset date of January 1, 2016. Cities that had been allowed, by prior legislation, to utilize design-build without a cost floor (Stanton, Victorville, and any city in Solano or Yolo counties) are not subject to the $1 million cost floor until the prior law's sunset date of January 1, 2011.

e. **Caltrans and FHWA**

i. **Early Source Selection**: A competitive process of selection by which early awards are made during preliminary design phases, allowing design assist and approval processes to be conducted in an expeditious manner.

ii. **Interstate Projects with Innovative Financing (in conjunction with FHWA)** – These are projects which use non-traditional contracting techniques which are competitive in nature but do not fully comply with the requirements in Title 23 United State Code.

iii. **Special Experimental Projects (SEP-14) – Alternative Contracting** – The objective of SEP-14 process is to evaluate "project specific" innovative contracting practices undertaken by State highway agencies that have the potential to reduce the life cycle cost of projects, while at the same time, maintain product quality. SEP-14 projects follow a formal application process.

f. **Department of Energy (DOE)**

i. **Initial GMP project release to Final GMP closure of procurement**: A process by which, at a current project of similar size in the Bay Area, an early I-GMP was committed to by Rudolph and Sletten prior to 50% CD documents, allowing the DOE to fully release the project funding and construction, yet requiring completion of the competitive selection process for all awards. Early awards are made at the last responsible moment during preliminary design phases, allowing the design to proceed to the maximum detail and definition possible before releasing early trades to achieve the critical path schedule for the project. As further critical milestones approach, more key trades are awarded under the general I-GMP release. As working documents complete, competitive bidding is completed and documented in the submission of an F-GMP. In this method, the ability of the local project manager to approve individual trades under the I-GMP was critical to the success of the project.