

Superior Court of California

County of Glenn

Renovation and Expansion

of the Willows Historic Courthouse

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BUDGET PACKAGE

JANUARY 15, 2010



ADMINISTRATIVE OFFICE  
OF THE COURTS

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OFFICE OF COURT CONSTRUCTION  
AND MANAGEMENT



**CONTENTS**

1. INTRODUCTION ..... 1  
2. DETAILED SPACE PROGRAM..... 4  
3. PROJECT SCHEDULE..... 10  
4. WILLOWS HISTORIC COURTHOUSE FEASIBILITY STUDY ..... 11



1. INTRODUCTION

The Administrative Office of the Courts, Office of Court Construction and Management (AOC-OCCM) presents this budget package to support the COBCP for the proposed Superior Court of California, County of Glenn, Renovation and Expansion of the Willows Historic Courthouse project. The budget package includes the following items:

**1.1. Space Program**

A space program has been prepared by the AOC-OCCM in collaboration with the Superior Court of California, County of Glenn. The program presents space requirements for reuse and expansion of the Willows Branch Main Courthouse. The space program totals 44,826 building gross square feet (BGSF) for three courtrooms and associated space supporting criminal, civil, family law, juvenile, and collaborative court functions.

**1.2. Project Schedule**

A project schedule has been prepared for this project based on funding approval secured winter 2010.

The court will need to vacate the Willows Branch Main Courthouse during the construction phase of the project. The court has worked with the county to address temporary locations for some court services. Courtrooms will be operational at the Orland Branch and at the Willows Memorial Hall, which houses the Board of Supervisors chambers. Staff will relocate to leased swing space in Willows for the duration of the construction phase.

**1.3. Willows Historic Courthouse Feasibility Study**

In 2009, the AOC-OCCM hired a consultant, Mark Cavagnero Associates Architects, to prepare a study phase report investigating the feasibility of renovating and expanding the existing Willows Branch Main Courthouse in southeastern Glenn County. The report analyzed consolidation of two existing facilities, the Orland Branch and the Willows Branch Main Courthouse, by renovating and expanding the historic courthouse in Willows. The objectives of the study were to verify the space program, develop blocking plans indicating the extent of space for each court functional area, develop a concept for the renovation and expansion of the historic building consistent with the U.S. Secretary of the Interior's *Standards for the Treatment of Historic Properties*, survey the existing building systems and make recommendations as to reuse or replacement, survey the existing structural systems and make conceptual seismic strengthening recommendations, and develop a cost estimate for the project.

The foundation of the study phase report is the Superior Court of California, County of Glenn; Court Facilities Master Plan dated February 28, 2003.

The study phase report concluded that based on the space requirements of the court for three courtrooms, a building addition of 29,028 BGSF is required to the 15,798 BGSF existing Willows Branch Main Courthouse. The building addition will include a partial basement. Expansion of the existing courthouse into a three courtroom facility is feasible with the acquisition of approximately 0.275 acres of land from the County of Glenn. The

County has agreed to this acquisition. This is consistent with the project scope described in the COBCP. Below is a list of the main sections of the report and significant features of each section.

As part of this project, the state plans to acquire a 0.50 acre parcel of land within walking distance of the court to construct a new 50-car surface parking lot for visitors, jurors, and staff.

The report contains the following sections:

1. Architectural Report.

The courthouse, built in 1894, received additions in 1948 and 1949 to house the county recorder and records vault. These additions will be demolished, returning the historic building to its original form before the addition is built.

The public entry for the expanded courthouse will remain at its historic location at the front of the historic courthouse. The addition will be located at the back, least public face of the historic courthouse. The work to the historic courthouse and the addition will be compatible with yet differentiated from the historic courthouse.

The available county-owned parcel of land is large enough to allow an addition that will accommodate all planned court functions.

2. Architectural Drawings.

The drawings comprise an existing site plan, a proposed site plan, and blocking plans for the partial basement, first, and second floors. The partial basement contains secure judicial parking. The floor plans show the three circulation systems: public, restricted (judges, court staff, impaneled jurors), and secure (in-custody defendants), and all court functional areas.

3. Structural Report.

Rutherford & Chekene prepared this report that outlines conceptual seismic strengthening recommendations intended to improve the seismic performance of the historic courthouse to meet the ASCE-31 Section 4.2.6 (*Special Procedures for Unreinforced Masonry*) and the 2006 International Existing Building Code (IEBC) Chapter A1 (*Seismic Strengthening Provisions for Unreinforced Masonry Bearing Wall Buildings—Special Procedures*). This report contains conceptual structural drawings and details.

4. Mechanical / Electrical / Plumbing Report.

Glumac prepared this report which assesses existing building mechanical, electrical, and plumbing systems and makes conceptual recommendations for these building systems in the renovated and expanded courthouse.

**1.4. Cost Estimate**

Cumming Corporation prepared a construction cost estimate, based on the report by Mark Cavagnero Associates and is divided into the major elements of Building Addition, Building Renovation, and Site Work. This estimate is the basis for the total estimated project cost estimate presented in the COBCP.

2. DETAILED SPACE PROGRAM

Division/Functional Area	Projected Need		Total Departmental GSF	Comments
	Courtrooms	Total Staff		
Public Area: Entry Lobby & Security Screening	-	-	1,231	
Courtsels	3	3	10,728	
Judicial Chambers & Courtroom Support	-	6	2,265	
Court Operations	-	9	684	
Clerk's Office (Criminal/Traffic/Civil/Family/Probate/Juvenile)	-	14	3,542	
Family Court Mediation/Civil Settlement/Self-Help	-	18	1,826	
Court Administration	-	5	1,284	
Jury Services/Multipurpose Room	-	-	2,093	
Sheriff Operations	-	2	698	
Central In Custody Holding	-	-	2,807	
Building Support	-	1	4,862	
<b>Subtotal</b>	<b>3</b>	<b>58</b>	<b>32,019</b>	
Gross Area Factor			1.40	
<b>Total Building Gross Square Feet</b>			<b>44,826</b>	
<b>BGSF per Courtroom</b>			<b>14,942</b>	

1. Gross Area Factor includes space for staff and public restrooms, janitor's closets, telecommunications and electrical rooms, mechanical shafts, circulation, etc.

Space/Component	Unit/Area Std.	No. of Staff	No. of Spaces	Net Area	Comments
<b>Public Area: Entry Lobby &amp; Security Screening</b>					
1 Entry Vestibule	120	-	1	120	
2 Security Screening Queuing	10	-	20	200	
3 Weapons Screening Station	250	-	1	250	
4 Security Screening Office/Locker/Break	150	-	1	150	
5 Secure Public Lobby	350	-	1	350	
6 Information Kiosk	64	-	-	-	
Subtotal Staff and Net Area		-		1,070	
Departmental Grossing Factor	15%			161	
Subtotal Departmental GSF				1,231	

**Superior Court of California, County of Glenn  
Renovation and Expansion of the Willows Historic Courthouse**

**Budget Package**

Space/Component	Unit/Area Std.	No. of Staff	No. of Spaces	Net Area	Comments
<b>Courtsets</b>					
Courtroom, Large	2,100	-	1	2,100	Includes ADA ramping
Courtroom, Multipurpose (jury)	1,750	-	2	3,500	Includes ADA ramping
Courtroom Clerk Workstation	-	-	6	-	Locate in courtroom
Courtroom Clerk Copy/Supply/Workroom	80	-	1	-	
Bailiff Workstation	-	3	-	-	Locate in courtroom
Exhibit Storage	50	-	3	150	
Courtroom Entry Vestibule	64	-	3	192	
Courtroom Technology/Equipment Room	25	-	3	75	
Courtroom Holding/Attorney Interview	125	-	3	375	
Holding Vestibule	40	-	3	120	
Jury Deliberation (includes. 2 restrooms, kitchenette)	410	-	2	820	
Child Support/DCSS Disso-Master Alcove	50	-	1	50	
Red Light Video Viewing Room	100	-	-	-	
Courtroom Waiting	200	-	3	600	
Attorney/Client Conference Room	100	-	6	600	
Subtotal Staff and Net Area		3		8,582	
Departmental Grossing Factor	25%			2,146	
Subtotal Departmental GSF				10,728	
<b>Judicial Chambers &amp; Courtroom Support</b>					
Judicial Chambers (Includes restroom, closet)	400	3		1,200	
Judicial Secretary Workstation	64	3		192	
Chambers Waiting/Reception	60	-	3	180	
Judicial Conference/Law Library	240		1	240	
Subtotal Staff and Net Area		6		1,812	
Departmental Grossing Factor	25%			453	
Subtotal Departmental GSF				2,265	

Space/Component	Unit/Area Std.	No. of Staff	No. of Spaces	Net Area	Comments
<b>Court Operations</b>					
<b>Court Operations/Courtroom Clerks</b>					
Administrative Assistant	64	1		64	
Office Assistant	64	1		64	
Court Reporter Workstation	48	3		144	
Interpreter/court reporter coordinator	48	1		48	
Interpreter Work Carrels	25	2		50	
Copy File Support Area	200	1		200	
Subtotal Staff and Net Area		9		570	
Departmental Grossing Factor	20%			114	
Subtotal Departmental GSF				684	

**Superior Court of California, County of Glenn  
Renovation and Expansion of the Willows Historic Courthouse**

**Budget Package**

Space/Component	Unit/Area Std.	No. of Staff	No. of Spaces	Net Area	Comments
<b>Clerk's Office (Criminal/Traffic/Civil/Family/Probate/Juvenile)</b>					
<b>Staff</b>					
Criminal Division Clerk	48	5	-	240	
Traffic Division Clerk	48	3	-	144	
Civil, Family Law & Juvenile Clerks	48	4	-	192	
Juvenile Division Staff	48	2	-	96	
Shared Network Printer	12	-	1	12	
CLETS Workstation	48	-	1	48	
<b>Service Counter</b>					
Counter Workstation	64	-	7	448	with exterior walk-up service windows
Queuing Area	10	-	20	200	
Work Counter/Form Storage	40	-	1	40	
Photocopiers/Printers (Staff Support)	40	-	1	40	
Public File Viewing/Document Review	120	-	1	120	computers, microfiche
<b>Active Records</b>					
Active Files; 42" x 7 shelf unit	12	-	80	960	
File Scanning Station	48	-	1	48	
File Staging Area	60	-	1	60	
File Carts	6	-	4	24	
<b>Shared Support</b>					
Copy/Work Room	200	-	1	200	
Cash Safe	40	-	1	40	
Mail Box Area	40	-	1	40	
Subtotal Staff and Net Area		14		2,952	
Departmental Grossing Factor	20%			590	
Subtotal Departmental GSF				3,542	

Space/Component	Unit/Area Std.	No. of Staff	No. of Spaces	Net Area	Comments
<b>Family Court Mediation/Civil Settlement/Self-Help</b>					
<b>Mediation</b>					
Family Court Mediators Office	200	1	-	200	
Staff	48	1	-	48	
<b>Civil Settlement Unit/Alternative Dispute Resolution</b>					
Attorney Mediator Office	120	-	1	-	
<b>Self-Help</b>					
Family Law Facilitator Office	120	2	-	240	
Family Resources Staff	48	4	-	192	
Managing Attorney	120	1	-	120	
Program Manager	64	1	-	64	
Self Help Staff	48	4	-	192	
Public Service Employees	48	4	-	192	
<b>Shared Support</b>					
Counter Workstation	25	-	1	-	Sign-in
Waiting Area 1	15	-	4	60	Provide two separate waiting areas
Waiting Area 2	15	-	4	60	Provide two separate waiting areas
Computer Workstation	20	-	2	40	Public use
Work Table	40	-	1	40	Public use
Form Display	10	-	1	10	
Workshop Room /Conference Room	450	-	-	-	Use Jury/Multipurpose Room
File Unit	12	-	2	24	
Copy/Work Room	40	-	1	40	Share w/Clerk's Office
Mail Box Area	40	-	-	-	Share w/Clerk's Office
Subtotal Staff and Net Area		18		1,522	
Departmental Grossing Factor	20%			304	
Subtotal Departmental GSF				1,826	

**Superior Court of California, County of Glenn  
Renovation and Expansion of the Willows Historic Courthouse**

**Budget Package**

Space/Component	Unit/Area Std.	No. of Staff	No. of Spaces	Net Area	Comments
<b>Court Administration</b>					
<b>Court Executive Office</b>					
Court Executive Officer	250	1	-	250	
Assistant Court Executive Officer	120	1	-	120	
Finance Staff	120	1		120	
Finance Staff	64	1		64	
HR Staff	120	1		120	
IT Workstation	64	-	1	64	
IT Secure Equipment Storage	60	-	1	60	
Central Computer Room	200	-	1	200	
Reception Waiting Area	60	-	1	60	
Shared Network Printer	12	-	1	12	
Subtotal Staff and Net Area		5		1,070	
Departmental Grossing Factor	20%			214	
Subtotal Departmental GSF				1,284	

Space/Component	Unit/Area Std.	No. of Staff	No. of Spaces	Net Area	Comments
<b>Jury Services/Multipurpose Room</b>					
<b>Jury Processing</b>					
Check-in Counter Station	64	-	1	64	Clerk from Civil/Family Law Counter
Queuing Area	120	-	1	120	
<b>Jury Assembly/Multipurpose Room</b>					
General Seating	15	-	88	1,320	<b>Total Capacity</b>
Carrel Workstation	20	-	4	80	
Table Seating	80	-	2	160	4 seats at one table
<b>Juror Support</b>					
Vending Area	120	-	-	-	use public vending
Women's Restroom	300	-	-	-	use public restroom
Men's Restroom	250	-	-	-	use public restroom
Subtotal Staff and Net Area		-		1,744	
Departmental Grossing Factor	20%			349	
Subtotal Departmental GSF				2,093	

**Superior Court of California, County of Glenn  
Renovation and Expansion of the Willows Historic Courthouse**

**Budget Package**

Space/Component	Unit/Area Std.	No. of Staff	No. of Spaces	Net Area	Comments
<b>Sheriff Operations</b>					
<b>Staff</b>					
Lieutenant Office	120	1	-	120	
Clerk Workstation	48	1	-	48	can be shared
<b>Support</b>					
Weapons Armory/Emergency Equipment	80	-	1	80	
Men's Locker/Shower/Toilet Room	150	-	1	150	
Women's Locker/Shower/Toilet Room	120	-	1	120	
Copy/Work/Supply Alcove	40	-	1	40	
Subtotal Staff and Net Area		2		558	
Departmental Grossing Factor	25%			140	
Subtotal Departmental GSF				698	
<b>Central In Custody Holding</b>					
Vehicle Sallyport	2,500	-	-	-	At exterior
Pedestrian Sallyport	200	-	1	200	
Detainee Staging	100	-	1	100	
Holding Control Room	500	-	1	500	
Central Holding, Adult			<b>35</b>		<b>Total Capacity - Adult</b>
Group Holding - Male	192	-	1	192	capacity 16
Group Holding - Female	192	-	1	192	capacity 16
Individual Holding - Male	60	-	2	120	
Individual Holding - Female	60	-	1	60	
Central Holding, Juvenile			<b>34</b>		<b>Total Capacity - Juvenile</b>
Group Holding - Male	192	-	1	192	capacity 16
Group Holding - Female	192	-	1	192	capacity 16
Individual Holding - Male	60	-	1	60	
Individual Holding - Female	60	-	1	60	
Probation Staff Office	100	-	1	100	
Attorney/Detainee Interview Room	60	-	1	60	
Attorney Vestibule/Waiting	60	-	1	60	
Storage Room	100	-	1	100	
Staff Restroom	60	-	1	60	
Subtotal Staff and Net Area		-		2,248	
Departmental Grossing Factor	25%			559	
Subtotal Departmental GSF				2,807	

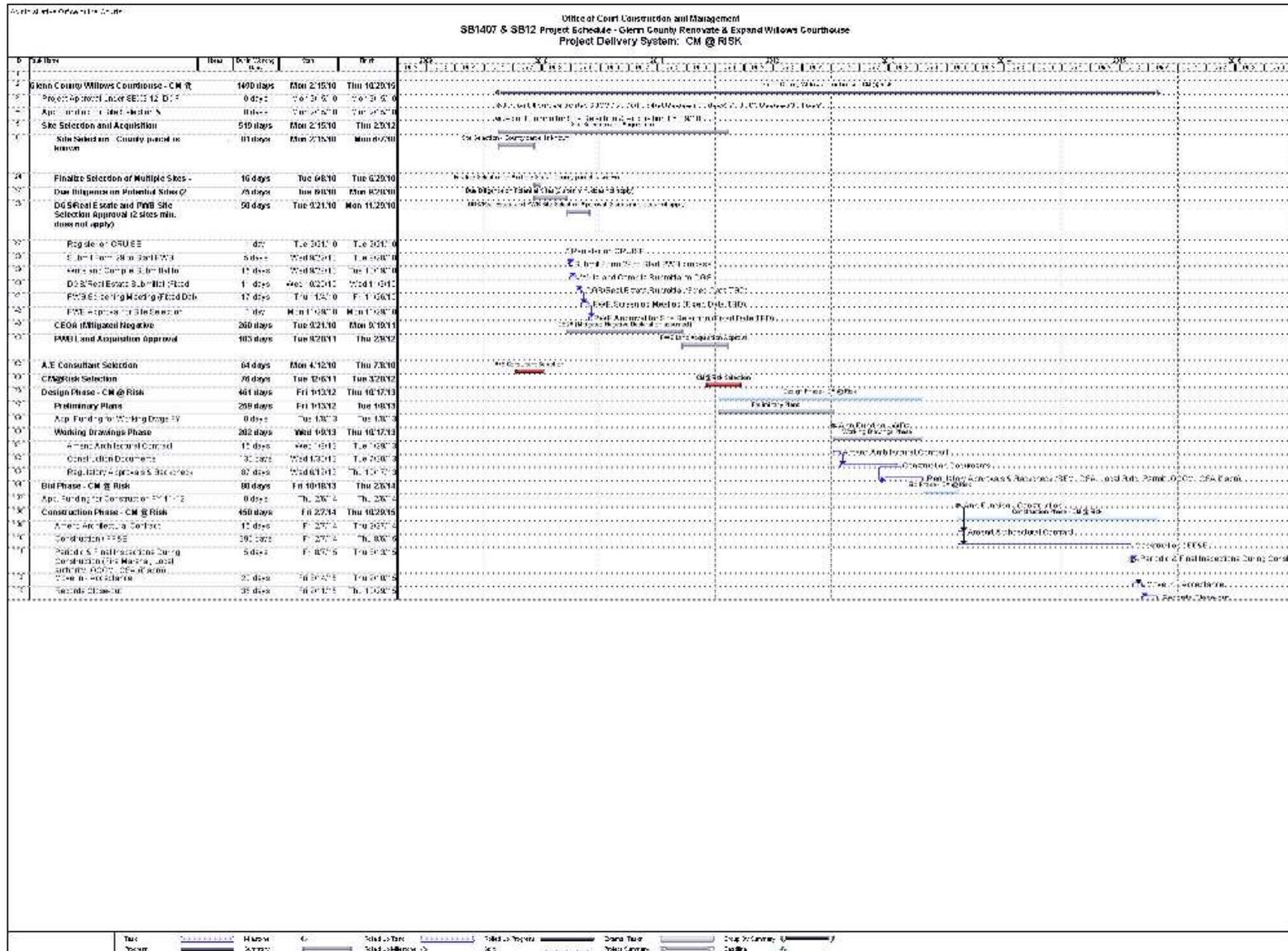
Superior Court of California, County of Glenn  
 Renovation and Expansion of the Willows Historic Courthouse

Budget Package

Space/Component	Unit/Area Std.	No. of Staff	No. of Spaces	Net Area	Comments
<b>Building Support</b>					
<b>Children's Waiting Room</b>					
Secure Check-in Station	60	-	1	60	
Play Area	200	-	1	200	reading, television, computer area
Clerk/Volunteer Workstation	48	1	-	48	
Restroom	60	-	1	60	for clients
Subtotal Staff and Net Area		1		368	
Departmental Grossing Factor	15%			55	
Subtotal Departmental GSF				423	
<b>Staff Support</b>					
Large Training/Conference Room	500	-	-	-	Use Jury/Multipurpose
Small Conference/Training Room	250	-	1	250	
IT Training Room	350	-	-	-	Use Jury/Multipurpose
Staff Break Room	200	-	1	200	
Staff Lactation Room	80	-	1	80	
Staff Shower/Restroom	80	-	2	160	
Subtotal Staff and Net Area		-		690	
Departmental Grossing Factor	15%			104	
Subtotal Departmental GSF				794	
<b>Public Area Support</b>					
Vending Area	75	-	1	75	3 vending machines
Vending Seating	80	-	1	80	4 seats at each table
Subtotal Staff and Net Area		-		155	
Departmental Grossing Factor	15%			23	
Subtotal Departmental GSF				178	
<b>Exhibits Storage</b>					
Exhibit Viewing Room	64	-	1	64	
Exhibits Storage	200	-	1	200	
Subtotal Staff and Net Area		-		264	
Departmental Grossing Factor	15%			40	
Subtotal Departmental GSF				304	

Space/Component	Unit/Area Std.	No. of Staff	No. of Spaces	Net Area	Comments
<b>Building Support</b>					
<b>Building Operations</b>					
Building Engineer	64	-	1	64	
Loading/Receiving Area	60	-	1	60	
Mail Processing and Distribution Center	120	-	1	120	
General Building Storage	250	-	1	250	
Housekeeping Storage	100	-	1	100	
Building Service Equipment/Workshop	100	-	1	100	
Subtotal Staff and Net Area		-		694	
Departmental Grossing Factor	15%			104	
Subtotal Departmental GSF				798	
<b>Secure Parking</b>					
Secured Judges Parking	350	-	3	1,051	In partial basement
Visiting Judges Parking	350	-	-	-	
Executive Staff Parking	350	-	2	701	In partial basement
Subtotal Staff and Net Area		-		1,752	
Vehicular Circulation	35%			613	
Subtotal Departmental GSF				2,365	
Subtotal Staff and Net Area		1		3,923	
Subtotal Departmental GSF				4,862	

3. PROJECT SCHEDULE



4. WILLOWS HISTORIC COURTHOUSE FEASIBILITY STUDY

**WILLOWS HISTORIC COURTHOUSE FEASIBILITY STUDY**  
Final Report | November 4, 2009

**MARK CAVAGNERO ASSOCIATES**

## Willows Historic Courthouse Feasibility Study

### Contents

1. Architectural Report
2. Architectural Drawings
3. Structural Report
4. Mechanical Report

### Project Participants

#### Superior Court of California, County of Glenn:

Donald Byrd Presiding Judge of the Superior Court of California, County of Glenn

Tina Burkhart, Court Executive Office, Superior Court of California, County of Glenn

Janelle Bartlett, Assistant Court Executive Office, Superior Court of California, County of Glenn

#### County of Glenn:

David Shoemaker, County Administrative Officer

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Paul Menard, Senior Facilities Planner

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#### Consultants

Laura Blake, RA, LEED AP, Principal, Mark Cavagnero Associates

Mark Cavagnero, FAIA, Principal, Mark Cavagnero Associates

Goetz Frank, Associate, Mark Cavagnero Associates

## Architectural Report

### Overview

The Administrative Office of the Courts (AOC) requested that Mark Cavagnero Associates (MCA) study the feasibility of renovating and expanding the Willows Historic Courthouse. MCA reviewed available drawings and the AOC program, toured the existing courthouse, and reviewed the project objectives and program with the AOC and the court. Next MCA developed two sketch options for renovating and expanding the courthouse and reviewed those with the AOC and the court. After the AOC and court selected a preferred option, MCA refined that option and coordinated its work with the Rutherford and Chekene who provided seismic upgrade recommendations, with Glumac who provided mechanical recommendations, and with the Cumming Corporation who provided a cost estimate.<sup>1</sup>

### Existing Conditions

The Willows Historic Courthouse is located at 526 West Sycamore Street in Willows, California. The courthouse is surrounded by other county facilities including the county jail which is located behind the courthouse.

The courthouse was built in 1894. Additions were added in 1948 and 1949. The original courthouse has two stories totaling 16,100 SF plus a basement. The three additions are one story totaling 2,700 SF. The courthouse is wood and masonry construction with very tall floors. The courthouse has undergone renovations over the years but retains a number of historic features. It is generally in good condition, although it needs a seismic upgrade and system upgrades.



*View of the front of the Willows Courthouse*

### Renovation and Expansion Concept

The AOC program calls for an expanded facility totaling 43,454 SF. The program includes three courtrooms, jury services, self help mediation and settlement, court clerk, operations and administration, as well as sheriff, holding and building services.

The renovation and expansion concept entails removing the three small one story additions and adding a new addition at the back of the historic courthouse. The new addition will have two stories totaling 26,800 SF and a partial basement for judicial parking of 3,300 SF. The renovation and expansion concept was developed consistent with the Secretary of the Interiors Standards for the Treatment of Historic Properties. These guidelines are typically used by national, state and local agencies to monitor alterations to historic buildings. Following these guidelines the new addition will be located at the back, being the least public face of the historic courthouse. In addition both the work to the historic courthouse and the addition will be compatible with and yet differentiated from the historic courthouse.

<sup>1</sup> Rutherford & Chekene and Cumming Corporation have separate contracts with the AOC.

### Willows Historic Courthouse Feasibility Study

The public entry of the expanded courthouse will remain at its historic location at the front of the historic courthouse. Judicial access will be located at the west side of the addition off of South Murdock Street. In-custody access will be located adjacent to the jail sallyport at the east side of the addition off of South Lassen Street.

The first floor of the historic courthouse will house the lobby, public self-help, mediation and settlement services, public restrooms and court administration. The first floor of the addition will house the clerk and court operations, as well as the sheriff, holding and building services. Since the first floor of the existing courthouse is a half level above grade the public and office functions of the addition will also be raised to provide universal access to these spaces. The sheriff, holding and building operations areas will be at grade to facilitate access from the shared access drive and adjoining county jail.

#### Preliminary Code Review

The existing Jail is a Type I-3 Occupancy. It is assumed that it has been built to comply with the fire separation requirements of the zero property line condition along the south wall adjacent to the new court addition, therefore locating the addition adjacent to it should not impact it. The existing courthouse is a Type B (Civic Administration) Occupancy with Type III Construction (exterior walls of noncombustible materials and interior building elements of any material allowed by code). The New Courthouse addition will be a Mixed Use Occupancy consisting of B (Civic Administration), I-3 (Holding), & S-2 (Parking). Fire separation will be required between certain occupancies. Preliminary analysis indicates that the expanded courthouse can be Type III-B Construction. The existing courthouse does not have automatic fire sprinklers. The I-3 Occupancy will require an automatic fire sprinkler system in the I-3 areas of the existing courthouse and new addition. It is possible that the public agency will require sprinklers throughout the existing courthouse and addition. The existing courthouse has been modified to allow ADA accessibility. The new courthouse will be designed in compliance with ADA standards.



*View of the Willows Courthouse Interior*

#### Structural Review

Per the proposed Seismic Strengthening Recommendations for Willows Historic Courthouse issued by Rutherford & Chekene Engineers dated 09/28/2009, it is our understanding that the intent of the proposed strengthening is to perform the work from the basement, first floor ceiling, and attic spaces, therefore minimally impacting the finishes of the first and second floor public spaces and courtroom as well as the existing roofing.

Further details regarding the Seismic Strengthening can be found in the attached full report by Rutherford & Chekene Engineers.

#### **Mechanical, Electrical & Plumbing Review**

The mechanical systems in the existing Courthouse consist of a variety of systems which need to be replaced. The proposed mechanical system consists of a single new mechanical system for the entire expanded courthouse facility and will consist of a central plant water source heat pump system. The new mechanical system and equipment will be energy efficient and provide a master control system that will allow building systems personnel the ability to accurately respond to maintenance issues and occupant complaints.

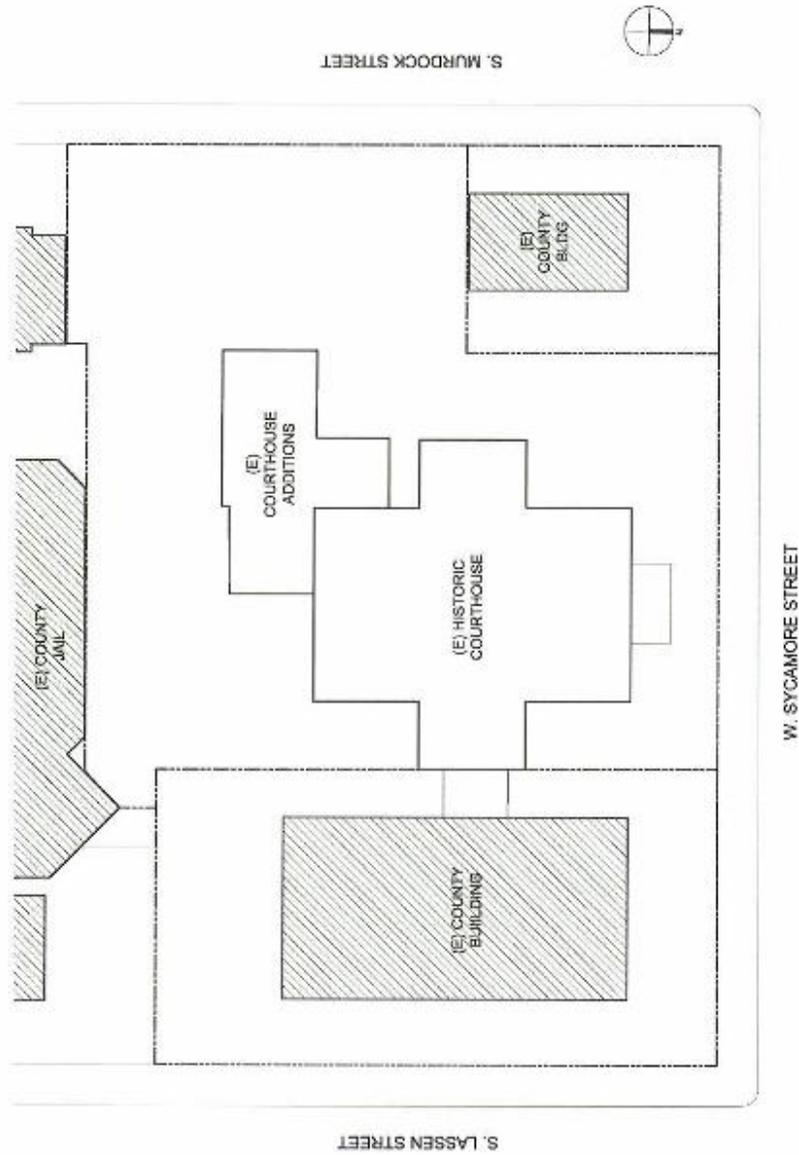
The existing electrical system consists of a pole-mounted transformer and pad-mounted main service switchboard that are in very poor physical condition and are currently operating beyond their safe working life. This service is required to be upgraded. The proposed new main electrical room will be located in the new courthouse building. This room needs to be sized enough to house main power, lighting, and fire alarm equipment. This room is intended to function as central plant for power, lighting, and fire alarm systems. To serve emergency loads, installation of standby generator system is recommended.

The existing lighting systems are very old and inefficient and need to be upgraded to meet energy conservation goals and title 24 requirements. The interior lighting is not equipped with any type of automatic control system. Fluorescent lamps can and should be used to light nearly all types of courthouse building spaces. They offer long life, high efficacy, good color performance, and low operating and maintenance costs. A lighting control system will be installed to boost energy saving capabilities. Occupancy sensors and automatic shut-off ensures the lights are off when not in use. These control systems will reduce energy consumption as much as 35% or more.

The plumbing fixtures in the existing courthouse are water inefficient and have maintenance issues. The existing toilet fixtures in the existing courthouse are tank-type. Because of the low water pressures these toilets have a high failure rate and are a constant maintenance issue. All of the existing plumbing fixtures will be replaced with commercial grade water saving fixtures. The water closets and urinals may have flush valve hands-free sensor operation and the lavatories may have hands-free sensor operated faucets. These fixtures will comply with all current energy and ADA code requirements. The new plumbing fixtures for the new public and private restrooms will be commercial grade water saving fixtures meeting all current energy and ADA code requirements. The water closets and urinals may have hands-free sensor operated flush valves. The lavatories may have hands-free sensor operated faucets with tempered water supply.

Further details regarding the MEP Systems can be found in the attached report by Glumac Engineers.

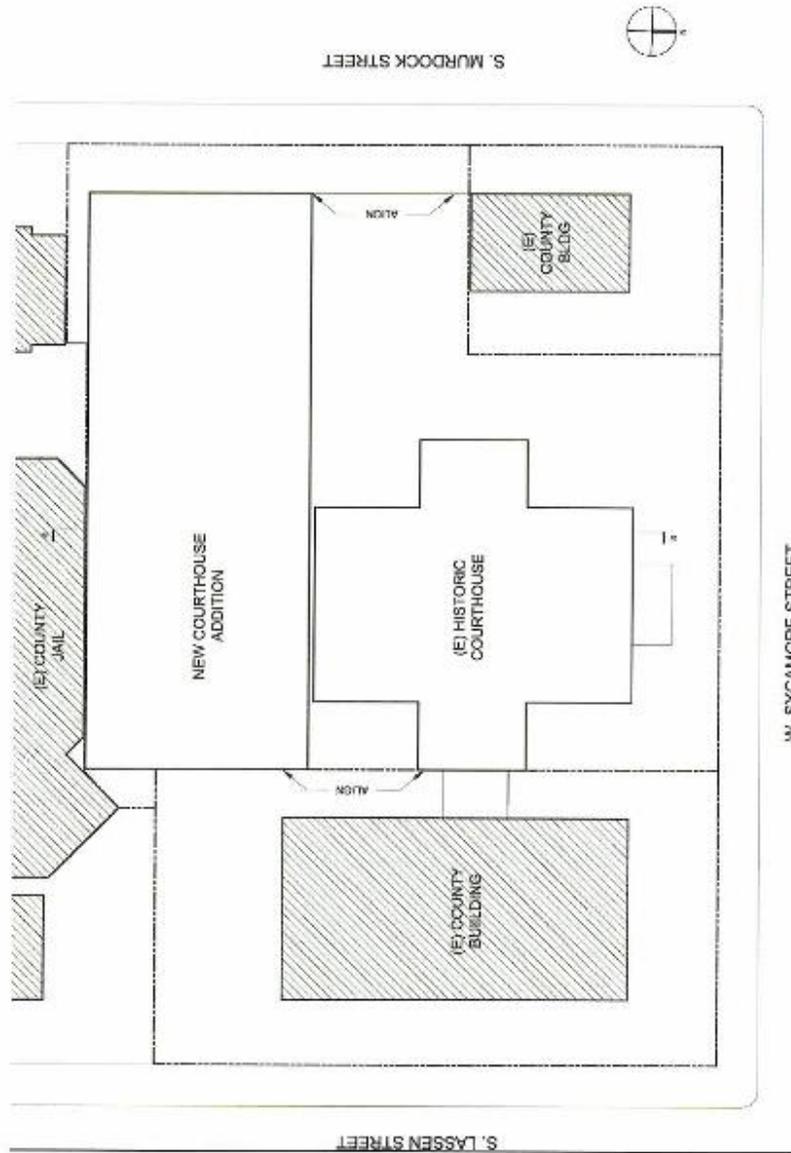
Willows Historic Courthouse Feasibility Study



Existing Site Plan

Mark Cavagnero Associates – Final Report 4 November 2009

Page 5



**Proposed Site Plan**

Page 6

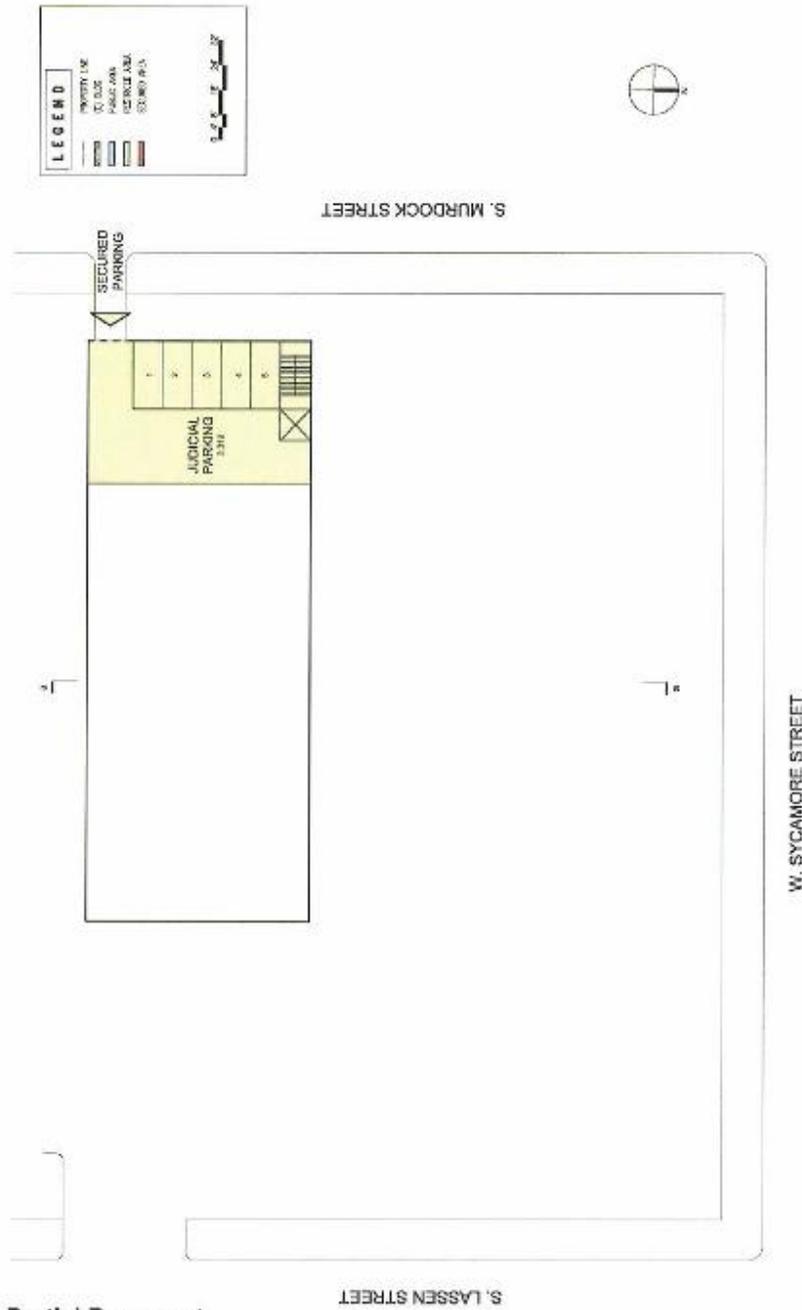
Mark Cavagnero Associates – Final Report 4 November 2009

Willows Historic Courthouse Feasibility Study





Willows Historic Courthouse Feasibility Study



Proposed Partial Basement

*Structural Report prepared by Rutherford & Chekene Engineers for the AOC under separate contract attached for reference.*

#### **Existing Building Structure**

Willows Historic Courthouse (circa 1894) is situated on a relatively flat site in a region of high seismicity. The building construction consists of un-reinforced brick masonry bearing walls with wood framed floors and roof. The two-story plus basement building was partially renovated in 1995 which included limited seismic strengthening (refer to drawing titled "*Renovation of Glenn County Courthouse Construction Documents Phase-1*", dated 8/8/95). The scope of 1995 seismic strengthening work includes the following:

- Exterior masonry walls at roof level were connected to the roof diaphragm for out-of-plane and in-plane seismic forces.
- Roof diaphragm was strengthened by addition of plywood sheathing over the existing roof sheathing.
- All masonry parapets were removed and replaced with wood framing.
- All roof balustrades were replaced with FRP replicas.
- Exterior masonry walls were anchored into the attic level framing with anchor bolts through the exterior masonry walls. The anchor bolts were attached to the floor joists. The attic level currently does not have a viable diaphragm and needs to be reinforced with plywood sheathing.
- Anchor bolts for attachment of exterior masonry walls to second floor diaphragm were installed through the masonry walls but were not connected to the floor framing. The attachment of perimeter-walls-through-bolts to floor diaphragm was left for a future renovation project which did not happen. The through bolts were observed at few locations during a limited site exploration.
- Anchor bolts for attachment of exterior masonry walls to first floor wood diaphragm were installed through the masonry walls. At some locations the through bolts were connected to the floor framing.
- Strengthening of first and second floor diaphragms were left for a future renovation project which has not been implemented yet.
- The entrance canopy was reframed including replacement of roof balustrades and entry columns.

#### **Seismic Strengthening Recommendations**

The existing courthouse including the 1995 partial retrofit measures does not meet the seismic safety provisions of ASCE-31 Section 4.2.6 (*Special Procedures for Un-reinforced Masonry*) or the 2006 International Existing Building Code (IEBC)

Chapter A1 (*Seismic Strengthening Provisions for Un-reinforced Masonry Bearing Wall Buildings – Special Procedures*).

Following additional seismic strengthening measures is recommended for the Willows Historic Courthouse:

URM walls out-of-plane bracing: Following walls on second floor need strengthening:

- i- Interior URM walls are typically 13" thick with H/T > 14, therefore need out-of-plane support.
- ii- The exterior walls of the south courtroom need bracing due to the higher un-braced wall height caused by the higher attic floor level relative to other areas in the building.

Roof Level:

In 1995, the perimeter URM walls were anchored to the new plywood sheathed diaphragm for out-of-plane and in-plane seismic forces. The out-of-plane attachments at gable walls are not adequate and needs to be further developed into the roof diaphragm. In addition, the original framing members supporting the roof rafters such as interior beams, ridge beams, and columns need to be connected to each other with metal connection hardware (light gage clip angles, plates, saddles, seats, etc.)

Attic Level:

The attic level lacks a structural diaphragm therefore following remedial measures are required:

- i- Add plywood to top of the existing attic level joists. Connect the new plywood to all interior and exterior URM walls for in-plane loads. Tie the new diaphragm across the interior masonry walls.
- ii- Improve the existing exterior wall dowels connections for out-of-plane forces to be adequately developed in the new diaphragm.
- iii- At two main trusses provide supplemental support at truss bearing points.

Second Floor Level:

- i- The 1995 renovation included dowels at approximately 4 feet spacing installed through the exterior walls but not anchored to the floor diaphragm. The existing anchors need to be extended and connected to floor diaphragm.
- ii- Connect the diaphragm to interior and exterior URM walls for in-plane forces
- iii- Attach interior CMU partition walls to the floor diaphragm for out-of-plane forces.
- iv- Strengthen the diaphragm.

- v- Additional future field investigation is required to ascertain the adequacy of main stair support and connections.

First Floor Level:

- i- The 1995 renovation included dowels at approximately 4 feet spacing installed through the exterior walls some of which are not anchored to the floor diaphragm. The existing anchors need to be extended and connected to floor diaphragm.
- ii- Connect the diaphragm to interior and exterior URM walls for in-plane forces.
- iii- Attach interior CMU partition walls to the floor diaphragm for out-of-plane forces.
- iv- Strengthen the diaphragm.
- v- At areas framed with Gladding McBeam system, additional field investigation is required to ascertain the adequacy of floor connection to the URM walls for out-of-plane and in-plane forces.

**Existing Documentations:**

Following existing documents were used for the general assessment of the existing structure

Architectural Drawings:

- Renovation of Glenn County Courthouse Phase One by Griffith & Associates, Architecture Engineering Interior Design, August 15, 1995

Structural Drawings:

- Renovation of Glenn County Courthouse Phase One by Griffith & Associates, Architecture Engineering Interior Design, August 15, 1995
- Structural Calculations with cover letter (4/21/04) by D.M. Griffith, Architect & Professional Engineer dated June 23, 1995

Reports:

- California Court Building Seismic Assessment Program, "Historic Courthouse Tier 1 Evaluation" by Cole, Yee, Schubert and Associates, April 9, 2004.
- Structural Investigation and Retrofit Drawings by Marr Schaffer & Associates of Sacramento dated May 2, 1985.
- Preliminary Geotechnical Investigation for Historic Courthouse Expansion by BSK Associates dated May 29, 2003.

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## Glenn County Courthouse-MEP Assessment

### PLUMBING

#### Existing

The existing Courthouse was constructed in the 1890's and has had multiple modifications and upgrades over the years. The existing plumbing systems consist of a 4" cast iron sanitary sewer service, 2" copper water service and natural gas service. The sewer and cold water services enter the building on the south (alley) side through the basement. The Courthouse has 2 low-pressure natural gas services; a 3" and 1-1/2", both enter on the south side of the building. A single gas meter located in a side yard on the south side of the Jail Building serves the Courthouse, Assessors Building, Jail/Sheriff, and Probation Building.

The existing toilet fixtures in the existing courthouse are tank-type. Because of the low water pressures these toilets have a high failure rate and are a constant maintenance issue. All of the existing plumbing fixtures will be replaced with commercial grade water saving fixtures. The water closets and urinals may have flush valve hands-free sensor operation and the lavatories may have hands-free sensor operated faucets. These fixtures will comply with all current energy and ADA code requirements.

#### Proposed

The new plumbing fixtures for the new public and private restrooms will be commercial grade water saving fixtures meeting all current energy and ADA code requirements. The water closets and urinals may have hands-free sensor operated flush valves. The lavatories may have hands-free sensor operated faucets with tempered water supply.

The new plumbing fixtures for the inmate holding areas will be stainless steel security combination fixtures.

The existing water pressure is approximately 30 PSI. Phase-One will require the installation of a water pressure booster system to increase the building water pressure to approximately 80 PSI to assure proper plumbing fixture operation throughout the building. The pressure booster system may be located in the basement of the existing Courthouse inline with the existing cold water service. The pressure booster system will consist of duplex pumps, automatic controls and pressure tank.

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Glenn County Courthouse  
November 4, 2009  
Page 2 of 6

The existing sewer and water services are of adequate size for Phase-One construction. Future phases of construction will require additional services be provided to accommodate new fixtures and load. The natural gas service to the Courthouse should be of adequate capacity for Phase-One construction, some modifications will be required due to multiple services to the building. Coordination will be made with P.G. & E. The only appliance requiring gas service after Phase-One will be the new hot water boiler. The existing gas furnaces will be replaced with new water source heat pumps thus reducing the gas load.

The new plumbing fixtures and equipment will be energy efficient for a LEED Silver certified building.

## **MECHANICAL**

### **Existing**

The existing mechanical systems in the Courthouse consist of a variety of systems. All of the existing mechanical systems vary in age. Each system is controlled by individual thermostat controls.

Individual split system horizontal gas furnaces/air conditioning units serve the courtrooms located on the second floor. The horizontal gas furnaces are located in the attic space and the conditioned air is fully ducted to ceiling diffusers and grilles. The outdoor condensing units are located on grade at the rear of the Courthouse off the alley. There is an excessive refrigerant pipe run in both distance and rise that will result in equipment failures due to compressor slugging and reduced equipment life. Complaints have been noted about uncomfortable zoning of the courtrooms and adjacent staff offices, judge's chambers and jury deliberation areas.

The office areas on the first floor are served by split system horizontal fan coils and air-to-air heat pump units. The horizontal fan coil units are located in the basement of the Courthouse with the conditioned air fully ducted to floor grilles on the first floor. The heat pump units are located on grade at the rear of the courthouse off the alley. Complaints have been noted about uncomfortable zoning of multiple offices.

Existing offices on the first floor west side are served by package heat pump units. These package heat pump units are located on grade on the west side of the courthouse and are ducted into the basement with the ductwork routed in the basement serving floor grilles on the first floor. Complaints have been noted about uncomfortable zoning of multiple offices.



Glenn County Courthouse  
November 4, 2009  
Page 3 of 6

**Proposed**

Phase-One will consist of a new mechanical system for the courthouse expansion and remodel and will consist of a central plant water source heat pump system.

The central plant water source heat pump system will consist of multiple cooling towers, water-to-water heat exchangers, hot water boiler, chemical free water treatment, circulating pumps, copper water loop piping, individual water source heat pump units and central direct digital controls (DDC) of the entire mechanical system.

The cooling towers and hot water boiler will be located on the roof of the new Phase-One expansion. The central plant will be capable of expansion in capacity as future phases are constructed. The heat exchangers, water treatment and pumps will be located a mechanical room in the basement of the Phase-One expansion.

The individual water source heat pump units will be zoned throughout the new building addition and within the existing courthouse building replacing the existing mechanical systems. The second floor spaces will be served by horizontal water source units suspended in the ceiling attic space and be fully ducted to ceiling diffusers and grilles. Each area will be zoned with separate water source heat pump units. The first floor spaces will be served by horizontal water source heat pump units located in the basement areas and be fully ducted to floor grilles on the first floor. Each area will be zoned with separate water source heat pump units. All units will have ducted ventilation air to meet minimum indoor air quality standards.

The supply and return water piping to the water source heat pump units will be looped and routed throughout the building.

The HVAC controls will be electronic direct digital controls (DDC). The controls will be PC based with graphic interface (GUI). The controls will monitor and provide control over each aspect of the mechanical system, as well as, control of each water source heat pump unit set points. This master control system will allow building systems personnel the ability to accurately respond to maintenance issues and occupant complaints for a single source.

The new mechanical system and equipment will be energy efficient for a LEED Silver certified building.

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Glenn County Courthouse  
November 4, 2009  
Page 4 of 6

## ELECTRICAL

### Existing

The existing electrical distribution system in the courthouse is being fed from pole-mounted transformer and pad mounted main service switchboard that are located in the alley south of courthouse. This switchboard is currently serving the courthouse, district attorney, and auditor/assessor buildings.

The existing main service switchboard is rated at 1200A, 208Y/120V, 3φ, 4W. According to PG&E records the maximum load on this switchboard occurred on August 2002 at about 160KW which is approximately equal to 600A, 208Y/120V (Assumed Power Factor 0.8).

The main breaker feeding the courthouse's main power distribution system is located at the main switchboard and rated at 600A, 3P. A separate 150A, 3P breaker is feeding the courthouse's main lighting panel. Both main power and main lighting distribution panels are located in the basement of courthouse. District attorney building is fed from 125A, 3P breaker located in the main switchboard. Another breaker inside the main service switchboard feeds auditor/assessor building; this breaker is rated at 600A, 3P.

The existing lighting systems are very old and inefficient and need to be upgraded to meet energy conservation goals and title 24 requirements. The interior lighting is not equipped with any type of automatic control system.

The existing fire alarm system is manual and controlled by a "Fire Lite" panel located in the basement.

The main telecom room (MDF) is located in the basement of courthouse. A 600 pair copper cable connects this telecom room to existing telephone vault located on the west side of courthouse at South Murdock Street. The MDF is connected by fiber optic cables to secondary telecom rooms (IDFs) located in adjacent buildings (i.e. Sheriff's Admin building, Jail Admin building, etc.). The existing equipment inside main telecom room seem relatively new and are most likely sufficient for the current needs.

### Proposed

The existing pole-mounted transformer and pad-mounted main service switchboard are in very poor physical conditions and currently operating beyond their safe working life. This service is required to be upgraded.

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Glenn County Courthouse  
 November 4, 2009  
 Page 5 of 6

Based on our preliminary load estimations the new service entrance switchboard will be required to be sized at 1600A, 480Y/277V, 3 $\phi$ , 4W. A new pad-mounted transformer will feed the new main service switchboard. The required pad size is estimated to be 7'x7'. All the new lighting systems will be fed from 277V circuits. Step-down transformers will be required in each building's electrical room to feed 208Y/120V loads such as convenience outlets

The new main electrical room will be located in the new courthouse building. This room needs to be sized enough to house main power, lighting, and fire alarm equipment. This room is intended to function as central plant for power, lighting, and fire alarm systems.

The electrical load estimation summary is shown below:

LOAD ESTIMATION		
TOTAL SQUARE FOOTAGE (S.F.): 70,000		
DESCRIPTION	W/S.F.	KVA
LIGHTING	3.0	210.0
DEVICES	2.0	140.0
HVAC	6.0	420.0
MISCELLANEOUS	1.5	105.0
TOTAL	12.5	875.0
AMPERES @ 480Y/277V, 3PHASE: 1003.7		
SERVICE TO BE 1600 AMP'S, 480Y/277V, 3PH, 4W		

To serve emergency loads, installation of standby generator system is recommended. At this time we estimate 600KW, 480Y/277V, 3 $\phi$ , 4W generator set complete with 800A transfer switch will be required. This generator's capacity is not sufficient to handle the entire buildings' HVAC load. The intention is to connect some critical HVAC units, lighting, and equipment to the emergency distribution system.

Emergency power distribution system can be configured such that another 600KW generator can be installed in parallel.

The generator can be installed outdoor. The outdoor rated generator enclosure size could be approximately 238"Lx122"Hx75"W. The transfer switch enclosure size could be approximately 38"Wx91"Hx28"D. The transfer switch can be integrated into main service entrance switchboard enclosure located in the main electrical room.



Glenn County Courthouse  
November 4, 2009  
Page 6 of 6

Fluorescent lamps can and should be used to light nearly all types of courthouse building spaces. They offer long life, high efficacy, good color performance, and low operating and maintenance costs.

The new premium energy efficient fluorescent T8 lamps (F32T8/835) are recommended. These lamps are rated at 32 watts, 3100 initial lumens (minimum), and color rendering index (CRI) of minimum 85. The regular fluorescent T8 lamps are rated at 32 watts, 2800 initial lumens, CRI of 75.

Lighting control system will be installed to boost energy saving capabilities. The automatic shut-off ensures the lights are off after hours. These control systems will reduce energy consumption as much as 35% or more.

Daylight harvesting is an ideal strategy for reducing usage during mid-day peak energy rates. These controls allow lights to be turned off or dimmed when not needed or reduce light output so no more light is produced than is necessary.

The programmable clock lets set the time schedules by time, dusk/dawn, or astronomical. To provide override capabilities to bypass any time clock schedules or daylighting controls, manual override switch will be provided in selected locations.

To ensure lights are off in unoccupied areas even during business hours, occupancy sensors will be provided in spaces with long periods of unoccupancy.

Per Title 24 requirements, the lights within 15 feet of windows shall have manual or automatic daylighting controls. Automatic daylight sensors are relatively inexpensive and will be recommended.