CLACKAMAS COUNTY BOARD OF COUNTY COMMISSIONERS

Policy Session Worksheet

Presentation Date: Feb. 14, 2017 **Approx Start Time:** 10:30 pm **Approx Length:** 30 min

Presentation Title: Red Soils Courthouse Funding Request for 2017 Biennium

Department: Finance, County Administration

Presenters: Marc Gonzales, Finance Director; Laurel Butman, Deputy County Administrator

Other Invitees: District Attorney John Foote; Presiding Judge Robert Herndon; Sheriff Craig Roberts; Debbie Spradley, Circuit Court; Jeff Jorgensen, Facilities Management; Becky Epstein, Natasha Koiv – SERA Architects

WHAT ACTION ARE YOU REQUESTING FROM THE BOARD?

This policy session is to update the Board of County Commissioners (Board) regarding the County's application for courthouse capital construction and improvement funding from the Oregon Judicial Department for the next phase of planning and construction of a new courthouse on the Red Soils campus. Project partners are requesting that the Board approve this application for funding at its Board business meeting on February 16, 2017.

EXECUTIVE SUMMARY:

The State of Oregon Judicial Department and Department of Administrative Services created a legislative bond program for Oregon Counties, through which Clackamas County is applying to receive State matching funds for the construction of a courthouse. The program will pay up to 50% of the planning and construction cost if a portion of the building is dedicated to housing another State program. In April, 2015 the Board authorized staff to begin creating a legislative request for State match funding in the 2017 legislative session with the aim of replacing the 1936 Clackamas County Courthouse.

Since 1998 the County has been consolidating and preparing the Red Soils Campus to serve the County's constituents. The new Courthouse is planned at the west end of the plaza between the Public Services and Development Services buildings. In addition to owning the land on which the Courthouse will sit, the County has installed infrastructure in anticipation of serving its needs.

The Department of Human Services, which works with many of the departments on campus in addition to the Courts and the District Attorney, will be the required co-located State Agency. The County will provide them with dedicated office, meeting, and staff supervised waiting spaces for clients.

This funding request for the 2017-2019 biennium is for 1.25 million dollars in matching funds to continue the planning process for the Courthouse design. The total estimated project cost is $154 million and the matching funds will be requested in three phases; this is the first phase. Further detail is provided in the attached application.

FINANCIAL IMPLICATIONS (current year and ongoing):

Is this item in your current budget? ☒ YES ☐ NO

What is the cost? $2.5 million of which the County's 50% share for this phase is $1.25 million
What is the funding source? General Fund, much of which has already been expended

STRATEGIC PLAN ALIGNMENT:

This project aligns with three of the Board's five Strategic Priorities:

- *Build Public Trust through Good Government*: supports and assists a cooperative effort among multiple agencies to best serve the public

- *Ensure Safe, Healthy and Secure Communities* and *Build a Strong Infrastructure*: replacement and upgrade of the courthouse will provide a more resilient and effective space for court operations

LEGAL/POLICY REQUIREMENTS:
There are no legal changes or policy requirements at this time.

PUBLIC/GOVERNMENTAL PARTICIPATION:
Public and Governmental Affairs is assisting in the legislative strategy/process. Additionally, elected officials such as the Board of County Commissioners, Presiding Judge and District Attorney will need to work together to advocate for project funding.

OPTIONS:

1. Direct staff to bring this item forward on the next business meeting for approval to apply.
2. Direct staff not to bring this item forward to a business meeting pending additional information.
3. Deny approval to apply for this funding opportunity.

RECOMMENDATION:

Staff respectfully requests that the Board approve Option 1 to forward this item to the next Board business meeting.

ATTACHMENTS:

1. Clackamas County New Courthouse Oregon Judicial Department Application

SUBMITTED BY:
Division Director/Head Approval
Department Director/Head Approval MG
County Administrator Approval LSB

For information on this issue or copies of attachments, please contact Laurel Butman at (503) 655-8893.

DRAFT

Clackamas County New Courthouse

Oregon Judicial Department Application

February 2017

Image: Lady Justice
Photo courtesy of
Debbie Spradley

Courthouse Capital Construction & Improvement Fund

Oregon Judicial Department Application

Clackamas County New Courthouse, Red Soils Campus

February 7, 2017

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CLACKAMAS COUNTY

BOARD OF COUNTY COMMISSIONERS
PUBLIC SERVICES BUILDING
2051 KAEN ROAD | OREGON CITY, OR 97045

February 16, 2017

The Honorable Thomas A. Balmer
Chief Justice
Oregon Supreme Court
1163 State Street
Salem, OR 97301-2563

Dear Chief Justice Balmer:

Clackamas County appreciates the opportunity to submit this application for consideration by the Oregon Judicial Department, Department of Administrative Services, and the Oregon State Legislature for a 50% funding match for the planning and construction of a new Courthouse.

Since 1998 the County has been consolidating and preparing the Red Soils Campus to serve the County's constituents and the new Courthouse is planned at the heart of the campus. In addition to owning the land on which the Courthouse will sit, the County has installed infrastructure in anticipation of serving its needs.

For the 2017-2019 biennium Clackamas is requesting 1.25 million dollars in matching funds to continue the planning process for the Courthouse design. Our co-located State Agency will be the Department of Human Services which works with many of the departments on campus in addition to the Courts and the District Attorney. We will be providing them with dedicated office, meeting, and staff supervised waiting spaces for clients. With this letter you will find our application material and the full support of the County. We look forward to the opportunity to work together on this historic undertaking by the State.

Signature Page Follows

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With sincere appreciation,

Jim Bernard, Chair

Sonya Fischer, Commissioner

Ken Humberston, Commissioner

Paul Savas, Commissioner

Martha Schrader, Commissioner

Robert Herndon, Presiding Judge

John Foote, District Attorney

Craig Roberts, Sheriff

Don Krupp, County Administrator

Debbie Spradley, Trial Court Administrator

Marc Gonzales, Finance Director

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Section 1: Executive Summary

For over 20 years Clackamas County has been planning, building, and consolidating relevant services to the County owned Red Soils Campus in Oregon City to provide a cohesive integrated public service center for citizens. A new Courthouse facility has been the center of that master plan since its inception.

The Oregon Courthouse Capital Construction Improvement Fund provides a path to assist the County with realizing this piece of the master plan. The current 1937 Courthouse has served the County and the Fifth Judicial District well for the past 78 years but the facility is in a high seismic zone at the edge of the Willamette River and the soil has the potential to be liquefiable and have lateral spreading in a design base seismic event. Additionally, the Court is lacking roughly 16,236 square feet of program space for the current staff and Courtrooms they have today. The existing building is also lacking the recommended separation of circulation paths for staff, public, and prisoners. The courthouse remains functioning due to the efforts of the maintenance and facilities staff who work overtime to ensure the building stays operational. Unfortunately, this is a losing battle against age and space limitations.

Clackamas County's population is projected to grow by 52.95% by the year 2050. The current approved master plan, forecasted to 2030, identifies a need for 16 courtrooms. Projections to 2050 identify a high of 26 and a low of 18 courtrooms. Given the rate of judicial appointments and mutual goal of building a new fiscally responsible facility the County and the Fifth Judicial District have opted to build-out 16 courtrooms for an overall Courthouse facility of approximately 216,000 gross square feet. This facility would hold all of the Fifth Judicial District Court Services including:

- 16 Courtrooms for Civil, Probate, Mental Health, Felony, Misdemeanor, Family Court, Juvenile Dependency, Treatment and associated support spaces
- 20 Judicial Chamber sets
- Court Operations and Administration
- Grand Jury, Jury assembly and deliberation rooms
- Sallyport, holding and support spaces for the Sheriff Civil Division
- Secure parking for Judicial staff
- Secure loading dock and staging

The County has identified space in the building for the Department of Human Services (DHS) and is requesting 50% matching funds from the State for the capital construction costs of the Courts portion for the replacement of the current Courthouse Facility for a new facility built on the Red Soils Campus. The selection of DHS was based not only on their role with the Courts and District Attorney's office, but also on their involvement with other departments on the Red Soils Campus.

The facility would also hold the administrative, felony, misdemeanor, victim assistance, and family support departments for the District Attorney of Clackamas County's office which would be fully funded by the County.

The estimated project cost is $154 million for the Court portion of the new facility and we are targeting a Q4 2019 construction start. Given the

size of the project and recommendation to stabilize the funding requests through the Association of Counties (AOC), the County will divide the matching fund request into three biennium:

2017-2019	$1.25 million (planning)
2019-2021	$28.8 million (design & pre-construction)
2021-2023	$48.2 million (construction & furniture)

The Fiscal Year 2017-2019 budget request has the endorsement of the Chief Justice as a Priority #2 project and will allow the County to continue planning efforts.

The County has an experienced in-house project management team that has completed the newer buildings on the campus since 2004 and has also completed central plant infrastructure that will serve the courthouse and other future campus buildings. The infrastructure includes a stub to the courthouse site that has fiber, data and telephone connections, and connection to the closed loop chilled and hot water system.

The new Courthouse project has the unanimous support of the County Commissioners, Presiding Judge, District Attorney, Trial Court Administrator, and the Sheriff and would finally move the courthouse from the precarious position at the Willamette River edge.

Given its importance on campus, and as a fiscally responsible use of taxpayer funds, the new courthouse estimate includes designing to an 'Immediate Occupancy' seismic performance level for the structural and non-structural systems. The stouter design is above a current code designed building ('life safety') which would allow for exiting, but might not be usable after an event.

The Red Soils campus has two newer buildings, the Public Services Building (PSB, 2001) and the Development Services Building (DSB, 2007) which flank the courthouse site and established a palette of building and site materials. Each building has an individual architectural character, but complement each other and define the plaza which will be completed with the new Courthouse.

Image 0: View to the east from the Courthouse site (photo prior to plaza build-out)

Image 1: Clackamas County Red Soils Campus Master Plan (2030)

Section II: Current System Profile

Occupants

The current courthouse has 11 courtrooms and the capacity to hold 27 in-custody prisoners awaiting court time.

Table 1 identifies current staff by operational group within the building. There is budget and approval to add (3) more judges to the current staff, but appointments have not been granted and there is no room in the current configuration of the building to accommodate three new judicial staff or new courtrooms.

Infrastructure

While much of the infrastructure has been updated over the years there is not enough space for adequate infrastructure or growth. Wires run across benches and litigation wells as there is no way to reach the areas from above or below. Although well maintained, they present a constant tripping hazard and the risk of disconnecting an important piece of equipment during a hearing. The fix to this would be costly and would require the floor and every judicial bench to be torn up in order to rewire each courtroom.

There are seven courtrooms in the existing courthouse that still require an audio/visual cart to be rolled in, and there are only two audio/visual carts currently owned by the Courts. This condition could potentially lead to a delay in court proceedings if the carts are required by more than two trials at any given time.

Table 1: Current Judges and Staff

	FTE
Circuit Court Judges	11
Referees	1
Judicial Support Staff	22
Court Admin and Operations Staff	65
Court Services (Treatment Programs)	2
Family Court Services	1
Interpreters	2
Sheriff's Office and Facility Security	32
District Attorney's Office	44
Total FTE	180

Image 2: Steps to witness stand in Courtroom 5

Image 3: Cables at litigation well in Courtroom

Section III: Current Courthouse Facilities Assessment

History

The existing Clackamas County Courthouse was built in 1936-1937 to replace a previous 1884 courthouse that had become badly deteriorated and overcrowded. Designed by architect F. Marion Stokes in the Art Deco style and funded in-part by a Public Works Administration (PWA) grant, the courthouse originally contained three courtrooms (circuit, justice, and county) and housed multiple other county departments including the county clerk, the Sheriff's Office, the district attorney, juvenile services, and the county jail. In the years since, as Clackamas County grew in population from around 50,000 to nearly 400,000 residents, most of the county functions outgrew their space in the original building, including the circuit court, which needed to expand. This resulted in the other county functions moving to dedicated buildings of their own, many of which are now located on the Red Soils Campus. Those functions that remained behind were the district attorney offices, which encompass most of the ground floor, and the Civil Division of the Sheriff's Office, which occupies a small office on the first floor. In 2007, the Ralph M. Holman Law Center, located on the opposite side of the same block, was renovated to include the Law Library, drug and alcohol court, and jury facilities and assembly. This left room for the circuit court to expand to a total of ten courtrooms within the walls of the original courthouse building.

Current Courthouse Occupancy

Ground Floor

- Staff Entry/Security Screening (410 sf)
- District Attorney (5,234 sf)
- Grand Jury Room (288 sf)
- Boiler & Facility Operations (1,495 sf)
- Court Administration (4,333 sf)
- Mailroom (35 sf)

First Floor

- Entry/Security Screening Area (660 sf);
- Civil Division of the Sheriff's office (1,886 sf)
- Courts Administration (4,400 sf)
- (2) Courtrooms, (2) Judicial Chambers and Support, (1) Jury Room (4,810 sf)

Second Floor

- (4) Courtrooms, (4) Judicial Chambers and Support, (2) Jury Rooms, and Criminal & Calendaring Office (9,040 sf)
- In-custody prisoner holding and support areas (1,266 sf)

Third Floor

- (5) Courtrooms, (5) Judicial Chambers and Support, (3) Jury Rooms (12,743 sf)
- Courts Administrator's Office (798 sf)

Ralph M. Holman Law Center

Ground Floor:

- Law Library (2,605 sf)
- Interpreters (244 sf)
- Shared conference (431 sf)

Second Floor

- Jury Assembly (1,452 sf)
- Holman Hearing Room (797sf)
- Administrative Area (451 sf)

Image 4: Site Plan of existing Courthouse and Holman Law Center

ADA

The courthouse falls short of complying with ADA accessibility standards in many respects, namely in that jury boxes, witness stands, and judicial benches are accessed by one or two steps throughout the courthouse.

One courtroom and the jury room shared with another courtroom are entirely inaccessible to anyone with mobility disabilities due to the flight of steps that is required to reach them. A lift was installed some years ago, but it has since broken due to use beyond its weight capacity and now needs replacement. To remedy this, a

plywood ramp was installed in the secured courtroom that led to a path behind the judicial bench and through the judge's chambers.

Many doors throughout the building do not meet ADA clearance requirements to the point that anyone using a wheelchair would be unable to open a door without assistance while other doors measured were extremely narrow, down to 29 inches in at least one instance.

Due to size restrictions of the existing building, considerable renovations would be required to bring it up to today's accessibility standards at the expense of currently usable space. In the best case scenario, a courtroom ADA upgrade would remove its own gallery, two judicial (secure) restrooms, and a secure hallway in its expansion (see image 5). This, however, would not be the same across the board.

These renovations, if even possible in some cases, would impact court processes and functionality more than it would help. Courtrooms would have to be shut down for the

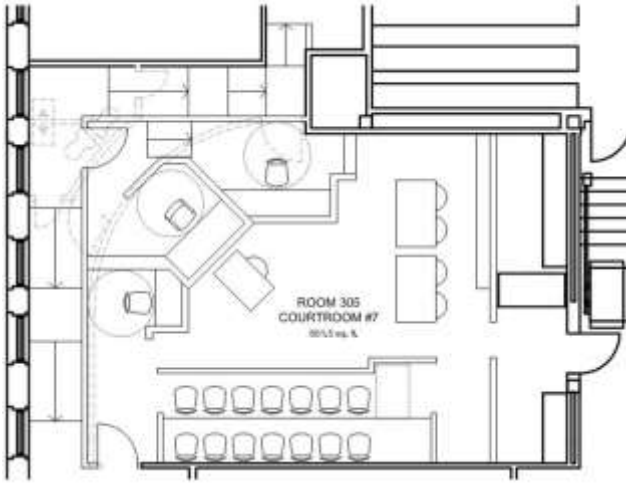


Image 5: Example of ADA Upgrade to Existing Courtroom- would mean loss of judicial chamber space

Image 6: Inaccessible witness stand

Image 7: Stairs up to Courtroom 8 and non-functioning lift due to inadequate existing wall bearing capacity

duration of their overhaul and the resulting noises could easily disrupt any judge's chambers attached to or located near the affected courtrooms.

There is one public restroom for each gender that is sized to be ADA compliant, for the entire building, both of which are located on the first floor.

The only parking lot that offers long term parking for jurors is 0.3 miles from the Courthouse and has two metered ADA parking stalls. There are three additional metered street ADA parking stalls to the south and east of the Courthouse entry. The County does not have jurisdiction over the parking, however. It is provided and maintained by another entity. Jurors with mobility disabilities would potentially require a companion to drop them off and pick them up in front of the building, where parking is metered, short-term, and hard to come by.

Space Adequacy

As court functions in the current courthouse grew and other departments left the building, the original floor plan was redesigned to fit in as many courtrooms as possible through various remodels to accommodate the Court staff. As a result, many of the spaces are small, oddly configured, and offer no room for future expansion. It was observed that an employee would have to announce the fact that she was backing up in her chair to avoid colliding with her officemate (Room 300) and that others would have to intrude into a co-worker's desk space, requesting the chair to be pulled in, in order to help the public (Room 100).

A large deficit exists between current and required square footage for courts operation areas (Table 2, page 10), resulting in crowded workspaces that only function because there is no alternative. Room 301, an office area for the Trial Court Administrator's direct staff, is also used to store office supplies, which line the walls and open floor space.

The courtrooms are similarly crowded and do not meet size requirements, often to a large degree (Table 3, page 10). The litigation wells are crowded, offering little room to maneuver, and counsel tables were found to be butted up against each other in many courtrooms with no room to separate without impeding already narrow pathways. As an example, Courtroom 8 is so narrow that a door to the secure staff hallway opens directly into a counsel table that is unable to move out of the path of the door swing due to space restrictions. Because of this, the door is unable to fully open. Deputies must also route prisoners coming in and out of the courtrooms through the public gallery and the litigation well, navigating the benches, tables and floor obstructions.

For example, to right size Courtroom 6 the neighboring jury room, judicial chamber and office, and part of the hallway would have to be removed to fit a 1,600 square foot courtroom that is in line with current courthouse requirements. Unfortunately, this would not be a singular event. Most courtrooms would have to expand into the surrounding support space to bring them up to size recommendations. This

would force judges and their staff out of their current offices and potentially orphan them, which is too high a price to pay in order to expand and modernize the current courtrooms.

Overall, only Courtrooms #5 and #10 have an adequate amount of room to operate correctly (see Table 3).

The Clackamas County Courthouse does not currently meet the space needs of the Fifth Judicial District and has no room to expand within or around the existing building.

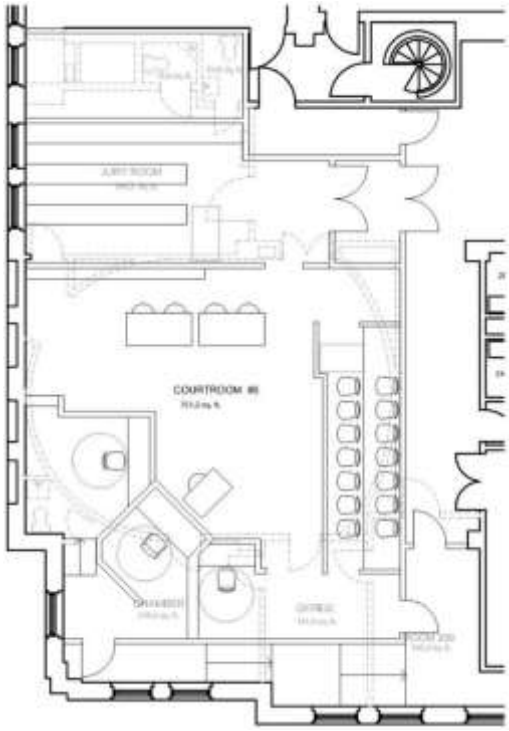


Image 8: Courtroom #6-work required to upgrade room Dashed Lines reflect rooms that would need to be removed

Table 2: Support Space Inadequacy[1]

[1] *Note: Minimum Required Square Footage per Occupant was taken from the 2011 California Trial Court Guidelines.*

Room Name	Size (inSqFt)	No. of Occ	Actual SF/Occ	Min. Req'd SF/Occ	Min. Size Req'd (in SqFt)	Deficit (in SqFt)
Room 104 (Court Staff)	3975	36	110.42	250	9000	-5025
Room 100 (CCSO)	744	8	93.00	250	2000	-1256
Captain's Office	130	1	130.00	200	200	-70
Sergeant's Office	92	1	92.00	120	120	-28
Sergeant's Office	101	1	101.00	120	120	-19
Room 200A	341	3	113.67	250	750	-409
Room 200B (Docketing)	852	12	71.00	250	3000	-2148
Courtroom #1 Judge's Office	491	2	245.50	250	500	-9
Courtroom #2 Clerk's Office	68	1	68.00	100	100	-32
Courtroom #3 Judge's Office	199	2	99.50	250	500	-301
Courtroom #3 Jury Room	289	14	20.64	25	350	-61
Courtroom #4 Judge's Office	202	2	101.00	250	500	-298
Courtroom #5 Judge's Office	305	2	152.50	250	500	-195
Courtroom #6 Judge's Office	142	2	71.00	250	500	-358
Courtroom #6 Jury Room	293	14	20.93	25	350	-57
Courtroom #7 Judge's Office	164	1	164.00	250	250	-86
Courtroom #8 Judge's Office	260	2	130.00	250	500	-240
Courtroom #8 Jury Room	240	14	17.14	25	350	-110
Courtroom #9 Judge's Office	300	2	150.00	250	500	-200
Courtroom #10 Judge's Office	290	2	145.00	250	500	-210
Courtroom #10 Jury Room	327	14	23.36	25	350	-23
Courtroom #11 Judge's Office	171	2	85.50	250	500	-329
Courtroom #11 Judge's Chambers	184	1	184.00	200	200	-16
Courtroom #11 Jury Room	267	14	19.07	25	350	-83
					Total	**-11563**

Table 3: Courtroom Space Inadequacy[2]

Room Name	Litigation Well Size (in SqFt)	Min. Size Required (Litigation Well)	Deficit (Litigation Well)	Overall Size (in SqFt)	Min. Size Required (Overall)	Deficit (Overall)
Courtroom #1	570	800	230	1463	1600	-137
Courtroom #2	410	800	390	993	1600	-607
Courtroom #3	493	800	307	1009	1600	-591
Courtroom #4	510	800	290	1027	1600	-573
Courtroom #5	720	800	80	1776	1600	176
Courtroom #6	235	800	565	751	1600	-849
Courtroom #7	315	800	485	852	1600	-748
Courtroom #8	281	800	519	839	1600	-761
Courtroom #9	424	800	376	851	1600	-749
Courtroom #10	778	800	22	1746	1600	146
					Total	**-4693**

[2] *Notes: 1) The size of many litigation wells had to be estimated based on plan drawings of the courtrooms due to the inability to access them. To find this, the average size of the jury box, small gallery, witness box, judicial bench, clerk's station, and the court reporter's desk was subtracted from the provided square footage of the courtroom. Where a gallery or any other item from the above list was evidently drawn, this number was removed from the calculation; 2) The Minimum Size Required value of the litigation wells was taken from the 2008 Hennebery Eddy Oregon Court Facilities Assessment Report; 3) The Minimum Size Required value of the overall courtroom was taken from the 2011 California Trial Court Guidelines size requirements for a multipurpose courtrooms.*

Fire and Life Safety

Emergency Exiting

There is a potential for significant risk to human health if an emergency were to befall the current courthouse. While there are two stairwells that could be used as means of egress, both were found to be lacking in a variety of ways.

The main, original stairwell that rises from the ground level to the third (top) level is open circulation hallways and would act as a chimney in the case of a fire, allowing smoke and flame to penetrate the entire building. It would be unable to shield anyone trying to escape the building and would likely present itself as a hazard rather than a safety measure. Further, structural engineers found that this stair would likely fail and collapse during a seismic event, making it an unreliable escape route.

The second stairwell is a newly built, enclosed stairwell that was included in a 2011 sallyport addition that replaced a secondary original stairwell. In its day-to-day operation, this stairwell is used by Judicial staff, law enforcement officers and in-custody prisoners and is secured from the rest of the courthouse to maintain recommended separations. Though built to meet the fire codes at the time of permitting, and therefore safe and reliable, it could not act as the primary exit for everyone in the building due to size and travel distance. Were an emergency to occur and the main stairwell was rendered unusable, the enclosed stairwell would see a mix of judges, prisoners, general public, and court staff as the only other means of egress.

Due to the proximity of the building to the river bank, required setbacks, and existing property lines, there is no way to build an additional stairwell to address the necessary separation of judges and prisoners or to provide a means of egress were the open stairwell to fail; or to add an area of refuge for disabled individuals in a location that complies with building codes.

Fire Suppression Systems

No deficiencies were found in the fire suppression systems. The Courthouse underwent an extensive fire sprinkler upgrade in 2007, resulting in the building being sprinklered throughout.

Security

Site Security

The existing Courthouse has City managed street parking within a 35-foot perimeter on the East, including a TriMet bus stop for Line 33. This elevation has a three-foot planter wall, steps and a ramp leading to the main entry, but is vulnerable given the location of the bus stop and public street parking occurring so close to the perimeter. On the south, the County has arranged for the City managed street parking on this side to be reserved for Judicial staff except for two-public access ADA stalls. However, the Judges are vulnerable on the path from these non-secure parking stalls to their chambers.

The County owns the property to the north of the Courthouse, and has 16 of the 25 spaces spaces in an open lot, the sallyport entrance and

an un-manned, card access staff door. The property shares non-secure ingress and egress, and parking access through an easement agreement with a neighboring business. 16 of the 25 parking stalls are assigned to both deputies and judges Monday through Friday during specific posted hours. The Sheriff's office will both ticket and/or tow private vehicles who violate the posted signage so the judges and deputies can park in their assigned spot.

Although the sallyport entrance is covered by exterior building cameras and well lit, in-custody transfer is vulnerable as prisoner family members try to verbally contact or gesture to them as they are transported through the non-secure parking area by the adjoining public plaza. Jurors are also routed through the plaza and have visual contact with prisoner transportation and families. Additionally, the Civil Division must coordinate their transfers to not coincide with a train passing one block east on the shortest route back to the Red Soils Campus Jail.

To the west the Courthouse is flanked by McLoughlin Boulevard at the point where the road bridges over a cliff to the Willamette River. Between the building and cliff there was a parking space, but the asphalt is eroding and the area has been deemed unsafe for parking, and the area shrinks to four-feet from cliff to building corner.

Utility connections are located behind planting material on the east and north elevations, but accessible to the public.

Interior Security

The main and staff entries do not provide enough space to adequately address safe queuing and security protocols prior to reaching

Image 9: Bus stop at main entry to courthouse

Image 10: McLoughlin Boulevard to the left, courthouse to the right

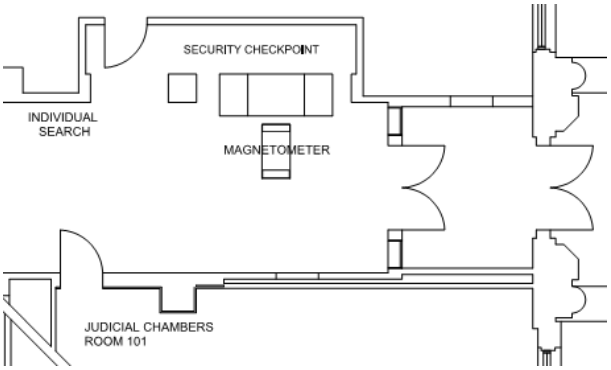


Image 11: Ground floor plan, detail at Main Entry

court spaces. On the ground level, within six-feet after passing through the magnetometer, across from the area designated for individual search, is the entrance to a Judge's Chamber. The judicial, civil and courts staff use the same circulation routes as in-custody prisoners and public to reach their chambers and two of the courtrooms. Although the sallyport and holding area were recently constructed, in-custody prisoners must still be transferred to courtrooms through public cirulation routes and frequently use public restrooms during court appearances.

Jurors assemble in the neighboring Holman Building and are badged prior to being escorted to the courthouse and brought through the side basement level security checkpoint. The time consuming path to the courthouse brings the jurors past the sallyport entry, front courthouse entry and, after passing through security to a waiting area by the grand jury room and entrance to the district attorney's office. There are many opportunities that expose the jurors to witnesses, defendants, attorneys and officers. The Civil Sheriff's Division spends a great deal of time orchestrating prisoner transfer with jury movements which reduces valuable trial time.

There is no room for testifying law enforcement employees to wait separately from public circulation and prisoner transfer, nor is there room for jury assembly to occur within the courthouse. Jury assembly is housed in the Holman Law Center and jurors are issued a badge to identify themselves as they travel between the buildings.

Benches are not made from bullet resistant assemblies as recommended. Four Judges Chambers have line of sight to neighboring buildings. The safest path out of the building in a fire, earthquake or drill is through the new sallyport addition which would be a shared path for judges, staff, public and prisoners.

In summary, given the interior space and site challenges the staff, public and building are extremely vulnerable to various scenarios of security breaches.

Hazardous Materials

The County performed an update to a previous Asbestos and Lead Paint Survey in 2012 which identified the following materials which either

Image 12: In-custody prisoner accessing public restrooms on level 1 by public queuing

Image 13 In-custody prisoners being moved through public hallway

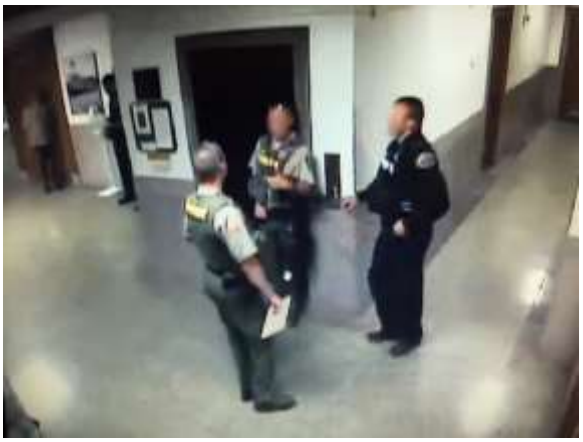


Image 14: Deputies and officers waiting for trial

tested positive or based on the experience testing agents are considered positive:

- Carpet Mastic-Third Floor Jury Room, south (240 sf)
- Hard Fittings/Fiberglass-exposed above the ceiling in men's holding cell foyer (10 each)
- Pipe Insulation-concealed in wall and ceiling (not quantified)
- Ceiling material-third floor jury room hallway (120 sf)
- Vinyl Floor Tile/Mastic-Third jury room hallway, jury room restrooms, inside wall cavity between third floor holding area hall and men's cell (400 sf)
- Window Sealant-North building exterior between wood window frames and brick (18 each)

Structural Summary

Our seismic evaluation of the Clackamas County courthouse has indicated that the building has numerous seismic deficiencies that are common for its type and era of construction. Deficiencies exist for both the structural systems (i.e. walls, columns, beams, etc.) and the nonstructural systems (i.e. ceilings, chimneys, mechanical equipment, etc.). Consequently, we would expect that the building would experience significant damage during a design level earthquake (a 500 year event) and pose a risk to the life safety of the occupants. (See Appendix for full report by KPFF)

Image 15: Cliff at Willamette River (looking south)

Image 16: Eroding asphalt at Willamette River elevation

Image 17: Cliff at Willamette River (looking north)

Geotechnical Summary

Our geotechnical and seismic hazard evaluation indicates that the subsurface conditions at the site are conducive to seismic hazards. Specifically, the site soil below the groundwater table is susceptible to liquefaction under design levels of ground shaking with several inches of liquefaction-induced settlement possible. In addition, lateral spreading is anticipated toward the river and movement could be on the order of several inches to several feet in a design level earthquake. (See Appendix for full report by GeoDesign, Inc.)

Image 18: Image of lateral spreading due to liquefaction in Tumwater, WA (Photo from USGS website & Geomatrix)

Environmental Summary

The current location of the Clackamas County Courthouse has the potential to pose significant risk to human health and/or to uninterrupted operations during the following scenarios: Geologic Hazards (flooding, landslide, and earthquake); Road Restrictions or closures (flooding, bridge failure or closure, transportation – large volume of traffic or vehicle accident, railroad use); and Industrial/Chemical Accidents.

Geologic Hazards pose a significant threat to the courthouse and any humans present due to its location and consequent potential for a mass wasting event like a mudslide from the cliff above or the site itself. (See Appendix for full report by Creekside Environmental Consulting LLC and EVREN Northwest, Inc.)

Systems Summary

The existing mechanical and electrical systems were found to be severely lacking for the continued use of the current Clackamas County Courthouse. Much of the mechanical equipment is beyond the end of its useful life and is unreliable. Maintenance personnel are required to work excessive hours in order to keep the building's systems running to an even moderately acceptable degree and those man hours are expected to only increase as the equipment ages further. The electrical systems face similar problems in that they are old, outdated, and unreliable. Continued use and maintenance of all these systems is not recommended as it will be expensive and ultimately serve only as a stopgap before complete failure. Replacing any of these systems will be significantly intrusive and potentially infeasible in the existing courthouse and for the occupants.

It is expected that when, rather than if, the equipment fails to the point of becoming non-operational, court operations will be detrimentally impacted before repairs can take place. Such repairs would potentially impact the courthouse beyond its capacity to efficiently operate while under such a large overhaul of building systems. (See Appendix for full report by PAE)

In summary, the existing Courthouse was ranked 23rd (3.53) in the DAS 2008 Facilities Assessment Report against other courthouse facilities. The report covered an important range of critical items, now eight years older and burdened. It did not however, evaluate seismic performance of these facilities. For the Courts and County, this is an actual threat to the safety of staff and visitors.

Section IV Court System Growth Analysis

Population Demographics and Court Case Filing Projection Analysis

The Portland metropolitan area includes a planning area that encompasses three counties: Multnomah, Washington and Clackamas. Since commuting and intermingling of residents from the three counties is common, court filing projections used as precedence take the growth of the whole Tri-County area and demographics into consideration. According to figures from the Oregon Department of Administrative Services, Office of Economic Analysis (2013) and Portland State University, Population Research Center (2015), the Tri-County area will grow 46.6% by 2050 with the largest amount of growth in Washington County. (See Table 4)

TABLE 4: POPULATION ESTIMATES			
County	Year 2012	Year 2050	Percent Growth
Clackamas	**381,680**	**583,814**	**52.95%**
Washington	542,845	915,979	68.73%
Multnomah	755,174	982,504	31.27%
Metro Area Growth	1,672,970	2,482,297	48.37%
Source: OOEA/DAS (2013)			

These numbers are adapted from the Oregon Office of Economic Analysis (OOEA) (2013) that include population estimates from 1980-2050. Clackamas County is projected to grow 52.95% between 2012 and 2050, which represents an additional 202,134 residents (OOEA/DAS, 2013) with an average annual growth rate of 1.23%, just slightly above the average annual growth rate of the Tri-County area at 1.22%. (See Table 5)

TABLE 5: CLACKAMAS POPULATION ESTIMATES						
2005	2010	2012	2020	2030	2040	2050
358,301	376,780	381,680	422,576	485,054	537,753	583,814
Source: OOEA/DAS (2013)						

The case filing composition for Clackamas County historically contains Criminal Other, Civil/Small Claims and Criminal Misdemeanor as the largest case filing types prior to 2010. In 2010, Clackamas County traffic court opened and shifted the traffic cases away from the Criminal Other filings at the main courthouse, which previously contributed 1,600-1,900 case filings per month. Since 2010, the largest composition of case filings occurred in Civil and Small Claims, Criminal Misdemeanor, and Family as shown in Table 6.

TABLE 6: CASE FILINGS COMPOSTION-HISTORIC									
Year	**Civil/ Small Claims**	**Probate**	**Mental Health**	**Criminal Felony**	**Criminal Misd.**	**Criminal Other**	**Family**	**Juvenile Dep.**	**Juvenile Delinq.**
2000	21.08%	1.75%	1.25%	5.09%	10.30%	49.10%	8.70%	1.02%	1.72%
2014	52.47%	4.00%	2.77%	8.60%	13.56%	1.52%	13.84%	1.79%	1.44%
Change	31.39%	2.25%	1.53%	3.51%	3.26%	-47.58%	5.14%	0.77%	-0.27%

Examining the trend in case filings from 2000 to present, there has been an increase in total filings for Civil/Small Claims, Probate and Mental Health. During this same time period there was a decline in case filings for Criminal Misdemeanor, Juvenile Delinquency, Criminal Misdemeanor, Family, Criminal Felony, and Juvenile Dependency (See Table 7).

TABLE 7: CASE FILINGS CHANGE FROM 2000-2014									
Year	**Civil/ Small Claims**	**Probate**	**Mental Health**	**Criminal Felony**	**Criminal Misc.**	**Criminal Other**	**Family**	**Juvenile Dep.**	**Juvenile Delinq.**
	30.89%	19.98%	16.94%	-11.16%	-30.77%	-98.37%	-16.4%	-7.71%	-55.8%

These historic case filing trends can be extrapolated to project future case filing loads. The further out into the future that we attempt to project, the lower the reliability of trends will be. Additionally, recent historic trends may not accurately reflect the trend of crime rates over the past 50 years to predict patterns that occur over larger periods of time or potential crime rebounds. Other factors that have had an effect on historic crime rates such as legislative changes and economic fluctuations cannot be accounted for in this method of case filing projection. It is acknowledged that future legislative changes could have an impact on criminal caseloads in either direction, most notably the minimum sentencing laws and early release that have historic relevance on case filing quantities. Non-criminal case filings historically have had an increased share of the case filing composition and would remain unaltered by legislative actions.

The correlation of historic case filings to historic population growth is one method for predicting future case filing behavior. This method assumes that there is a linear relationship between a change in population and a resulting change in case filings and is modeled through linear regression of population to case filings. This method of analysis is referred to herein as the Population Growth Ratio, or the Fixed Ratio to Population Method. This ratio is different for each case filing type, since each has a different historic behavior. It is unrealistic to assume that a case filing type would completely go away, so a linear model does not reflect the more realistic assumption that the case filings will decline to an approaching limit. For the sake of modeling, any negative value is rounded up to 0. Table 8 summarizes the forecast for each decade.

TABLE 8: CASE FILING ESTIMATES BASED ON POPULATION GROWTH RATIO						
Year	**Civil/Small Claims**	**Probate**	**Mental Health**	**Criminal Felony***	**Criminal Misdemeanor***	**Juvenile Dependency***
2014+	13,314	1,015	704	2,181	3,440	455
2015	16,567	857	916	1,881	3,741	391
2020	20,234	925	1,081	1,546	3,125	335
2030	28,037	1,069	1,431	834	1,813	216
2040	34,619	1,190	1,726	223	706	116
2050	40,372	1,296	1,984	0	0	29
+ Actual Case values * Historic negative trend						

Another method of analysis to predict future case filing loads is to examine the correlation of case load filings over time. Instead of looking at case values per unit of population, like the Population Growth Method, the Linear Trend method looks at a linear regression of the annual case filings over a sample period. For this report the sample period includes historic case filing data from 2000-2014 for determining the linear trend to extrapolate for future values. Similar to the Population Growth Method, each case type has a different trend. Not all case types fit the linear model well. There is low confidence on the Criminal Felony, Mental Health, and Juvenile Dependency case filing types. Since the historic data has years that are abnormally high, or low, a linear model of smoothed values was used to generate a dampened trend line that is more reflective of the typical case filing behaviors. Table 9 and Table 10 show the values for the trend of the unsmoothed (raw) data, and for the smoothed data.

TABLE 9: CASE ESTIMATES BASED ON RAW LINEAR REGRESSION OF CASE FILINGS OVER TIME

Year	Civil/Small Claims	Probate	Mental Health	Criminal Felony*	Criminal Misdemeanor*	Juvenile Dependency*
2014+	13,314	1,015	704	2,181	3,440	455
2015	15,480	996	796	1,887	3,475	411
2020	17,371	1,051	829	1,726	2,979	408
2030	21,153	1,160	893	1,405	1,988	401
2040	24,935	1,270	958	1,084	997	395
2050	28,718	1,379	1,022	763	6	389

+ Actual Case values
* Historic negative trend

TABLE 10: CASE ESTIMATES BASED ON SMOOTHED LINEAR REGRESSION OF CASE FILINGS OVER TIME

Year	Civil/Small Claims	Probate	Mental Health	Criminal Felony*	Criminal Misdemeanor*	Juvenile Dependency*
2014+	13,314	1,015	704	2,181	3,440	455
2015	12,458	904	751	2,100	4,528	403
2020	13,355	926	799	1,966	4,232	374
2030	15,149	971	896	1,699	3,510	315
2040	16,944	1,016	993	1,431	2,677	256
2050	18,738	1,060	1,090	1,164	1,778	198

+ Actual Case values
* Historic negative trend

The last method of analysis we utilized was the Average Annual Growth model. Much like the Linear Trend model, this model looks at the change in cases over time but looks at the application of an average growth rate over the given historic period. This assumes that the case filing load would continue to demonstrate the same trend over longer periods of time resulting in an exponential model of percentage growth in cases per year. These values are reflected in Table 11.

TABLE 11: CASE ESTIMATES BASED ON AVERAGE GROWTH OVER TIME						
Year	**Civil/Small Claims**	**Probate**	**Mental Health**	**Criminal Felony***	**Criminal Misdemeanor***	**Juvenile Dependency***
2014+	13,314	1,015	704	2,181	3,440	455
2015	13,607	1,029	716	2,171	3,357	457
2020	15,175	1,102	780	2,122	2,987	470
2030	18,871	1,264	923	2,027	2,323	494
2040	23,468	1,450	1,092	1,938	1,817	520
2050	29,185	1,663	1,294	1,851	1,422	547
+ Actual Case values *Historic Negative Trend						

Using the values obtained from each model type we were able to establish a low and high value for each case filing type, taking the lowest and highest values of all the models to establish the range of case filing loads for 2050. Table 12 shows the range of values, and the resulting growth. Criminal Felony, Criminal Misdemeanor, and Juvenile Dependency all have negative growth, displayed as 0% growth.

TABLE 12: CASE ESTIMATES BASED ON ANNUAL CASE GROWTH PERCENTAGES					
		Est. Case Filing Levels 2050		**Estimated Growth Ranges 2014-2050**	
Year	**2014 Actual**	**Low Planning Level**	**High Planning Level**	**Low Planning Value**	**High Planning Value**
Civil/Small Claims	13,314	18,738	40,372	40.74%	203%
Probate	1,015	1,060	1,663	4.43%	63.8%
Mental Health	704	1,022	1,984	45.17%	181.8%
Criminal Felony*	2,181	750	1,851	0.00%	0.00%
Criminal Misdemeanor*	3,440	1,500	1,778	0.00%	0.00%
Juvenile Dependency*	455	29	547	0.00%	0.00%
TOTAL	21,094	23,099	48,195	9.5%	128.5%

The case filing loads are summarized by case filing type in Tables 13A through 13F. Historic and Predictive values are shown for each analysis model type that was used to establish the case filing load range. Intermediate case filing loads for each decade from 2020 until 2050 summarize the predicted growth patterns.

TABLE 13A: CIVIL/SMALL CLAIMS CASE FILINGS									
	ACTUAL				PROJECTED				
	2000	2005	2010	2012	2020	2030	2040	2050	
Pop.	339,299	358,301	376,780	381,680	422,576	485,054	537,753	583,814	
FILINGS									%Grwt
Linear Smoothed	10,172	11,484	15,601	15,193	13,355	15,149	16,944	18,738	23.3%
Linear Trend	10,172	11,484	15,601	15,193	17,371	21,153	24,935	28,718	89.02%
Average	10,172	11,484	15,601	15,193	15,175	18,871	23,467	29,185	92.09%
Fixed Ratio to Population	10,172	11,484	15,601	15,193	20,234	28,037	34,619	40,372	165.7%

TABLE 13B: PROBATE CASE FILINGS									
	ACTUAL				PROJECTED				
	2000	2005	2010	2012	2020	2030	2040	2050	
Pop.	339,299	358,301	376,780	381,680	422,576	485,054	537,753	583,814	
FILINGS									%Grwt
Linear Smoothed	846	870	949	908	926	971	1,016	1,060	16.7%
Linear Trend	846	870	949	908	1,051	1,160	1,270	1,379	51.9%
Average	846	870	949	908	1,102	1,264	1,450	1,663	83.1%
Fixed Ratio to Population	846	870	949	908	925	1,069	1,190	1,296	42.7%

TABLE 13C: MENTAL HEALTH CASE FILINGS									
	ACTUAL				PROJECTED				
	2000	2005	2010	2012	2020	2030	2040	2050	
Pop.	339,299	358,301	376,780	381,680	422,576	485,054	537,753	583,814	
FILINGS									%Grwt
Linear Smoothed	602	695	848	815	799	896	993	1,090	33.7%
Linear Trend	602	695	848	815	829	893	958	1,022	25.4%
Average	602	695	848	815	779	922	1,092	1,293	58.6%
Fixed Ratio to Population	602	695	848	815	1,081	1,431	1,726	1,984	143.4%

TABLE 13D: CRIMINAL FELONY CASE FILINGS									
	ACTUAL				PROJECTED				
	2000	2005	2010	2012	2020	2030	2040	2050	
Pop.	339,299	358,301	376,780	381,680	422,576	485,054	537,753	583,814	
FILINGS									%Grwt
Linear Smoothed	2,455	2,407	2,022	2,181	1,966	1,699	1,431	1,164	0.00%
Linear Trend	2,455	2,407	2,022	2,181	1,726	1,405	1,084	763	0.00%
Average	2,455	2,407	2,022	2,181	2,122	2,028	1,938	1,851	0.00%
Fixed Ratio to Population	2,455	2,407	2,022	2,181	1,546	834	233	0	0.00%

TABLE 13E: CRIMINAL MISDEMEANOR CASE FILINGS									
	ACTUAL				PROJECTED				
	2000	2005	2010	2012	2020	2030	2040	2050	
Pop.	339,299	358,301	376,780	381,680	422,576	485,054	537,753	583,814	
FILINGS									%Grwt
Linear Smoothed	493	512	390	470	4,232	3,510	2,677	1,778	270.4%
Linear Trend	493	512	390	470	2,979	1,988	997	6	0.00%
Average	493	512	390	470	2,968	2,323	1,817	1,421	202.3%
Fixed Ratio to Population	493	512	390	470	3,125	1,813	706	0	0.00%

TABLE 13F: JUVENILE DEPENDENCY CASE FILINGS									
	ACTUAL				PROJECTED				
	2000	2005	2010	2012	2020	2030	2040	2050	
Pop.	339,299	358,301	376,780	381,680	422,576	485,054	537,753	583,814	
FILINGS									%Grwt
Linear Smoothed	493	512	390	470	374	315	256	198	0.00%
Linear Trend	493	512	390	470	408	401	395	389	0.00%
Average	493	512	390	470	469	494	520	547	16.38%
Fixed Ratio to Population	493	512	390	470	335	216	116	29	0.00%

The Oregon Circuit Court Workload Assessment Model (2008) utilized case weights for the calculation of judicial workloads based on the number of minutes required by a judge per case type. The total Case-Specific Workload (weight x filings), divided by the adjusted Average Annual Availability, determines the number of judges needed. The current caseload weight for 2014 is shown in Table 14A to establish the "control point" baseline. The projected case filing estimates and total case specific workload weight for the low range and high range were calculated to establish a prediction for 2030 and 2050 total case weights (Table 14B and 14C) to use in establishing an FTE range.

TABLE 14A: CONTROL POINT CASELOAD WEIGHT				
Case Type	**Weight (mins)**	**2014 Actual**	**Weight 2014**	
Civil	51	13,314	679,014	
Probate	44	1,015	44,660	
Mental Health	27	704	19,008	
Felony	86	2,181	187,566	
Misd.	33	3,440	113,520	
Juvenile Dep.	73	445	33,215	
Total Weight			**1,076,983**	

TABLE 14B: LOW CASELOAD WEIGHT					
Case Type	**Weight (mins)**	**2030 Case Prediction (LINEAR)**	**Weight 2030 (mins)**	**2050 Case Prediction (LINEAR)**	**Weight 2050 (mins)**
Civil	51	15,149	775,599	18,738	955,638
Probate	44	971	42,724	1,060	46,640
Mental Health	27	893	24,111	1,022	27,594
Felony	86	834	71,724	750	64,500
Misd.	33	1,813	59,829	1,500	49,500
Juvenile Dep.	73	216	15,768	29	2,117
Total Weight			**986,755**		**1,145,989**

TABLE 14C: HIGH CASELOAD WEIGHT					
Case Type	**Weight (mins)**	**2030 Case Prediction (LINEAR)**	**Weight 2030 (mins)**	**2050 Case Prediction (LINEAR)**	**Weight 2050 (mins)**
Civil	51	28,037	1,429,887	40,372	2,058,972
Probate	44	1,264	38,637	1,663	73,172
Mental Health	27	1,431	38,637	1,984	53,568
Felony	86	2,028	174,408	1,851	159,186
Misd.	33	3,510	115,830	1,778	58,674
Juvenile Dep.	73	494	36,062	547	39,931
Total Weight			**1,850,396**		**2,443,503**

The difference between the existing judicial positions (FTE judicial resource supply) and the predicted need (Judicial resource predicted demand) represents the percentage overage (need) by County in the Oregon Circuit Court Workload Assessment Model. In 2008, it was determined that Clackamas County had 10.8 FTE and needed 13.29 FTE based on their 2008 case filings. To validate the predictive method we used, we calculated the current FTE needs from actual case filing loads for 2014 and produced a control point FTE of 14.7 for 2014 (Table 11A). Clackamas County Courts has confirmed that this is a realistic estimate of their current needs, although their current judicial resource supply has only increased to 12 FTE (Table 15) since 2008.

TABLE 15: EXISTING JUDGESHIP, 2015	
Judicial Officer Type	FTE
Presiding Judge	1
Criminal, Civil, Family	10 (total)
Hearings Referee	1
Total	**12**
Adapted from Clackamas County Court Organizational Chart Overview, Feb 15 2015 Pro-tempore judges' current caseload is approximately 34 hr/month, or the equivalent of 0.34FTE	

To establish the programming needs for 2050 we looked at the judicial resource need based on the low and high case filings weights (Table 14B and 14C) and applied the Average Annual Availability for each judge to calculate the FTEs represented in Table 16 that show a low prediction and high prediction for number of magistrates. These values represent the high and low values for judicial needs based on projected case filing loads from the four utilized models, and therefore the upper and lower values of any given model.

TABLE 16: PREDICTED JUDICIAL RESOURCE SUPPLY	
Total Predicted Judicial Resource Supply	FTE*
2014+	14.70
LOW PREDICTION	
2030	13.47
2050	15.65
HIGH PREDICTION	
2030	25.26
2050	33.36
*Assuming 73,237 Average Annual Availability based on 2008 Oregon Court Workload Assessment Model + Actual Caseload filing for right size calculation	

Currently Clackamas County uses pro-tempore judges for 1/3 of a judicial FTE, but still has additional needs for judges. The lack of Courtroom and Judicial Chambers area is a limiting factor, as well as funding for additional judges. Additionally, like many jurisdictions Clackamas County is utilizing a

hearings referee for a portion of cases that do not require an elected circuit court judge. These case filings need to be considered for courthouse programming since they still require judiciary space and will likely have similar positions in the future to ease the timely processing of cases.

The new courthouse will institute a collegiate chambers and courtroom design approach which will integrate into scheduling so that case processing efficiency is not hindered. In an examination of the current courts schedule, there would be a need for a 1:1 ratio of courtrooms to judges for initial build out to rebalance the overloading of the current courthouse. Once the judicial resources have been aligned

with current needs, additional growth and judicial need may be able to be satisfied with a 7:8 ratio of courtrooms to judges at full buildout in 2050. Based on the predicted number of judges, a low build out would be 16 courtrooms and a high buildout would be 30. For judicial staff, a low build out of chambers would be 14 and a high would be 33.

The new courthouse program for 2050 reflects a size mix of 16 courtrooms and chambers for 20 judges, two referees and correlating courts administrative staff.

References:

National Center for State Courts (NCSC). (August 2014). *Multnomah County, Oregon, Circuit Court: New Central Courthouse Planning and Space. Programming. Final Report*. National Center for State Courts; Denver, CO

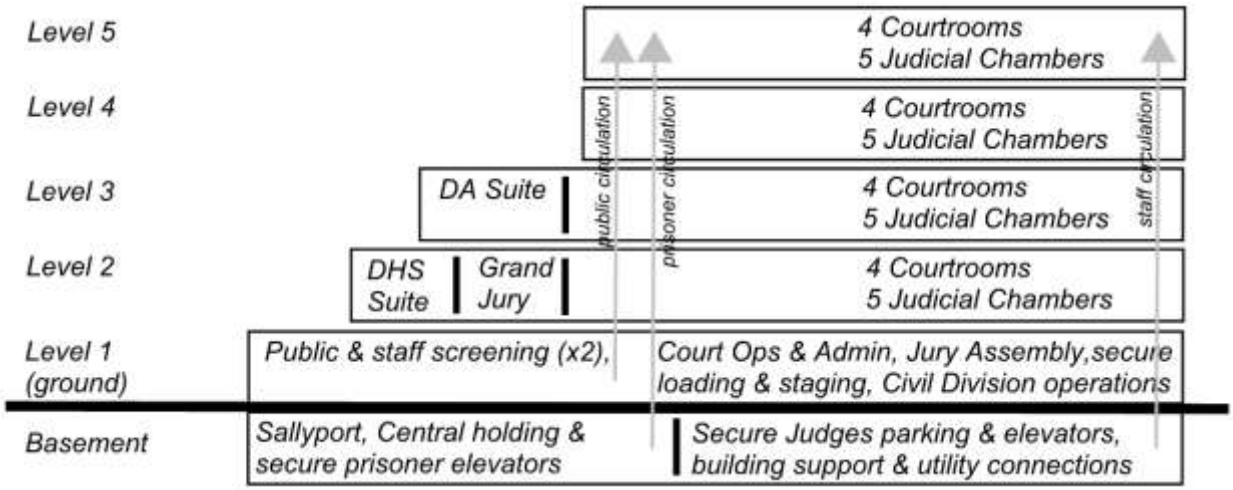
Oregon Court Workload Assessment Model (2008). OSCA/mwm/3-17-08 [2007year-model-qpw], page 1.

Oregon Office of Economic Analysis (OOEA). (2013). *Forecasts of Oregon's County Populations and Components of Change, 2010-2050*. Attachment F- Oregon Office of Economic Analysis population forecast. Office of Economic Analysis, Department of Administrative Services, State of Oregon. Release Date: March 28, 2013.

Section V Facility Requirements

The new Clackamas County Courthouse is currently sized at approximately 216,000 gross square feet. This area includes Courtrooms, Judicial Chambers, Court Operations and Administration, Jury Assembly and Jury Deliberation, Grand Jury, DHS Suite, Law Library and resource center, Civil Sheriff Operations, secure prisoner sallyport and holding, secure loading and staging area, building infrastructure for thermal comfort and connectivity, and secure parking for judges and County support vehicles.

The 2017-2019 Planning budget request would enable the design, Courts and County team to continue into the next step of identifying intra-building adjacencies, and a more detailed program, stacking plan and how to accommodate growth beyond what is planned. Currently, the team has identified the following stacking diagram for the building:



Stacking Diagram Jan 2017

Programmatically, the team has been using material from the National Center for State Courts, Utah State Courts, California Courts, Multnomah County and Jefferson County for Court area standardization. The team does not anticipate any requests for space allotment exceptions and areas are in-line with precedents. Where applicable, the team is implementing Clackamas County Space Standards. The 5th Judicial District is open to a collegial planning approach and are working with the designers to identify what that approach would mean for their Judicial and Court Operations. Currently they have identified shared spaces within Judicial Chambers and suites, and Court Operations and Administrative areas:

Courtrooms	Jury deliberation suites	Restrooms
Conference rooms	Common Judicial hallway to Courtrooms	Copy/work areas

Area needs are contained on the following pages, and below is a summary of the space needs:

Program	Area (DGSF)
1.0 Public Facilities & Building Support Spaces	30,758
2.0 Courtrooms & Judicial Staff	84,717
3.0 Court Operations & Administration	34,333
4.0 Sheriff Civil Division & Sallyport/Central Holding	13,634
5.0 Law Library	4,439
6.0 State Agency - DHS	4,724
Total Department GSF	172,604
25% Grossing Factor	43,151
Total Courts Building GSF	**215,755**

1.00 Public Facilities & Building Support Spaces

	Staff			Area				
	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	notes
1.1 Main Entrance and Lobby								
Building Entrance Vestibule					2	250	500	Energy code req'd into main lobby, could be combined with screening station
Security Public Queuing					2	270	540	Space for 30 people at 9 sf/ person. Wide & shallow space.
Security Screening Station					2	180	360	2 magnetometers, one at west and east entrance
Screening Staff Work Room					1	120	120	
Screening Staff Break/ Locker Room					1	300	300	provide 8-10 half height lockers, break time food storage/prep
Staff Entry Screening Station					1	150	150	1 magnetometer. Also use for delivery screenings, CCSO entry.
Staff Entry Queuing					1	100	100	
Facility Security Officer (FSO) Public Desk					1	150	150	Space for 2 people and security monitoring equipment.
Main Lobby					1	1,500	1,500	Include stand-up stations for completion of forms, seating
Information Desk					1	200	200	Room with bullet-proof glass. Accommodate 2 staff.
Information Kiosk/ Monitors					1	-	-	In Main Lobby and on upper floors.
Total FTE/ Net Square Footage Total							3,920	
Circulation Factor						5%	196	
Departmental Gross Square Footage Total							4,116	

	Staff			Area				
	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	notes
1.2 Building Amenities and General Support								
Restrooms								
Public Restrooms					8	280	2,240	Quantity based on two per floor, four floors. No doors preferred.
Family Restrooms (individual stall)					4	64	256	One per floor
Lactation Room-jury use					1	100	100	One per floor, placed with ability to be accessed by all jury members
Lactation Room-public use					1	100	100	Placed near 'Court Care'
Lactation & Wellness Room-staff use					2	120	240	Lactation & wellness, 1/per 75 employees per ORS-839-020-0051

1.00 Public Facilities & Building Support Spaces							
'Court Care' Child Care Facilities					-	-	Accommodate 10 - 12 children at a time
Reception/ Check-In				1	120	120	
Staff Office				1	120	120	
Play Area				1	300	300	
Kitchenette				1	80	80	
Individual stall restroom				2	64	128	
Staff Lockers & Restroom							
Locker/ Changing / Restroom (Male)				1	400	400	1 toilet, 1 urinal, 2 lav, 2 showers, 10 double high lockers-secure area
Locker/ Changing /Restroom (Female)				1	400	400	2 toilets, 2 lav, 2 showers, 10 double high lockers-secure area
Individual Stall Shower/Changing/Restroom				1	100	100	1 toilet, 1 sink, 1 shower, no locker-secure area
Bicycle Storage Room-Staff				1	300	300	25 bikes, floor space for fix-it stand-secure area
Mail Room				1	360	380	Separate mechanical system from building w/internal shut down & duress
Loading Dock & Basement Entrance							
Security Access Office				1	160	160	Needs viewing window to dock approach, near secure man-door entrance
Dock Area				1	1,600	1,600	For off-loading of furniture, office supplies
Receiving/ Holding Area				1	400	400	Separated Courts/County
Building Manager Office				1	140	140	
Central Maintenance Shop/ Storage				1	180	180	
Central Janitorial Storage				1	300	300	Workbench, tools, hand trucks
Information Technology Receiving/Storage				1	240	240	Receiving, parts storage
Courts Technical Service Receiving/Storage				1	240	240	Receiving, new builds work surface, parts storage & surplus staging
Court Misc. Storage				1	180	180	Basement
Sheriff Misc. Storage				1	180	180	Basement
County Misc. Storage				1	360	360	Basement
Central Garbage/Recycling Sorting and Storage				1	360	360	Basement
Floor Amenities							
Janitor Closets				8	60	480	two per floor. One on public side, one on secure side
Total FTE/ Net Square Footage Total	0	0	0%			10,084	
Circulation Factor					25%	2,521	
Departmental Gross Square Footage Total						12,605	
	Staff			Area			
	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	notes
1.3 Building Systems Support Spaces							
Elevators & Vertical Transportation							
Public Elevators					2	200	400	Includes vestibule
Public Elevator Machine Room					1	100	100	
Staff Elevators					2	200	400	Includes vestibule

1.00 Public Facilities & Building Support Spaces							
Staff Elevator Machine Room				1	100	100	
Service Elevator				1	120	120	Includes vestibule
Service Elevator Machine Room				1	100	100	
In Custody Elevators				2	100	200	Assumes that central holding and distribution is stacked vertically. Size for gurney.
In-Custody Elevator Machine Room				2	200	400	
In-Custody Stair				1	260	260	Assumes that central holding and distribution is stacked vertically
Courts Staff Secure Stair				2	260	520	As needed for exiting, allows secure stair travel in lieu of elevator
Public Stair				2	260	520	As needed for exiting
Data/ Network Support Areas							
Telcom Entrance Facility				1	200	200	
Main Distribution Frame (MDF)				1	700	700	Needs independent and backup 24/7 cooling
Floor Intermediate Distribution Frame (IDF) Room				4	200	800	One Per floor. County requires them stacked vertically and horizontally, entering electrical from hallway, accessing IDF through electrical room
Courts Server Room				1	400	400	
Courts Floor IDF Room				4	200	800	
Electrical Support Areas							
Floor Electrical Room				4	250	1,000	One Per floor. See Floor IDF Room
Generator				1	600	600	Needs to be placed by exterior wall for intake and exhaust
Green Power Inverter				1	36	36	Needs ventilation, can be located on roof/penthouse area or basement
Media Areas							
Central Switching Room				1	200	200	
Gear room for information monitors/kiosk				1	150	150	
Primary Mechanical							Evaluate size/ location for future courthouse expansion.
Central Utility Plant (CUP) Connection				1	900	900	
AHU Shafts				2	100	200	Stacked vertically, do place near elec or IDF rooms or near conference spaces
Plumbing Support Areas							
Fire Control Center				1	100	100	Will also need annunciator panel visible from an entry door
Rainwater Storage Tank + Pumps				1	3,000	3,000	Could be divided in half to serve landscaping on both sides of the building, targeting 20,000 cubic feet total-similar to system at DSB Facility
Total FTE/ Net Square Footage Total	0	0	0%			12,206	
Circulation Factor					15%	1,831	
Departmental Gross Square Footage Total						14,037	

2.00 Courtrooms and Ancillary Support - Collegial Chambers

	Staff				Area			Oregon Facilities Criteria 2007	California Trial Court Std.	Utah Judicial Facility Design Std	
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area	unit area	unit area	notes
2.1 Civil/ Criminal Circuit Courtrooms and Ancillary Support												
Courtrooms												
Large Civil/ Criminal Courtroom						3	2,400	7,200	2,200 - 2,400	2,100 - 2,400	2,400 - 2,600	16-person jury box, gallery for 80, dedicated jury deliberation
Standard Civil/ Criminal Courtroom						8	1,600	12,800	1,500 - 1,800	1,600 - 1,800	1,600 - 1,800	14-person jury box, gallery for 40, dedicated jury deliberation
Large Family Courtroom						1	2,100	2,100				No jury box, gallery for 60
Remote Court Observation/ Testimony						1	100	100				
Standard Family Courtroom						3	1,400	4,200	1,100 - 1,200			No jury box, gallery for 30
Remote Court Observation/ Testimony						3	100	300				
Child Waiting Area						1	400	400				Dedicated to Family Courts secure area. Confirm size.
Treatment Court						1	1,400	1,400				No jury box, gallery for 60 (1,400 sf min.)
Courtroom Ancillary Spaces												
Attorney/ Client Conference Rooms						16	100	1,600		100	120	One for each courtroom
Witness Waiting room						16	100	1,600		100	120	One for each courtroom
Sound-Lock Vestibules at entry to Courtroom						16	64	1,024		64	80	
Staff ADA Access Ramp						16	100	1,600		-	-	One of each courtroom type.
Jury Deliberation												
Jury Deliberation Room						12	350	4,200	50 (not incl. restroom and refreshment area)	350	arge 530 (incl. restroom & vestibule)	Can share 3:4 courtrooms, provide acoustic/ tackable panels and window coverings
Juror Restroom						12	64	768		60		Unisex restroom.
Juror Lactation Room						-	-	-				Shown in Public & Building Support Program
Sound-Lock Vestibules						12	64	768		64	80	
A/V Equipment						12	15	180		-	15	
Closet and Galley						12	15	180		-	64 (file/work/storage)	
Impaneled Jury Waiting						1	450	450				
Courtroom Holding												
In Custody Elevators							-	-				Shown in Public & Building Support Program
Holding						11	55	605		55 SF for ADA/individual		At courtrooms
Holding Vestibule + Deputy Workstation						11	136	1,496		-		At Courtrooms
Sound-Lock Vestibule at entry to Courtroom						11	100	1,100				
Prisoner Interview Booth/ Temp. Holding						7	90	630		90	60 min.	One is basement holding, and 1 per pair of courtrooms
Attorney Vestibule Area						9	80	720		-		One per pair of courtrooms
Courtroom Floor Judicial Staff Support Areas												
Judicial Conference Rooms										Conference Small 120 - 150	Conference 120	Shown in Judicial Chambers
Staff Restrooms						9	64	576				One per pair of courtrooms.
Shared Staff Work Area						9	100	900		-		One per pair of courtrooms.
Total FTE/ Net Square Footage Total	0	0	0	0%				46,897				
Circulation Factor							30%	14,069				
Departmental Gross Square Footage Total								60,966				

2.00 Courtrooms and Ancillary Support - Collegial Chambers

	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area	unit area	unit area	notes
	Staff				Area					California Trial Court Std.	Utah Judicial Facility Design Std	
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal		unit area		notes
2.2 Judicial Chambers												
Presiding Judge Chambers												
Presiding Judge Office	1	0	1	FT	E	1	300	300	350 (not incl. restroom)			
Closet						1	15	15				
Circuit Court Judge Chambers												
Circuit Court Judge Office	10	5	15	FT	E	19	300	5,700	350 (not incl. restroom)	400 incl. restroom	280 (without conferencing) 320 (with conferencing)	Allow for building expansion to accommodate growth
Closet						19	15	285				
Referee Chambers												
Referee Office	1	1	2	FT	E	2	300	600	350 (not incl. restroom)	-		
Shared Collegial Spaces												
Reception/ Waiting Area						20	86	1,720			60	
Judicial Assistants	11	7	18	FT	O	19	64	1,216		Workstation Medium 64 - 80	Workstation 80	
Judicial Clerks	11	7	18	FT	O	19	64	1,216		Workstation Medium 64 - 80	Workstation 48	
Referee Staff Support	0	1	1	FT	O	1	64	64		Workstation Medium 64 - 80		
Judicial Conference Rooms - Small						8	150	1,200		Conference Small 120 - 150	Conference Small 120	
Judicial Conference Rooms - Large						4	550	2200		-	Conference Large 240	Accommodate 20 - 25, use 25 SF/person
Work Room						8	120	960		80 - 100		
Break Room/ Lounge						2	360	720		-		
Support Spaces												
Closet						4	15	60		-	120 (file/storage)	
Restroom						8	64	512		-		Unisex, 2 per 5 chambers
AV Equipment Control						4	100	400		-		
Total FTE/ Net Square Footage Total	34	21	55	62%				17,168				
Circulation Factor							30%	5,150				
Departmental Gross Square Footage Total								22,318				

	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal		unit area		notes
	Staff				Area					California Trial Court Std.	Utah Judicial Facility Design Std	
2.3 Grand Jury												
Reception/ Waiting						1	150	150		0 - 300		
Touch-down Workstations	0	0	0	FT	O	2	64	128		48		
Galley Kitchenette						1	60	60		115		
Victims/ Witness Waiting						2	150	300		-	120	
Sound-Lock Vestibule						1	64	64		64		
Grand Jury Room						1	400	400		-		Potential use M/W and T/Th, confirm size for 60 occupants
Total FTE/ Net Square Footage Total	0	0	0	0%				1,102				
Circulation Factor							30%	331				
Departmental Gross Square Footage Total								1,433				

Total FTE 34 21 55 62%

Total Courtrooms & Ancillary Support Areas

Net Square Footage: 65,167

Departmental Gross Square Footage: 84,717

3.00 Court Operations

	Staff				Area				California Trial Court Std.	Utah Judicial Facility Design Std	
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area	unit area	notes
3.1 Circuit Court Administration											
Reception and Waiting Area						1	120	120	Staff/ Reception/ Wait 100 - 140	10 sf/person	
Receptionist	0	0	0	FT	O	-	64	-	Workstation Medium 64 - 80	Workstation 80	
Administrative Staff											
Trial Court Administrator	1	0	1	FT	E	1	275	275	Office Director 240 - 300		
OJD Manager 2	1	0	1	FT	E	1	120	120	Office Medium 120 - 150		
Court Administrative Staff	2	1	3	FT	O	3	64	192	Workstation Medium 64 - 80		Staff provides orientation for new staff, provide acoustic privacy/huddle space
Shared Court Operations Staff Spaces											
Conference Room - Small						2	150	300	Conference Small 120 - 150	Conference Small 120	
Conference Room - Medium						3	300	900	Conference Medium 240 - 300	Conference Medium 160	
Conference Room - Large						1	700	700		Conference Large 240	
Conference Room/ Training - Large						1	1,200	1,200	Training Room Large 1,200		Restricted access for judicial staff.
Copy/ Work Room/Recycling						2	330	660	80 - 100	100+	May need to be allocated in clusters due to distance, like at Long Beach
Supply Room						1	100	100			controlled by Courts Admin staff
Coffee Bar						3	60	180	-		
Staff Lounge/ Quiet Room						1	200	200	-		
Break Room						1	2,000	2,000	-		
Staff Restrooms						6	64	384			staff use only
Total FTE/ Net Square Footage Total	4	1	5	25%				7,331			
Circulation Factor							35%	2,566			
Departmental Gross Square Footage Total								9,897			

	Staff				Area				California Trial Court Std.	Utah Judicial Facility Design Std	
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
											Does not need to be adjacent to Courts Admin or other Court Ops
3.2 Technical Services Staff											Does need separation from County TS functions.
Technical Services Staff	3	1	4	FT	O	4	64	256	Workstation Medium 64 - 80		
Technical Services Temp Staff	1	0	1	FT	O	1	64	64	Workstation Medium 64 - 80		
Storage						1	300	300			larger door(s), racks, 4-5 carts, recycling
IT Equipment/ Work Room						1	250	250			
Receiving Storage (Basement)											See Public & Building Support
Total FTE/ Net Square Footage Total	4	1	5	25%				870			
Circulation Factor							40%	348			
Departmental Gross Square Footage Total								1,218			

Court Operations

	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area	unit area	notes
	Staff				Area				California Trial Court Std.		
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
											Could be located near Courtrooms, or with rest of Court Ops
3.3 Treatment Courts Staff											
Reception/waiting area						1	120	120			
Treatment Courts Staff	2	1	3	FT	O	3	64	192	Workstation Medium 64 - 80		
Locking File Room						1	120	120		120	
Treatment Courts Dedicated Meeting Room						1	150	150	Conference Small 120 - 150		
Total FTE/ Net Square Footage Total	2	1	3	50%				462			
Circulation Factor							40%	185			
Departmental Gross Square Footage Total								647			

	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
	Staff				Area				California Trial Court Std.		
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
											Locate in area opposite of Treatment Courts
3.4 Family Law Staff											
Reception/waiting area						1	120	120			
Family Law Facilitator	0	1	1	FT	O	2	64	128			Facilitators will receive people in dedicated conference center, not at wks
Family Law Resource Center/ Training/ Self-Help						1	500	500			
Front Counter presence- 1 Stall + Kiosk for file viewing)											See Centralized Public Service and Payment Center
Dedicated Conference Room - Small Plus						2	170				Need slightly larger than typical small conference room
Total FTE/ Net Square Footage Total	0	1	1					628			
Circulation Factor							40%	251			
Departmental Gross Square Footage Total								879			

	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
	Staff				Area				California Trial Court Std.		
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
											Adjacency to Civil Sherriff, Records, Calendaring,& Juvenile staff is preferred.
3.5 Civil Case Unit/ Information Center & Probate Staff											
Civil Case Unit/ Information Center & Probate Supervisor											
Supervisor Staff	1	0	1	FT	E	1	120	120	Office Medium 120 - 150	Office 155	
Civil Case Unit											
Civil Case Unit Staff	3	1	4	FT	O	4	64	256	Workstation Medium 64 - 80		
Small Claims/ FEDs											
Small Claims/ FEDs Staff	1	1	2	FT	O	2	64	128	Workstation Medium 64 - 80		
Domestic Relations											
Domestic Relations Staff	2	1	3	FT	O	3	64	192	Workstation Medium 64 - 80		
Mental Health/ FAPA											

Court Operations

	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area	unit area	notes
Mental Health/ FAPA Staff	1	1	2	FT	O	2	64	128	Workstation Medium 64 - 80		
Probate											
Probate Staff	3	1	4	FT	O	4	64	256	Workstation Medium 64 - 80		
Information Center											
Information Center Staff	2	1	3	FT	O	3	64	192	Workstation Medium 64 - 80		
Front Counter											
Front Counter Staff	4	1	5	FT	O	5	40	200	Public Trans. Counter 40 - 60		
Shared Staff Spaces						-	-	-			In Circuit Court Administration
Total FTE/ Net Square Footage Total	17	7	24	41%				1,472			
Circulation Factor							40%	589			
Departmental Gross Square Footage Total								2,061			

	Staff				Area				California Trial Court Std.		
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
3.6 Accounting, Collections, Indigent Defense Staff											
Accounting, Collections, Indigent Defense Supervisor											
Supervisor Staff	1	0	1	FT	E	1	120	120	Office Medium 120 - 150	Office 140	
Accounting											
Accounting Staff	4	1	5	FT	O	5	64	320	Workstation Medium 64 - 80		
Collections & Criminal Restitution Lead	1	0	1	FT	O	1	64	64	Workstation Medium 64 - 80		
Collections											
Collections Staff	3	1	4	FT	O	4	64	256	Workstation Medium 64 - 80		
Criminal Restitution											
Criminal Restitution Staff	3	1	4	FT	O	4	64	256	Workstation Medium 64 - 80		
Indigent Defense											
Indigent Defense Staff	1	1	2	FT	O	2	64	128	Workstation Medium 64 - 80		
Safe						1	25	25			Existing safe, to be re-located in new facility, locate in secure room
Cashier workstation						1	64	64			
Secure room						1	120	120			For process of auditing cash daily from safe, locate safe in this room
Cashier counter						1	100	100			See Centralized Public Service and Payment Center
Shared Staff Spaces						-	-	-			In Circuit Court Administration
Total FTE/ Net Square Footage Total	13	4	17	31%				1,453			
Circulation Factor							40%	581			
Departmental Gross Square Footage Total								2,034			

	Staff				Area				California Trial Court Std.		
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
3.7 Criminal & Traffic Staff											
Criminal & Traffic Supervisor											
Supervisor Staff	1	0	1	FT	E	1	120	120	Office Medium 120 - 150		

Court Operations

	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area	unit area	notes
Criminal & Traffic											
Criminal & Traffic Staff	8	1	9	FT	O	9	64	576	Workstation Medium 64 - 80		
Criminal & Traffic Part-Time Staff	1	0	1	FT	O	1	64	64	Workstation Medium 64 - 80		
Counter											See Centralized Public Service and Payment Center
Shared Staff Spaces						-	-	-			In Circuit Court Administration
Total FTE/ Net Square Footage Total	10	1	11	10%				760			
Circulation Factor							40%	304			
Departmental Gross Square Footage Total								1,064			

	Staff				Area				California Trial Court Std.		
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
3.8 Calendaring, Juvenile & Jury Staff											
Calendaring, Juvenile & Jury Supervisor											
Supervisor Staff	1	0	1	FT	E	1	120	120	Office Medium 120 - 150	Office 200	
Calendaring											
Calendaring Staff	5	2	7	FT	O	7	64	448	Workstation Medium 64 - 80		
Calendaring Part-Time Staff	1	0	1	FT	O	1	64	64	Workstation Medium 64 - 80		
Calendaring Counter											Two counters, see Centralized Public Service and Payment Center
Juvenile Dependency											
Juvenile Dependency Staff	1	0	1	FT	E	2	120	240	Office Medium 120 - 150		
Jury											
Jury Staff	1	1	2	FT	O	3	64	192	Workstation Medium 64 - 80	Workstation 70	
Shared Staff Spaces						-	-	-			In Circuit Court Administration
Total FTE/ Net Square Footage Total	9	3	12	33%				1,064			
Circulation Factor							40%	426			
Departmental Gross Square Footage Total								1,490			

	Staff				Area				California Trial Court Std.		
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
3.9 Records & Mail											
Records & Mail Supervisor											
Supervisor Staff	1	0	1	FT	E	1	120	120	Office Medium 120 - 150		
Exhibit Viewing						1	150	150			Near Records Supervisor, needs public access, evidence storage
Records & Mail											
Records & Mail Staff	8	2	10	FT	O	10	64	640	Workstation Medium 64 - 80		
Records & Mail Temporary Staff	2	0	2	FT	O	2	64	128	Workstation Medium 64 - 80		
Appeals Viewing						1	120	120			Staff is backup for Records, but main duty is Appeals, receives public by appt
Files and Records Access Customer Service Center											
Public Counter/ File Review Area						1	500	500	-		Public counter, computer carrels (8) in the room, limited storage
Printing/ Copy Area						1	64	64	-		
Staff Work Area						1	150	150	-		
FTR Recording Copying Station						1	64	64	-		

Court Operations

	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area	unit area	notes
Staff Scanning Stations						4	64	256			Confirm if needed.
Exhibit/Appeals Storage						1	500	500	-		Locking enclosed room, chain of custody procedures
File Storage						1	250	250			Confirm if needed. (Mult. Co. not included)
Mailroom Operations											
Mail Sorting Area						1	200	200	Mail Center 150 - 300	Mail Room 120+	Confirm if needed in addition to Mail Room
Main Copy Room						1	120	120	-		
Mail Machine Room						1	300	300	-		Needs acoustic isolation & separate HVAC.
Loading Dock							-	-		300 ea.	Included in Building General Support.
Receiving/ Holding Area/ Supply Storage							-	-		120+	Included in Building General Support.
Shared Staff Spaces						-	-	-			In Circuit Court Administration
Public Scanning Station						4	64	256			Provide privacy but large enough for staff to assist if needed
Total FTE/ Net Square Footage Total	11	2	13	18%				3,818			
Circulation Factor							40%	1,527			
Departmental Gross Square Footage Total								5,345			

	Staff				Area				California Trial Court Std.	Utah Judicial Facility Design Std	
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
											Best located next to Calendaring, independent state service
3.10 Interpreters											
Interpreter Offices	2	1	3	FT	E	3	120	360	Office Medium 120 - 150		Can be housed in open office space, with meeting rooms, or in individual offices where they receive public
Conference room-small						1	150	150	Conference Small 120 - 150		
Total FTE/ Net Square Footage Total	2	1	3	50%				510			
Circulation Factor							40%	204			
Departmental Gross Square Footage Total								714			

	Staff				Area				California Trial Court Std.		
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
3.11 Jury Assembly											
Jury Assembly Check-In											
Juror Assembly Entrance						1	300	300	10 - 25% of jury call for queuing		
Juror Check-In Counter						1	100	100	0 - 300 reception/ registration		
Check In Kiosk						5	25	125	-		
Paperwork/ Forms Area						1	40	40	3 - 10% of jury call		
Main Jury Assembly											
Jury Room Main Assembly Area						1	2,000	2,000	12 - 20/ juror		200 people at 10 sf each.
Jury Room Lounge Area						1	700	700	-		35 people at 20 sf each.
Jury Room Business Center						1	1,125	1,125	-		45 people at 25 sf each. Enclosed room with speakers.
Break Area/ Galley Kitchen						1	115	115	115		
Juror Support Areas											
Game Storage & Display						1	25	25	-		
Newspaper & Reading Material Display						1	25	25	-		
Juror Restrooms						2	240	480	-		

Court Operations

	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area	unit area	notes
Locker Area/ Alcove						2	100	200	-		
Lactation Room						1	100	100			
Jury Staff	-	-	-	-	-	-	-	-			See 3.5 Calendaring, Juvenile & Jury
Total FTE/ Net Square Footage Total	0	0	0	0%				5,335			
Circulation Factor							25%	1,334			
Departmental Gross Square Footage Total								6,669			

	Staff				Area			California Trial Court Std.	Utah Judicial Facility Design Std	
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	unit area		notes
3.12 Centralized Public Service and Payment Center											
Public Waiting/ Queuing at Counter						12	70	840	14/ person		
Public Counters/ Cashiering									Public Trans. Counter 40 - 60		All staff have second desk in their unit except Calendaring
Records						2	36	72			
Civil/ Probate/ Domestic/ FED						3	36	108			
Cashier						1	36	36			
Collections						2	36	72			privacy need
Criminal/ Traffic						1	36	36			
Calendaring						2	64	128			
Juvenile Dependency						1	36	36			privacy need
Clerk - Protective Orders						1	36	36			privacy need
CCSO counter											See 4.0 Sheriff
Public Information Terminals/ Scanning Stations						5	30	150	24/ person		Needs, privacy + room for staff assistance, power & data connections
Payment Kiosks						3	30	90			Needs, privacy + room for staff assistance, power & data connections
Public Information Forms Area						1	50	50	-		
Total FTE/ Net Square Footage Total	0	0	0					1,654			
Circulation Factor							40%	662			
Departmental Gross Square Footage Total								2,316			

Total FTE	64	18	82	28%	
Total Court Operations					
Net Square Footage:					25,357
Departmental Gross Square Footage:					34,333

4.00 Clackamas County Civil Division Sheriff's Office

	Staff				Area				
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	notes
4.1 CCSO Facility Security									
CCSO Public Counter						3	45	135	Need 2 to 3 counters, can be called up
Confiscated Property Room						1	80	80	Adjacent to security screening.
Law Enforcement Waiting/ Work/ Quiet Room						1	360	360	Designated area for 4 touchdown stations, chairs
Command Staff Offices									Locate suite near public entry.
Reception/ Waiting Area						1	200	200	Includes public counter
Captain	1	0	1	FT	E	1	150	150	
Supervisors	2	0	2	FT	E	2	120	240	
Administrative Staff	4	2	6	FT	O	6	64	384	
Deputy Shared Workstations	8	12	20	FT	O	20	42	840	
Shared Staff Areas									
Conference Room						1	300	300	
Briefing/ Training Room						1	750	750	Room for 25. Potential to share as conference room.
Weapons lockers						2	25	50	In office suite for immediate access.
Work/ Copy/ Mail Room						1	100	100	
Break Room with kitchenette						1	300	300	Adjacent to Training Room
Lockers/ Changing Room (Male)						1	400	400	24 Full height lockers.
Restroom (Male)						1	200	200	Includes shower.
Lockers/ Changing Room (Female)						1	200	200	12 Full height lockers.
Restroom (Female)						1	200	200	Includes shower.
Secure Storage						1	120	120	Can be located in basement.
Administrative Storage/ Supplies						1	120	120	Can be located in basement.
Total FTE/ Net Square Footage Total	15	14	29	93%				5,129	
Circulation Factor							30%	1,539	
Departmental Gross Square Footage Total								6,668	

Civil Division	Staff				Area				
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	open (O) or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	notes
4.2 CCSO Transport/ Central Holding									
Sallyports and Entrance Areas									
Vehicle Sallyport						1	1,800	1,800	Room for (2) 30' vehicles & (1) 12- passenger van.
Prisoner Loading Elevator							-	-	Included in Building Support.
Central Holding Areas									Adjacent to sallyport
Control Center	2	2	4			1	260	260	
Holding Support Areas	4	8	12			1	360	360	Staff growth linked to central holding/holding at courtrooms
Men's Large Group Holding						2	320	640	2 holding rooms of 16 person capacity.
Women's Large Group Holding						1	320	320	1 room of 16 person capacity.
Individual Holding						4	80	320	2 person capacity.
Video Booth						1	50	50	
Non-contact Visitation Room						1	100	100	
Booking Center									Need small refrigerator for prisoner medications.
Control Center						1	250	250	
Staff Restroom						1	64	64	
Control Center Equipment Closet						1	100	100	
Short-term Detaining + Viewing area						1	100	100	Off main lobby
Restraints Storage						1	80	80	
Non-Contact Visitation Booths						2	100	200	
Total FTE/ Net Square Footage Total	6	10	16					4,644	
Circulation Factor							50%	2,322	
Departmental Gross Square Footage Total								6,966	
Total FTE	21	24	45						
Total Clackamas County Sheriff Space									
Net Square Footage:								9,773	
Departmental Gross Square Footage:								13,634	

5.00 Law Library

	Staff				Area				
	2015 staff total	2050 proposed additional staff	2050 proposed staff total	full or part time	or enclosed (E) staff office	2050 quantity	2050 unit area	2050 subtotal	notes
5.1 Law Library									currently in Holman building
Staff Office	1	0	1	FT	E	1	120	120	
Librarian	1	0	1	FT	E	1	150	150	
Copy Room						1	120	120	
Microfiche Reading Room						1	120	120	
Storage						1	100	100	
Law Library						1	1,800	1,800	Incl. reference desk for 2 & public assistance desk
Conference Room - Medium						1	300	300	
Conference Rooms - Small						2	150	300	
Restrooms						2	64	128	Separate for staff/public
Lunch/ Break Room						1	150	150	
Total FTE/ Net Square Footage Total	2	0	2	0%				3,288	
Circulation Factor							35%	1,151	
Departmental Gross Square Footage Total								4,439	
Total FTE	2	0	2	0%					

Total Law Library

Net Square Footage:	3,288
Departmental Gross Square Footage:	4,439

Section VI Master Plan Implementation Analysis

Goals

A Courthouse is one of the most, if not the most, meaningful building types in an American city. Each state is grappling with how to repair or replace them, and very few have organized a successful systematic approach such as the State of Oregon's Courthouse Capital Construction & Improvement Fund. The new Clackamas County Courthouse has many goals, the first being to maintain OJD, DAS, the State Legislature and the public's trust in Clackamas County's project management and financial stewardship of the design and construction of this building. A second goal is to promote the ideas of fairness, accessibility and justice for all who use the building.[3] Providing safety for staff, visitors and prisoners was a third goal that speaks to both personal safety and safety in a catastrophic event.

During the teams' visioning meeting, when asked what success looks like for the project, everyone spoke in unison about the cultural significance, value to the constituents and users, and solutions to flexible growth as criteria for the success of the building.

The Red Soils Campus has established a palette of exterior building materials that were chosen to reflect the County's connection to the nature and the outdoors. The recent building projects on campus have provided many lessons for the team ranging from project delivery, management of soft costs, to levels of audio visual equipment in conference spaces and door hardware. The Courthouse will be built from those lessons and from lessons beyond the campus projects to the recently completed Courthouse in Jefferson County, and to Multnomah County and the California Courts program.

Site

The County owns 57 acres of land in the Hillendale neighborhood of Oregon City that is known as the Red Soils Campus. The Master Plan for the campus was first approved by Oregon City in 1998 and has had subsequent updates mainly reflecting the incorporation of property purchases around the campus. The Courthouse has always been identified as the heart of the campus, and views from the site align with Mt Hood. Similar to the other recent buildings on campus, the Courthouse will have 'two front doors' which reflects the openness of the campus and flow of staff and visitors. The east entry will be from the active central plaza and the west entry collects visitors from adjacent

[3] Judge Susie Norby, Nov 13, 2015.

parking and the walking paths that connect the campus to the neighborhood and north-south to the park and bus stops.

The Courthouse will plug into infrastructure that was pre-installed which carries a closed loop hot and cold water system from the central plant, and fiber and copper lines for connectivity. The central plant was sized for the full campus build out and holds a 1,000 ton chiller which has enough capacity to provide all currently connected facilities on the Red Soils Campus plus the new Courthouse without installing an additional chiller. The plant also has two boilers and room for six more, some of which will be provided by the project for servicing the Courthouse.

The new Courthouse will need to meet the County's Campus requirement for all new buildings to reach Leadership in Energy and Environmental Design (LEED) Silver and include the State's mandatory 1.5% for Green Energy for all public buildings.

Financing Plan

Clackamas County has a strong AA1 credit rating for its General Obligation debt, and AA2 for Full Faith and Credit obligations from Moody's investment rating service. This status was recently re-confirmed as the County issued General Obligation debt to finance a rebuilding of its 800-mHz Emergency Communication system. We believe we will be able to internally service the largest part of the Courthouse and related construction financing though Full Faith and Credit Obligations.

The County is presently reviewing outstanding debt as part a debt refunding program to draw upon potential debt service savings, by issuing replacement debt at lower yields over shorter time frames. The County also is now assessing all cash inflows to determine whether temporary redirecting of certain ongoing discretionary revenues will be collected as additional reserve funds for project costs, thus lowering the necessary level of potential debt issuance.

Additionally, the County's inflows from its principal revenue source, *ad valorem* property taxes, are projected by the 2019 fiscal year to be producing strong and reliable annual contributions sufficient to support the largest portion of the needed financing to build a replacement Courthouse, in partnership with the State legislature's Courthouse funding program. The Courthouse project estimate at this time is set at approximately $154 million. Additionally, the County is projecting approximately $30 million of associated non-Courthouse construction to be financed.

The County currently expects to issue internally financed bonds in two waves, in 2018-19 and 2020-21 to provide funding for the County's $77 million share of the Courthouse construction. The County would consider whether to consolidate the two issues if interest rates are especially favorable. As the State's support through bonds issued by the State becomes available, the County will seek to secure a bank line of credit from which to draw in anticipation of being reimbursed. Additionally, for portions of the necessary but ancillary non-Courthouse projects - office space for related activities,

campus loop road infrastructure and parking lot creation - the County will undertake either one additional financing (internal) or a referral to voters for a five cent/$1000 General Obligation bond issue (capable of raising approximately $30 million at a low cost to taxpayers)

Fund Matching Method

The County invited the State's Department of Human Services into the new Courthouse to have their own secure suite of approximately 4,700 square feet. DHS is currently leasing office space close to the campus, but has outgrown this building. By having a suite at the Courthouse it will relieve space constraints at their existing facility and allow them to have support services close to the courtrooms that they are currently not able to provide. The suite will have areas for DHS staff and volunteers, and a varied arrangement of family support spaces. By hosting the DHS suite Clackamas is requesting 50% matching funds from the State for the new Courthouse project.

Timeline and Deliverables

The County's plan is to continue planning efforts over the next biennium culminating in the procurement of an Architecture/Engineering (A/E) team for design and construction documents and a Construction Manager/General Contractor (CM/GC). Deliverables for the planning phase work include: detailed program and room space standards data sheets, stacking diagram, and schematic plans. Renderings of the proposed massing and materials will also be provided along with a detailed estimate. Planning efforts may also include the ancillary non-Courts related work to prepare a parking lot, extension of the campus loop road and other site amenities.

Funding request/Project task timeline:

2017-2019	$1.25 million (planning)
2019-2021	$28.8 million (design & pre-construction)
2021-2023	$48.2 million (construction & furniture)

Appendix

Includes:

1. ASCE 41-13 Seismic Evaluation Report
2. Geotechnical Report
3. Risk Assessment of “Other Hazards”
4. MEP Building Assessment

CLACKAMAS COUNTY COURTHOUSE
OREGON CITY, OREGON

ASCE 41-13 SEISMIC EVALUATION REPORT

OCTOBER 29, 2015

KPFF PROJECT NO. 215134

PREPARED BY:

KPFF CONSULTING ENGINEERS
111 SW FIFTH AVENUE, SUITE 2500
PORTLAND, OR 97204

SUBMITTED TO:

SERA ARCHITECTS
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EXECUTIVE SUMMARY

At the request of the SERA Architects, KPFF has performed an ASCE 41-13 Tier 1 seismic evaluation of the Clackamas County Courthouse located at 807 Main Street in Oregon City, Oregon.

The building was originally constructed in 1936. Drawings from the original construction were available to the design team. The building's construction consists of a concrete pan-joist system at the floor and roof slabs supported by concrete columns. The perimeter wall is cast-in-place concrete clad with a brick veneer. Both the columns and exterior walls are supported by conventional shallow concrete foundations.

A Tier 1, Life Safety Performance Level seismic evaluation was performed in accordance with the American Society of Civil Engineers (ASCE) 41-13, *"Seismic Evaluation and Retrofit of Existing Buildings."* ASCE 41-13 classifies buildings based on their construction type and provides seismic evaluation requirements applicable for each classification. This building is classified as a "Concrete Moment Frame" building. Additionally, based on seismic ground motions for Oregon City, the building location is classified as having a High Level of Seismicity.

These criteria dictate the completion of required ASCE 41-13 Tier 1 checklists which are included in Appendix A of this report. Our assessment also included a Tier 1 evaluation of nonstructural components that were able to be evaluated based on a visual review of accessible areas.

As expected, due to the age of the building and nature of its construction, our evaluation has determined that the building has numerous seismic deficiencies and does not meet the requirements for life safety as defined by ASCE 41-13. Consequently, we would expect that the building would experience significant damage during a major earthquake and pose a risk to the life safety of the occupants.

PROJECT SCOPE

KPFF Consulting Engineers was retained to perform a seismic evaluation of the Clackamas County Courthouse in accordance with our proposal dated April 24, 2015. The evaluation is based upon the procedures and guidelines of ASCE/SEI 41-13, "Seismic Evaluation and Retrofit of Existing Buildings" published by the American Society of Civil Engineers and the Structural Engineering Institute. The intent is to determine if the structure meets the requirements for a "Life Safety" structural performance level and to identify any deficiencies. ASCE 41-13 defines the "Life Safety Structural Performance Level" as follows:

> Life Safety is defined as the post-earthquake damage state in which a structure has damaged components but retains a margin against the onset of partial or total collapse.

There are three tiers of evaluation that can be performed using this standard. The first "Tier 1" is a screening phase meant to quickly identify seismic deficiencies. The next "Tier 2" is a deficiency-based evaluation and retrofit phase that can be used to review Tier 1 deficiencies more closely with further engineering analysis. "Tier 3" is a systematic evaluation and retrofit phase involving even higher forms of analysis. This effort is limited to a Tier 1 evaluation per our contract.

Several of the items identified as noncompliant per the Tier 1 evaluation could be further evaluated using Tier 2 procedures; however, given the nature of the building, it is very unlikely that the additional effort of a Tier 2 evaluation would result in any of the noncompliant items being revised to compliant. Therefore, we believe that the Tier 1 only evaluation is appropriate for this building.

Structural drawings from the original construction were provided for review. A limited visual assessment of the structure was performed on-site. No destructive testing or investigations were performed as part of this effort. Our review and the findings presented herein are limited to those conditions and components for which sufficient information could be confirmed on site by the visual observations of the KPFF structural engineer.

Observations, analyses, conclusions, and recommendations contained within this report reflect our best engineering judgment. Concealed problems with the construction of the building may exist that cannot be revealed through drawing review and site observations alone. Therefore, KPFF can in no way warranty or guarantee the condition of the existing construction of the building, or the future building performance.

The Clackamas County Courthouse, originally constructed in 1936, is located at 807 Main Street in Oregon City, Oregon. The building has approximate plan dimensions of 160' by 100' and consists of four stories total, with the lowest level being a daylight basement.

EVALUATION PROCEDURE

Site Reconnaissance

A site visit was conducted on September 23, 2015 by a representative of KPFF as part of an assessment team which also included architects from SERA Architects. The assessment team observed the exterior of the building and accessible areas inside of the building in order to review the general condition of the structure.

This visual review of the building was limited to the basement, roof, and unoccupied courtrooms. Architectural finishes covered the structure in most places except the mechanical room in the basement. An exterior visual review was conducted as well. Structure that was visible showed little to no signs of distress. Ponding on the roof was observed. The foundation was not accessible from the interior and therefore was not evaluated.

Document Review

Structural drawings for the original construction of the building were provided for our review.

Structural System Description

The floor and roof framing consist of pan-joists supporting a concrete slab. The joists are supported by concrete beams which are in turn supported by concrete columns. The exterior walls are concrete with a brick veneer. The exterior walls have multiple openings for windows and extend past the roof to form a parapet supporting a stone cornice. An elevator shaft surrounded by concrete walls exists near the center of the building. Multiple stairwells throughout the building are surrounded by concrete beams above the main floor, and by concrete walls below the main level. The concrete columns are shown to be supported by conventional concrete spread footings in the original plans. The exterior and interior concrete walls are shown to be supported by continuous spread footing, however, no foundation elements were directly observed during our site visit. Interior walls consist of unreinforced hollow clay tile and timber framed stud walls, which is common construction for the era.

Existing skylights were abandoned following the construction of a large mechanical penthouse on the roof slab. An addition was constructed to the north within the last decade and appears to have a seismic gap. However, the existence of a seismic gap between the two buildings was not confirmed during our site visit and cannot be confirmed with the information provided to KPFF. In the past, KPFF was hired to design a column removal plan in one of the main floor courtrooms. During our site visit, we noted that no seismic improvements had occurred at the building. The brick veneer and stone ornaments appears to be in good condition.

Nonstructural Systems Description

Nonstructural items include partition walls, elevator, exterior canopies, suspended ceilings, and mechanical equipment. Excluding the partitions, these systems appeared to have been updated in many areas of the building since the building was constructed.

Building Type

Under ASCE 41-13, this building is classified as a building type C1: Concrete Moment Frame.

Performance Level

The performance level used for this evaluation is the “Life Safety” performance level as described in the “Project Scope” section of this report.

Level of Seismicity

The level of seismicity of this site is considered “High” as defined by Section 2.5.

Soil Type

A geotechnical report was prepared by GeoDesign, Inc. dated October 15, 2015 to evaluate the soil conditions below the building, as well as the nearby slope. GeoDesign, Inc. concluded the soil type to be soil site class D.

Building Occupancy & Use

The building contains a mix of occupancies including courtrooms, office space, and storage. There is no know storage of hazardous materials in the building.

Level of Inspections & Testing Conducted

Test borings have been conducted to evaluate the slope near the Willamette River, but have not been provided to KPFF at the time of the evaluation. No destructive testing or investigations were included in this effort.

Relevant parameters to the seismic evaluation are presented in the following table:

Parameter	Value	Comments
T	0.583s	Building period defined in Section 4.5.2.4.
S_a	0.38 g	Response spectral acceleration parameter as defined in Section 4.5.2.3. Equal to S_{x1} /T but shall not exceed S_{xS}. S_A includes a cap of 75% of "New" ground building motion as defined in ASCE 41.
C	1.0	Modification factor to relate expected maximum inelastic displacements to displacements calculated for linear elastic response. (Obtained from Table 4-8.)

SUMMARY OF DEFICIENCIES

The Tier 1 ASCE 41-13 evaluation consists of completing a series of checklists that apply to the specific building type and determining which common deficiencies exist for that building. The completion of the checklists also requires a site visit and performing some basic structural calculations. Due to the fact that not all conditions were exposed for observation, some of the checklist items have been completed based on our experience with similar construction from the same time period. Specifically, the following checklists were completed and are attached at the end of this report:

- 16.1.2LS Life Safety Basic Configuration Checklist
- 16.16LS Life Safety Structural Checklist for Building Type C1: Concrete Moment Frames
- 16.17 Nonstructural Checklist

Historically, improperly detailed concrete moment frame buildings have not performed well during earthquakes. As expected, our evaluation has determined that the building has numerous seismic deficiencies and **does not meet the requirements for life safety** as defined by ASCE 41-13.

The following table summarizes the deficiencies that were identified for the building:

No.	Item	Tier 1 Ref.	Description of Deficiency
1	Building System: Adjacent Building	A.2.1.2	The addition to the north appears to be located immediately adjacent to the building. This creates a risk of the building moving differentially and "pounding" during an earthquake.
2	Geologic Site Hazards: Liquefaction	A.6.1.1	Liquefiable soil under the building's foundation was reported by Carlson Geotechnical in a report dated October 20, 2011. These soils may lose all bearing capacity during an earthquake and cause large differential settlements in the foundation.
3	Geologic Site Hazards: Slope Failure	A.6.1.2	The building is located at the top of a steep slope. Pavement between the edge of the slope and the building is cracking and shifting away from the building, indicating a possibly mobile slope.
4	Seismic-Force-Resisting-System: Column Axial Stress Check	A.3.1.4.2	The concrete columns were not detailed to resist overturning seismic forces, in addition to gravity loads. Column failure during an earthquake may cause partial collapse of the building.
5	Seismic-Force-Resisting-System: Column Shear Stress Check	A.3.1.4.1	The columns were not originally designed or detailed to handle seismic forces. The columns are inadequate to resist the seismic forces at the rigid beam-column joints.
6	Seismic-Force-Resisting System: No Shear Failures	A.3.1.4.6	Columns are likely to experience shear failure before reaching the required moment capacity. This may lead to a sudden, non-ductile failure of the column and seismic-force-resisting system.
7	Seismic-Force-Resisting System: Strong Column-Weak Beam	A.3.1.4.7	Columns not designed and detailed for seismic forces have a lower strength than the connecting framing beams. A column failure in the seismic-force-resisting system will create a plastic hinge in the column, leading to partial collapse of the column and excessive building drift.

No.	Item	Tier 1 Ref.	Description of Deficiency
8	Seismic-Force-Resisting System: Beam Bars	A.3.1.4.8	The original building plans show bent up bars at the inflection point of the frame beams, with no indication of continuous bars. Shifting loads throughout the beam could cause failure in the under reinforced sections of the beam, causing collapse of the beam and floor.
9	Seismic-Force-Resisting System: Column-Bar Splices	A.3.1.4.9	The original plans detail column splices to be 30 bar diameters, which is less than the required 35 bar diameters. Short splices are susceptible to sudden non-ductile loss of strength in the beam-column joint.
10	Seismic-Force-Resisting System: Beam-Bar Splices	A.3.1.4.10	The original plans detail bar termination near the column face, creating an inadequate splice at the potential plastic hinge location of the frame beam. This detail is likely to fail before the required moment capacity is reached in the frame beam.
11	Seismic-Force-Resisting System: Column-Tie Spacing	A.3.1.4.11	The original plans detail a number of columns with tie spacing greater than that required, reducing the ductility of the column. Loose tie spacing may lead to a non-ductile failure of the column over several cycles during an earthquake, causing collapse.
12	Seismic-Force-Resisting System: Stirrup Spacing	A.3.1.4.12	Stirrups were not detailed along the full length of the beam. A lack of stirrups may lead to a non-ductile shear failure within the beam. The beam is not likely to maintain full moment capacity through several cycles during an earthquake.
13	Seismic-Force-Resisting System: Joint Transverse Reinforcing	A.3.1.4.13	Adequate joint reinforcing is not detailed in the original plans. A lack of reinforcing in the beam-column joint may lead to a non-ductile failure of the joint, as the required strength of the connected members cannot be reached.

No.	Item	Tier 1 Ref.	Description of Deficiency
14	Seismic-Force-Resisting System: Deflection Compatibility	A.3.1.6.2	During an earthquake, the seismic-force-resisting system will deform and cause building drift. Columns designed primarily for gravity loads may be inadequate as they assume unplanned bending moments caused by building drift, causing failure.
15	Partitions: Unreinforced Masonry	A.7.1.1	The building contains masonry partitions which are not adequately braced to prevent shattering. Earthquake forces are likely to damage these walls and cause them to break apart.
16	Partitions: Drift	A.7.1.2	The rigid masonry partitions in the building were not detailed to allow for movement between the concrete moment frames and partition. The rigid partitions assume unplanned loads and will likely fail and shatter.
17	Ceilings: Suspended Lath and Plaster	A.7.2.3	An existing lath and plaster ceiling was observed to remain above the suspended ceiling. Older lath and plaster ceilings were not detailed to undergo seismic forces, and as a result, are likely not adequately braced to the structure above.
18	Ceilings: Suspended Gypsum Board	A.7.2.3	The suspended gypsum board ceiling is not adequately braced to resist seismic forces, and may fall during an earthquake.
19	Light Fixtures: Independent Support	A.7.3.2	The light fixtures in the suspected acoustical tile ceiling are not self-supporting and are not adequately braced to resist seismic forces.
20	Cladding and Glazing: Overhead Glazing	A.7.4.8	Glazing does not appear to be laminated to protect against shattering and does not appear to be detailed to remain in the frame after cracked. Un-laminated glazing above or near exits is especially hazardous.

No.	Item	Tier 1 Ref.	Description of Deficiency
21	Masonry Chimneys: URM Chimneys	A.7.9.1	An unreinforced masonry chimney exists on the north side of the building. The unsupported height of the chimney above the roof is likely to collapse during an earthquake, causing damage below.
22	Masonry Chimneys: Anchorage	A.7.9.2	Anchorage from the chimney to the structure is unlikely giving the age of the chimney.
23	Stairs: Stair Enclosures	A.7.10.1	The height-to-thickness ratio of the URM walls is too high. This places the walls at risk of collapse due to the out-of-plane accelerations.
24	Stairs: Stair Details	A.7.10.2	The stairs were not detailed to accommodate the drift of the building during an earthquake. This could cause the stairs to collapse during an earthquake, impeding egress.
25	Contents and Furnishings: Tall Narrow Contents	A.7.11.2	Tall narrow items such as file cabinets and security screening devices are likely not properly anchored to structure and are likely to tip over during an earthquake.
26	Contents and Furnishings: Fall-Prone Contents	A.7.11.3	Items 20 pounds or more over four feet above the floor can fall during an earthquake and cause a falling hazard unless they are properly braced or supported.
27	Mechanical and Electrical Equipment: Fall-Prone Equipment	A.7.12.4	Equipment over 20 pounds and over four feet above the floor which are not properly braced can become a falling hazard during an earthquake. This equipment may also swing and damage nearby equipment, finishes, or structure.
28	Mechanical and Electrical Equipment: In-Line Equipment	A.7.12.5	The building's HVAC equipment located in the mechanical room and the penthouse was observed to lack proper anchorage to the floor. This equipment may become dislodged during an earthquake.

No.	Item	Tier 1 Ref.	Description of Deficiency
29	Mechanical and Electrical Equipment: Tall Narrow Equipment	A.7.12.6	Tall narrow equipment is likely to overturn during an earthquake if not properly anchored to structure. A freestanding water heater was observed to not be braced to structure in the mechanical room.

SUMMARY

Our seismic evaluation of the Clackamas County courthouse has indicated that the building has numerous seismic deficiencies that are common for its type and era of construction. Deficiencies exist for both the structural systems (i.e. walls, columns, beams, etc.) and the nonstructural systems (i.e. ceilings, chimneys, mechanical equipment, etc.). Consequently, we would expect that the building would experience significant damage during a design level (or larger) earthquake and pose a risk to the life safety of the occupants.

APPENDIX A

Project: Clackamas County Courthouse Location: Oregon City, OR

Completed by: LE Date: 09/22/15

16.1.2LS LIFE SAFETY BASIC CONFIGURATION CHECKLIST

Low Seismicity
Building System

C = Compliant
NC = Not Compliant
N/A = Not Applicable
U = Unknown

General

(C) NC N/A U LOAD PATH: The structure shall contain a complete, well defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)

C (NC) N/A U ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement shall not apply for the following building types: W1, W1a, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)

C NC (N/A) U MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)

Building Configuration

(C) NC N/A U WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)

(C) NC N/A U SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)

(C) NC N/A U VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)

(C) NC N/A U GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)

(C) NC N/A U MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)

(C) NC N/A U TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)

Moderate Seismicity: Complete the Following Items in Addition to the Items for Low Seismicity.

Geologic Site Hazards

C (NC) N/A U LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)

C (NC) N/A U SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)

C NC N/A (U) SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)

High Seismicity: Complete the Following Items in Addition to the Items for Low and Moderate Seismicity.

Foundation Configuration

(C) NC N/A U OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)

(C) NC N/A U TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)

Project: Clackamas County Courthouse Location: Oregon City, OR

Completed by: LE Date: 09/22/15

16.9LS LIFE SAFETY STRUCTURAL CHECKLIST FOR BUILDING TYPE C1: CONCRETE MOMENT FRAMES

Low Seismicity

Seismic-Force-Resisting System

(C) NC N/A U REDUNDANCY: The number of lines of moment frames in each principal direction is greater than or equal to 2. The number of bays of moment frames in each line is greater than or equal to 2. (Commentary: Sec. A.3.1.1.1. Tier 2: Sec. 5.5.1.1)

C (NC) N/A U COLUMN AXIAL STRESS CHECK: The axial stress caused by unfactored gravity loads in columns subjected to overturning forces because of seismic demands is less than $0.20f_c'$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than $0.30f_c'$. (Commentary: Sec. A.3.1.4.2. Tier 2: Sec. 5.5.2.1.3)

Connections

(C) NC N/A U CONCRETE COLUMNS: All concrete columns are doweled into the foundation with a minimum of 4 bars. (Commentary: Sec. A.5.3.2. Tier 2: Sec. 5.7.3.1)

Moderate Seismicity: Complete the Following Items in Addition to the Items for Low Seismicity.

Seismic-Force-Resisting System

(C) NC N/A U INTERFERING WALLS: All concrete and masonry infill walls placed in moment frames are isolated from structural elements. (Commentary: Sec. A.3.1.2.1. Tier 2: Sec. 5.5.2.1.1)

C (NC) N/A U COLUMN SHEAR STRESS CHECK: The shear stress in the concrete columns, calculated using the Quick Check procedure of Section 4.5.3.2, is less than the greater of 100 lb/in.^{2} or $2\sqrt{f_c'}$. (Commentary: Sec. A.3.1.4.1. Tier 2: Sec. 5.5.2.1.4)

C NC (N/A) U FLAT SLAB FRAMES: The seismic-force-resisting system is not a frame consisting of columns and a flat slab or plate without beams. (Commentary: Sec. A.3.1.4.3. Tier 2: Sec. 5.5.2.3.1)

High Seismicity: Complete the Following Items in Addition to the Items for Low and Moderate Seismicity.

Seismic-Force-Resisting System

C NC (N/A) U PRESTRESSED FRAME ELEMENTS: The seismic-force-resisting frames do not include any prestressed or posttensioned elements where the average prestress exceeds the lesser of 700 lb/in.^{2} or $f_c'/6$ at potential hinge locations. The average prestress is calculated in accordance with the Quick Check procedure of Section 4.5.3.8. (Commentary: Sec. A.3.1.4.4. Tier 2: Sec. 5.5.2.3.2)

(C) NC N/A U CAPTIVE COLUMNS: There are no columns at a level with height/depth ratios less than 50% of the nominal height/depth ratio of the typical columns at that level. (Commentary: Sec. A.3.1.4.5. Tier 2: Sec. 5.5.2.3.3)

C (NC) N/A U NO SHEAR FAILURES: The shear capacity of frame members is able to develop the moment capacity at the ends of the members. (Commentary: Sec. A.3.1.4.6. Tier 2: Sec. 5.5.2.3.4)

C (NC) N/A U STRONG COLUMN—WEAK BEAM: The sum of the moment capacity of the columns is 20% greater than that of the beams at frame joints. (Commentary: Sec. A.3.1.4.7. Tier 2: Sec. 5.5.2.1.5)

C (NC) N/A U BEAM BARS: At least two longitudinal top and two longitudinal bottom bars extend continuously throughout the length of each frame beam. At least 25% of the longitudinal bars provided at the joints for either positive or negative moment are continuous throughout the length of the members. (Commentary: A.3.1.4.8. Tier 2: Sec. 5.5.2.3.5)

C (NC) N/A U COLUMN-BAR SPLICES: All column-bar lap splice lengths are greater than $35d_b$ and are enclosed by ties spaced at or less than $8d_b$. Alternatively, column bars are spliced with mechanical couplers with a capacity of at least 1.25 times the nominal yield strength of the spliced bar. (Commentary: Sec. A.3.1.4.9. Tier 2: Sec. 5.5.2.3.6)

C (NC) N/A U BEAM-BAR SPLICES: The lap splices or mechanical couplers for longitudinal beam reinforcing are not located within $l_b/4$ of the joints and are not located in the vicinity of potential plastic hinge locations. (Commentary: Sec. A.3.1.4.10. Tier 2: Sec. 5.5.2.3.6)

C (NC) N/A U COLUMN-TIE SPACING: Frame columns have ties spaced at or less than $d/4$ throughout their length and at or less than $8d_b$ at all potential plastic hinge locations. (Commentary: Sec. A.3.1.4.11. Tier 2: Sec. 5.5.2.3.7)

C (NC) N/A U STIRRUP SPACING: All beams have stirrups spaced at or less than $d/2$ throughout their length. At potential plastic hinge locations, stirrups are spaced at or less than the minimum of $8d_b$ or $d/4$. (Commentary: Sec. A.3.1.4.12. Tier 2: Sec. 5.5.2.3.7)

C (NC) N/A U JOINT TRANSVERSE REINFORCING: Beam–column joints have ties spaced at or less than $8d_b$. (Commentary: Sec. A.3.1.4.13. Tier 2: Sec. 5.5.2.3.8)

C (NC) N/A U DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)

C NC (N/A) U FLAT SLABS: Flat slabs or plates not part of the seismic-force-resisting system have continuous bottom steel through the column joints. (Commentary: Sec. A.3.1.6.3. Tier 2: Sec. 5.5.2.5.3)

Diaphragms

(C) NC N/A U DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)

Connections

C NC (N/A) U UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)

Project: Clackamas County Courthouse Location: Oregon City, OR

Completed by: LE Date: 09/22/15

16.17 NONSTRUCTURAL CHECKLIST

Life Safety Systems

(C) NC N/A U LS-LMH; PR-LMH. FIRE SUPPRESSION PIPING: Fire suppression piping is anchored and braced in accordance with NFPA-13. (Commentary: Sec. A.7.13.1. Tier 2: Sec. 13.7.4)

(C) NC N/A U LS-LMH; PR-LMH. FLEXIBLE COUPLINGS: Fire suppression piping has flexible couplings in accordance with NFPA-13. (Commentary: Sec. A.7.13.2. Tier 2: Sec. 13.7.4)

C NC (N/A) U LS-LMH; PR-LMH. EMERGENCY POWER: Equipment used to power or control life safety systems is anchored or braced. (Commentary: Sec. A.7.12.1. Tier 2: Sec. 13.7.7)

C NC (N/A) U LS-LMH; PR-LMH. STAIR AND SMOKE DUCTS: Stair pressurization and smoke control ducts are braced and have flexible connections at seismic joints. (Commentary: Sec. A.7.14.1. Tier 2: Sec. 13.7.6)

(C) NC N/A U LS-MH; PR-MH. SPRINKLER CEILING CLEARANCE: Penetrations through panelized ceilings for fire suppression devices provide clearances in accordance with NFPA-13. (Commentary: Sec. A.7.13.3. Tier 2: Sec. 13.7.4)

C NC (N/A) U LS-not required; PR-LMH. EMERGENCY LIGHTING: Emergency and egress lighting equipment is anchored or braced. (Commentary: Sec. A.7.3.1. Tier 2: Sec. 13.7.9)

Hazardous Materials

C NC (N/A) U LS-LMH; PR-LMH. HAZARDOUS MATERIAL EQUIPMENT: Equipment mounted on vibration isolators and containing hazardous material is equipped with restraints or snubbers. (Commentary: Sec. A.7.12.2. Tier 2: 13.7.1)

C NC (N/A) U LS-LMH; PR-LMH. HAZARDOUS MATERIAL STORAGE: Breakable containers that hold hazardous material, including gas cylinders, are restrained by latched doors, shelf lips, wires, or other methods. (Commentary: Sec. A.7.15.1. Tier 2: Sec. 13.8.4)

C NC (N/A) U LS-MH; PR-MH. HAZARDOUS MATERIAL DISTRIBUTION: Piping or ductwork conveying hazardous materials is braced or otherwise protected from damage that would allow hazardous material release. (Commentary: Sec. A.7.13.4. Tier 2: Sec. 13.7.3 and 13.7.5)

C NC (N/A) U LS-MH; PR-MH. SHUT-OFF VALVES: Piping containing hazardous material, including natural gas, has shut-off valves or other devices to limit spills or leaks. (Commentary: Sec. A.7.13.3. Tier 2: Sec. 13.7.3 and 13.7.5)

C NC (N/A) U LS-LMH; PR-LMH. FLEXIBLE COUPLINGS: Hazardous material ductwork and piping, including natural gas piping, has flexible couplings. (Commentary: Sec. A.7.15.4, Tier 2: Sec.13.7.3 and 13.7.5)

C NC (N/A) U LS-MH; PR-MH. PIPING OR DUCTS CROSSING SEISMIC JOINTS: Piping or ductwork carrying hazardous material that either crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements. (Commentary: Sec. A.7.13.6. Tier 2: Sec.13.7.3, 13.7.5, and 13.7.6)

Partitions

C (NC) N/A U LS-LMH; PR-LMH. UNREINFORCED MASONRY: Unreinforced masonry or hollow-clay tile partitions are braced at a spacing of at most 10 ft in Low or Moderate Seismicity, or at most 6 ft in High Seismicity. (Commentary: Sec. A.7.1.1. Tier 2: Sec. 13.6.2)

(C) NC N/A U LS-LMH; PR-LMH. HEAVY PARTITIONS SUPPORTED BY CEILINGS: The tops of masonry or hollow-clay tile partitions are not laterally supported by an integrated ceiling system. (Commentary: Sec. A.7.2.1. Tier 2: Sec. 13.6.2)

C (NC) N/A U LS-MH; PR-MH. DRIFT: Rigid cementitious partitions are detailed to accommodate the following drift ratios: in steel moment frame, concrete moment frame, and wood frame buildings, 0.02; in other buildings, 0.005. (Commentary A.7.1.2 Tier 2: Sec. 13.6.2)

C NC (N/A) U LS-not required; PR-MH. LIGHT PARTITIONS SUPPORTED BY CEILINGS: The tops of gypsum board partitions are not laterally supported by an integrated ceiling system. (Commentary: Sec. A.7.2.1. Tier 2: Sec. 13.6.2)

C NC (N/A) U LS-not required; PR-MH. STRUCTURAL SEPARATIONS: Partitions that cross structural separations have seismic or control joints. (Commentary: Sec. A.7.1.3. Tier 2. Sec. 13.6.2)

C NC (N/A) U LS-not required; PR-MH. TOPS: The tops of ceiling-high framed or panelized partitions have lateral bracing to the structure at a spacing equal to or less than 6 ft. (Commentary: Sec. A.7.1.4. Tier 2. Sec. 13.6.2)

Ceilings

C (NC) N/A U LS-MH; PR-LMH. SUSPENDED LATH AND PLASTER: Suspended lath and plaster ceilings have attachments that resist seismic forces for every 12 ft^2 of area. (Commentary: Sec. A.7.2.3. Tier 2: Sec. 13.6.4)

C (NC) N/A U LS-MH; PR-LMH. SUSPENDED GYPSUM BOARD: Suspended gypsum board ceilings have attachments that resist seismic forces for every 12 ft^2 of area. (Commentary: Sec. A.7.2.3. Tier 2: Sec. 13.6.4)

C NC (N/A) U LS-not required; PR-MH. INTEGRATED CEILINGS: Integrated suspended ceilings with continuous areas greater than 144 ft^2, and ceilings of smaller areas that are not surrounded by restraining partitions, are laterally restrained at a spacing no greater than 12 ft with members attached to the structure above. Each restraint location has a minimum of four diagonal wires and compression struts, or diagonal members capable of resisting compression. (Commentary: Sec. A.7.2.2. Tier 2: Sec. 13.6.4)

C NC (N/A) U LS-not required; PR-MH. EDGE CLEARANCE: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 have clearances from the enclosing wall or partition of at least the following: in Moderate Seismicity, 1/2 in.; in High Seismicity, 3/4 in. (Commentary: Sec. A.7.2.4. Tier 2: Sec. 13.6.4)

C NC (N/A) U LS-not required; PR-MH. CONTINUITY ACROSS STRUCTURE JOINTS: The ceiling system does not cross any seismic joint and is not attached to multiple independent structures. (Commentary: Sec. A.7.2.5. Tier 2: Sec. 13.6.4)

C NC (N/A) U LS-not required; PR-H. EDGE SUPPORT: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 are supported by closure angles or channels not less than 2 in. wide. (Commentary: Sec. A.7.2.6. Tier 2: Sec. 13.6.4)

C NC (N/A) U LS-not required; PR-H. SEISMIC JOINTS: Acoustical tile or lay-in panel ceilings have seismic separation joints such that each continuous portion of the ceiling is no more than 2500 ft^2 and has a ratio of long-to-short dimension no more than 4-to-1. (Commentary: Sec. A.7.2.7. Tier 2: 13.6.4)

Light Fixtures

C (NC) N/A U LS-MH; PR-MH. INDEPENDENT SUPPORT: Light fixtures that weigh more per square foot than the ceiling they penetrate are supported independent of the grid ceiling suspension system by a minimum of two wires at diagonally opposite corners of each fixture. (Commentary: Sec. A.7.3.2. Tier 2: Sec. 13.6.4 and 13.7.9)

C NC (N/A) U LS-not required; PR-H. PENDANT SUPPORTS: Light fixtures on pendant supports are attached at a spacing equal to or less than 6 ft and, if rigidly supported, are free to move with the structure to which they are attached without damaging adjoining components. (Commentary: A.7.3.3. Tier 2: Sec. 13.7.9)

C NC (N/A) U LS-not required; PR-H. LENS COVERS: Lens covers on light fixtures are attached with safety devices. (Commentary: Sec. A.7.3.4. Tier 2: Sec. 13.7.9)

Cladding and Glazing

C NC N/A (U) LS-MH; PR-MH. CLADDING ANCHORS: Cladding components weighing more than 10 lb/ft^2 are mechanically anchored to the structure at a spacing equal to or less than the following: for Life Safety in Moderate Seismicity, 6 ft; for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 ft. (Commentary: Sec. A.7.4.1. Tier 2: Sec. 13.6.1)

C NC N/A (U) LS-MH; PR-MH. CLADDING ISOLATION: For steel or concrete moment frame buildings, panel connections are detailed to accommodate a story drift ratio of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02. (Commentary: Sec. A.7.4.3. Tier 2: Section 13.6.1)

C NC (N/A) U LS-MH; PR-MH. MULTI-STORY PANELS: For multi-story panels attached at more than one floor level, panel connections are detailed to accommodate a story drift ratio of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicty, 0.02. (Commentary: Sec. A.7.4.4. Tier 2: Sec. 13.6.1)

C NC (N/A) U LS-MH; PR-MH. PANEL CONNECTIONS: Cladding panels are anchored out-of-plane with a minimum number of connections for each wall panel, as follows: for Life Safety in Moderate Seismicity, 2 connections; for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 connections. (Commentary: Sec. A.7.4.5. Tier 2: Sec. 13.6.1.4)

C NC (N/A) U LS-MH; PR-MH. BEARING CONNECTIONS: Where bearing connections are used, there is a minimum of two bearing connections for each cladding panel. (Commentary: Sec. A.7.4.6. Tier 2: Sec. 13.6.1.4)

C NC (N/A) U LS-MH; PR-MH. INSERTS: Where concrete cladding components use inserts, the inserts have positive anchorage or are anchored to reinforcing steel. (Commentary: Sec. A.7.4.7. Tier 2: Sec. 13.6.1.4)

C (NC) N/A U LS-MH; PR-MH. OVERHEAD GLAZING: Glazing panes of any size in curtain walls and individual interior or exterior panes over 16 ft^2 in area are laminated annealed or laminated heat-strengthened glass and are detailed to remain in the frame when cracked. (Commentary: Sec. A.7.4.8: Tier 2: Sec. 13.6.1.5)

Masonry Veneer

C NC N/A (U) LS-LMH; PR-LMH. TIES: Masonry veneer is connected to the backup with corrosion-resistant ties. There is a minimum of one tie for every 2-2/3 ft^2, and the ties have spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 36 in.; for Life Safety in High Seismicity and for Position Retention in any seismicity, 24 in. (Commentary: Sec. A.7.5.1. Tier 2: Sec. 13.6.1.2)

C NC N/A (U) LS-LMH; PR-LMH. SHELF ANGLES: Masonry veneer is supported by shelf angles or other elements at each floor above the ground floor. (Commentary: Sec. A.7.5.2. Tier 2: Sec. 13.6.1.2)

C NC N/A (U) LS-LMH; PR-LMH. WEAKENED PLANES: Masonry veneer is anchored to the backup adjacent to weakened planes, such as at the locations of flashing. (Commentary: Sec. A.7.5.3. Tier 2: Sec. 13.6.1.2)

(C) NC N/A U LS-LMH; PR-LMH. UNREINFORCED MASONRY BACKUP: There is no unreinforced masonry backup. (Commentary: Sec. A.7.7.2. Tier 2: Section 13.6.1.1 and 13.6.1.2)

C NC (N/A) U LS-MH; PR-MH. STUD TRACKS: For veneer with metal stud backup, stud tracks are fastened to the structure at a spacing equal to or less than 24 in. on center. (Commentary: Sec. A.7.6.1. Tier 2: Section 13.6.1.1 and 13.6.1.2)

C NC (N/A) U LS-MH; PR-MH. ANCHORAGE: For veneer with concrete block or masonry backup, the backup is positively anchored to the structure at a horizontal spacing equal to or less than 4 ft along the floors and roof. (Commentary: Sec. A.7.7.1. Tier 2: Section 13.6.1.1 and 13.6.1.2)

C NC (N/A) U LS-not required; PR-MH. WEEP HOLES: In veneer anchored to stud walls, the veneer has functioning weep holes and base flashing. (Commentary: Sec. A.7.5.6. Tier 2: Section 13.6.1.2)

C NC (N/A) U LS-not required; PR-MH. OPENINGS: For veneer with metal stud backup, steel studs frame window and door openings. (Commentary: Sec. A.7.6.2. Tier 2: Sec. 13.6.1.1 and 13.6.1.2)

Parapets, Cornices, Ornamentation, and Appendages

C NC (N/A) U LS-LMH; PR-LMH. URM PARAPETS OR CORNICES: Laterally unsupported unreinforced masonry parapets or cornices have height-to-thickness ratios no greater than the following: for Life Safety in Low or Moderate Seismicity, 2.5; for Life Safety in High Seismicity and for Position Retention in any seismicity, 1.5. (Commentary: Sec. A.7.8.1. Tier 2: Sec. 13.6.5)

C NC (N/A) U LS-LMH; PR-LMH. CANOPIES: Canopies at building exits are anchored to the structure at a spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 10 ft; for Life Safety in High Seismicity and for Position Retention in any seismicity, 6 ft. (Commentary: Sec. A.7.8.2. Tier 2: Sec. 13.6.6)

(C) NC N/A U LS-MH; PR-LMH. CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement. (Commentary: Sec. A.7.8.3. Tier 2: Sec. 13.6.5)

C NC (N/A) U LS-MH; PR-LMH. APPENDAGES: Cornices, parapets, signs, and other ornamentation or appendages that extend above the highest point of anchorage to the structure or cantilever from components are reinforced and anchored to the structural system at a spacing equal to or less than 6 ft. This checklist item does not apply to parapets or cornices covered by other checklist items. (Commentary: Sec. A.7.8.4. Tier 2: Sec. 13.6.6)

Masonry Chimneys

C (NC) N/A U LS-LMH; PR-LMH. URM CHIMNEYS: Unreinforced masonry chimneys extend above the roof surface no more than the following: for Life Safety in Low or Moderate Seismicity, 3 times the least dimension of the chimney; for Life Safety in High Seismicity and for Position Retention in any seismicity, 2 times the least dimension of the chimney. (Commentary: Sec. A.7.9.1. Tier 2: 13.6.7)

C (NC) N/A U LS-LMH; PR-LMH. ANCHORAGE: Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof. (Commentary: Sec. A.7.9.2. Tier 2: 13.6.7)

Stairs

C (NC) N/A U LS-LMH; PR-LMH. STAIR ENCLOSURES: Hollow-clay tile or unreinforced masonry walls around stair enclosures are restrained out-of-plane and have height-to-thickness ratios not greater than the following: for Life Safety in Low or Moderate Seismicity, 15-to-1; for Life Safety in High Seismicity and for Position Retention in any seismicity, 12-to-1. (Commentary: Sec. A.7.10.1. Tier 2: Sec. 13.6.2 and 13.6.8)

C (NC) N/A U LS-LMH; PR-LMH. STAIR DETAILS: In moment frame structures, the connection between the stairs and the structure does not rely on shallow anchors in concrete. Alternatively, the stair details are capable of accommodating the drift calculated using the Quick Check procedure of Section 4.5.3.1 without including any lateral stiffness contribution from the stairs. (Commentary: Sec. A.7.10.2. Tier 2: 13.6.8)

Contents and Furnishings

C NC (N/A) U LS-MH; PR-MH. INDUSTRIAL STORAGE RACKS: Industrial storage racks or pallet racks more than 12 ft high meet the requirements of ANSI/MH 16.1 as modified by ASCE 7 Chapter 15. (Commentary: Sec. A.7.11.1. Tier 2: Sec. 13.8.1)

C (NC) N/A U LS-H; PR-MH. TALL NARROW CONTENTS: Contents more than 6 ft high with a height-to-depth or height-to-width ratio greater than 3-to-1 are anchored to the structure or to each other. (Commentary: Sec. A.7.11.2. Tier 2: Sec. 13.8.2)

C (NC) N/A U LS-H; PR-H. FALL-PRONE CONTENTS: Equipment, stored items, or other contents weighing more than 20 lb whose center of mass is more than 4 ft above the adjacent floor level are braced or otherwise restrained. (Commentary: Sec. A.7.11.3. Tier 2: Sec. 13.8.2)

C NC (N/A) U LS-not required; PR-MH. ACCESS FLOORS: Access floors more than 9 in. high are braced. (Commentary: Sec. A.7.11.4. Tier 2: Sec. 13.8.3)

C NC (N/A) U LS-not required; PR-MH. EQUIPMENT ON ACCESS FLOORS: Equipment and other contents supported by access floor systems are anchored or braced to the structure independent of the access floor. (Commentary: Sec. A.7.11.5. Tier 2: Sec. 13.7.7 and 13.8.3)

C NC (N/A) U LS-not required; PR-H. SUSPENDED CONTENTS: Items suspended without lateral bracing are free to swing from or move with the structure from which they are suspended without damaging themselves or adjoining components. (Commentary. A.7.11.6. Tier 2: Sec. 13.8.2)

Mechanical and Electrical Equipment

C (NC) N/A U LS-H; PR-H. FALL-PRONE EQUIPMENT: Equipment weighing more than 20 lb whose center of mass is more than 4 ft above the adjacent floor level, and which is not in-line equipment, is braced. (Commentary: A.7.12.4. Tier 2: 13.7.1 and 13.7.7)

C (NC) N/A U LS-H; PR-H. IN-LINE EQUIPMENT: Equipment installed in-line with a duct or piping system, with an operating weight more than 75 lb, is supported and laterally braced independent of the duct or piping system. (Commentary: Sec. A.7.12.5. Tier 2: Sec. 13.7.1)

C (NC) N/A U LS-H; PR-MH. TALL NARROW EQUIPMENT: Equipment more than 6 ft high with a height-to-depth or height-to-width ratio greater than 3-to-1 is anchored to the floor slab or adjacent structural walls. (Commentary: Sec. A.7.12.6. Tier 2: Sec. 13.7.1 and 13.7.7)

C NC (N/A) U LS-not required; PR-MH. MECHANICAL DOORS: Mechanically operated doors are detailed to operate at a story drift ratio of 0.01. (Commentary: Sec. A.7.12.7. Tier 2: Sec. 13.6.9)

C NC (N/A) U LS-not required; PR-H. SUSPENDED EQUIPMENT: Equipment suspended without lateral bracing is free to swing from or move with the structure from which it is suspended without damaging itself or adjoining components. (Commentary: Sec. A.7.12.8. Tier 2: Sec. 13.7.1 and 13.7.7)

C NC (N/A) U LS-not required; PR-H. VIBRATION ISOLATORS: Equipment mounted on vibration isolators is equipped with horizontal restraints or snubbers and with vertical restraints to resist overturning. (Commentary: Sec. A.7.12.9. Tier 2: Sec. 13.7.1)

C NC (N/A) U LS-not required; PR-H. HEAVY EQUIPMENT: Floor-supported or platform-supported equipment weighing more than 400 lb is anchored to the structure. (Commentary: Sec. A.7.12.10. Tier 2: 13.7.1 and 13.7.7)

C NC (N/A) U LS-not required; PR-H. ELECTRICAL EQUIPMENT: Electrical equipment is laterally braced to the structure. (Commentary: Sec. A.7.12.11. Tier 2: 13.7.7)

C NC (N/A) U LS-not required; PR-H. CONDUIT COUPLINGS: Conduit greater than 2.5 in. trade size that is attached to panels, cabinets, or other equipment and is subject to relative seismic displacement has flexible couplings or connections. (Commentary: Sec. A.7.12.12. Tier 2: 13.7.8)

Piping

C NC (N/A) U LS-not required; PR-H. FLEXIBLE COUPLINGS: Fluid and gas piping has flexible couplings. (Commentary: Sec. A.7.13.2. Tier 2: Sec. 13.7.3 and 13.7.5)

C NC (N/A) U LS-not required; PR-H. FLUID AND GAS PIPING: Fluid and gas piping is anchored and braced to the structure to limit spills or leaks. (Commentary: Sec. A.7.13.4. Tier 2: Sec. 13.7.3 and 13.7.5)

C NC (N/A) U LS-not required; PR-H. C-CLAMPS: One-sided C-clamps that support piping larger than 2.5 in. in diameter are restrained. (Commentary: Sec. A.7.13.5. Tier 2: Sec. 13.7.3 and 13.7.5)

C NC (N/A) U LS-not required; PR-H. PIPING CROSSING SEISMIC JOINTS: Piping that crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements. (Commentary: Sec. A7.13.6. Tier 2: Sec.13.7.3 and Sec. 13.7.5)

Ducts

C NC (N/A) U LS-not required; PR-H. DUCT BRACING: Rectangular ductwork larger than 6 ft^2 in cross-sectional area and round ducts larger than 28 in. in diameter are braced. The maximum spacing of transverse bracing does not exceed 30 ft. The maximum spacing of longitudinal bracing does not exceed 60 ft. (Commentary: Sec. A.7.14.2. Tier 2: Sec. 13.7.6)

C NC (N/A) U LS-not required; PR-H. DUCT SUPPORT: Ducts are not supported by piping or electrical conduit. (Commentary: Sec. A.7.14.3. Tier 2: Sec. 13.7.6)

C NC (N/A) U LS-not required; PR-H. DUCTS CROSSING SEISMIC JOINTS: Ducts that cross seismic joints or isolation planes or are connected to independent structures have couplings or other details to accommodate the relative seismic displacements. (Commentary: Sec. A.7.14.5. Tier 2: Sec. 13.7.6)

Elevators

C NC N/A (U) LS-H; PR-H. RETAINER GUARDS: Sheaves and drums have cable retainer guards. (Commentary: Sec. A.7.16.1. Tier 2: 13.8.6)

C NC N/A (U) LS-H; PR-H. RETAINER PLATE: A retainer plate is present at the top and bottom of both car and counterweight. (Commentary: Sec. A.7.16.2. Tier 2: 13.8.6)

C NC (N/A) U LS-not required; PR-H. ELEVATOR EQUIPMENT: Equipment, piping, and other components that are part of the elevator system are anchored. (Commentary: Sec. A.7.16.3. Tier 2: 13.8.6)

C NC (N/A) U LS-not required; PR-H. SEISMIC SWITCH: Elevators capable of operating at speeds of 150 ft/min or faster are equipped with seismic switches that meet the requirements of ASME A17.1 or have trigger levels set to 20% of the acceleration of gravity at the base of the structure and 50% of the acceleration of gravity in other locations. (Commentary: Sec. A.7.16.4. Tier 2: 13.8.6)

C NC (N/A) U LS-not required; PR-H. SHAFT WALLS: Elevator shaft walls are anchored and reinforced to prevent toppling into the shaft during strong shaking. (Commentary: Sec. A.7.16.5. Tier 2: 13.8.6)

C NC (N/A) U LS-not required; PR-H. COUNTERWEIGHT RAILS: All counterweight rails and divider beams are sized in accordance with ASME A17.1. (Commentary: Sec. A.7.16.6. Tier 2: 13.8.6)

C NC (N/A) U LS-not required; PR-H. BRACKETS: The brackets that tie the car rails and the counterweight rail to the structure are sized in accordance with ASME A17.1. (Commentary: Sec. A.7.16.7. Tier 2: 13.8.6)

C NC (N/A) U LS-not required; PR-H. SPREADER BRACKET: Spreader brackets are not used to resist seismic forces. (Commentary: Sec. A.7.16.8. Tier 2: 13.8.6)

C NC (N/A) U LS-not required; PR-H. GO-SLOW ELEVATORS: The building has a go-slow elevator system. (Commentary: Sec. A.7.16.9. Tier 2: 13.8.6)

GeoDesign Inc

October 15, 2015

Report of Geotechnical Engineering Services
Red Soils Master Plan Update: Existing Building Assessment
of the Clackamas County Courthouse
807 Main Street
Oregon City, Oregon
GeoDesign Project: SERA-24-01

INTRODUCTION

GeoDesign, Inc. is pleased to provide this report that presents results of our geotechnical engineering services for the Red Soils Master Plan Update: Existing Building Assessment of the Clackamas County Courthouse located at 807 Main Street in Oregon City, Oregon. We understand that an assessment of the existing building is required as part of funding. The location of the site relative to existing features is shown on Figure 1.

SCOPE OF SERVICES

The purpose of this evaluation was to provide geotechnical engineering recommendations for use in design and construction of the proposed improvements. Specifically, we completed the following scope of services:

- Reviewed readily available published geologic data and our in-house files for existing information on subsurface conditions in the site vicinity.
- Reviewed geotechnical information for a previous study conducted for an addition at the site.
- Coordinated and managed the field investigation (including locating utilities and scheduling subcontractors). A private utility locator was utilized to locate underground utilities at the cone penetration test (CPT) location.

- Coordinated CPT location with facility representatives prior to the field investigation.
- Conducted one CPT to refusal at a depth of 24.8 feet below ground surface (BGS). The CPT was completed adjacent to the southwest corner of the building.
- Evaluated the potential seismic hazards at the site.
- Evaluated the potential liquefaction at the site or impact from the adjacent river.
- Prepared this report summarizing our explorations, findings, conclusions, and recommendations.

DOCUMENT REVIEW

We reviewed the following document for our further evaluation of subsurface conditions and development of recommendations:

- *Report of Geotechnical Investigation & Site-Specific Seismic Hazard Study; Clackamas Courthouse Addition; 807 Main Street; Oregon City, Oregon,* prepared by Carlson Geotechnical dated October 20, 2011

SUBSURFACE CONDITIONS

Our understanding of the subsurface conditions was obtained by reviewing previous subsurface information completed by others for an addition to the existing building and conducting one CPT (CPT-1) at the southwest corner of the building. The location of the exploration is shown on Figure 2. The CPT logs and a description of the testing program are presented in Attachment A. A site plan, boring logs, and dynamic cone penetrometer (DCP) test data is presented as Attachment B.

Based on our review of boring logs from previous studies at the site, subsurface conditions generally consist of fill to depths of up to 12 feet BGS. The fill is comprised of medium stiff to stiff, sandy silt and loose to medium dense, silty sand with varying amounts of gravel, brick, and plastic debris. The fill is generally underlain by native medium stiff to stiff silt to depths of 14.0 to 17.0 feet BGS and is in turn underlain by medium dense to dense sand with varying amounts of gravel to depths of 19.5 to 27.0 feet BGS. The sand is underlain by hard to very hard basalt to the total depths explored of 27.0 to 34.0 feet BGS.

Groundwater was measured at a depth of approximately 17 feet beneath site grades in 2010 during a geotechnical investigation conducted by others. Groundwater was also encountered in borings at depths of 12.0 to 15.0 feet below site grades during a September 24, 2011 investigation for the addition. Groundwater levels may rise during extended periods of wet weather or during periods of high levels in the adjacent Willamette River. Zones of perched groundwater may also be present at shallower depths.

CONCLUSIONS

Based on results of our study, the site is susceptible to liquefaction and lateral spreading during design levels of ground shaking. The following sections provide a summary of geologic seismic hazards considered in this study.

SEISMIC HAZARDS

LIQUEFACTION AND LATERAL SPREADING

Liquefaction is caused by a rapid increase in pore water pressure that reduces the effective stress between soil particles to near zero. Granular soil, which relies on interparticle friction for strength, is susceptible to liquefaction until the excess pore pressures can dissipate. In general, loose, saturated sand soil with low silt and clay content is the most susceptible to liquefaction. Silty soil with low plasticity is moderately susceptible to liquefaction under relatively higher levels of ground shaking.

Groundwater was measured at depths of approximately 12 to 17 feet beneath site grades during prior geotechnical studies conducted by others at the site. Site soil below these depths is susceptible to liquefaction under design levels of ground shaking. Several inches of liquefaction-induced settlement are possible. In addition, we expect lateral spreading toward the river. The magnitude of the lateral movement could be on the order of several inches to several feet due to a design earthquake.

GROUND MOTION AMPLIFICATION

Soil capable of significantly amplifying ground motions beyond the levels determined by the building code was not encountered during previous subsurface investigations or the CPT exploration. We anticipate that a detailed ground response study will not exceed the levels of ground shaking that the building code prescribes.

FAULT SURFACE RUPTURE

Faults are not mapped beneath the site. We conclude that the probability of surface fault rupture beneath site is low.

SUBSIDENCE/UPLIFT

Subduction zone earthquakes can cause vertical tectonic movements. The movements reflect coseismic strain release accumulation associated with interplate coupling in the subduction zone. An interplate event would occur at a distance in excess of 100 kilometers of the site. Consequently, we do not anticipate that subsidence or uplift is a significant design concern.

LURCHING

Lurching is a phenomenon generally associated with very high levels of ground shaking, which causes localized failures and distortion of the soil. The anticipated site ground accelerations are below the threshold required to induce lurching of the site soil.

LIMITATIONS

We have prepared this report for use by SERA Architects and members of the design and construction team for the proposed building assessment. The data and report may be used for bidding or estimating purposes, but our report, conclusions, and interpretations should not be construed as a warranty of the subsurface conditions.

We have made recommendation based on a subsurface exploration completed at the site that indicates the soil conditions at only the specific location and only to the depths penetrated. These observations do not necessarily reflect soil types, strata thickness, or water level variations that may exist away from the exploration. If subsurface conditions differing from those described are observed during the course of excavation and construction, re-evaluation will be necessary.

When the design has been finalized, we recommend that the final design and specifications be reviewed by our firm to see that our recommendations have been interpreted and implemented as intended. If there are changes in the grades, location, configuration, or type of construction for the buildings, the conclusions and recommendations presented may not be applicable. If design changes are made, we request that we be retained to review our conclusions and recommendations and to provide a written modification or verification.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences or procedures, except as specifically described in our report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

♦ ♦ ♦

We appreciate the opportunity to be of continued service to you. Please call if you have questions concerning this report or if we can provide additional services.

Sincerely,

GeoDesign, Inc.

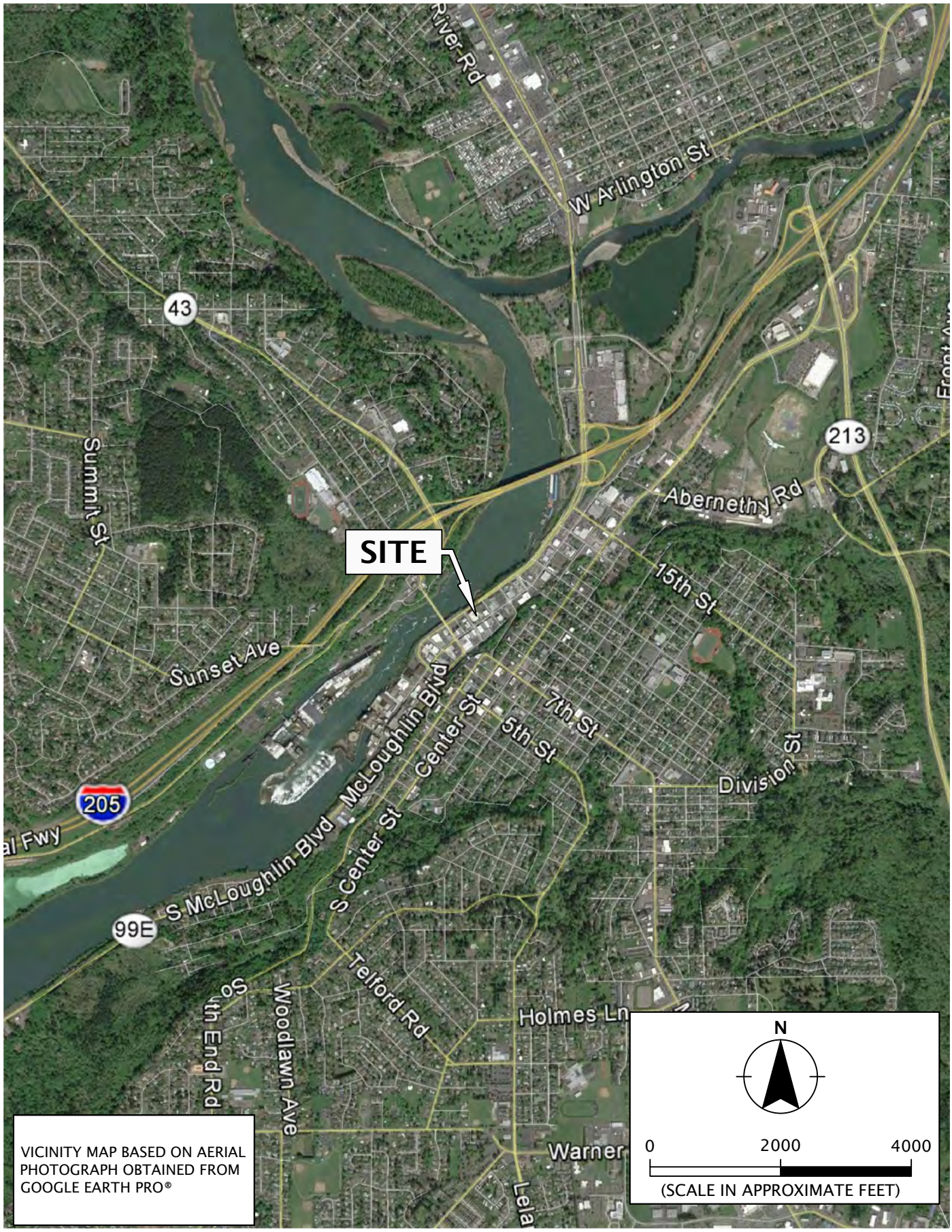
Tacia C. Miller, P.E., G.E.
Senior Associate Engineer

Brett A. Shipton, P.E., G.E.
Principal Engineer

cc: Mr. Mark Tobin, KPFF Consulting Engineers (via email only)

TCM:BAS:kt
Attachments
One copy submitted (via email only)
Document ID: SERA-24-01-101515-geolr.docx

FIGURES



VICINITY MAP BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®

GEODESIGN INC 15575 SW Sequoia Parkway - Suite 100 Portland OR 97224 Off 503.968.8787 Fax 503.968.3068	SERA-24-01	**VICINITY MAP**
	OCTOBER 2015	CLACKAMAS COUNTY COURTHOUSE OREGON CITY, OR — **FIGURE 1**

Printed By: aday | Print Date: 9/30/2015 2:55:34 PM
File Name: J:\S-Z\SERA\SERA-24\SERA-24-01\Figures\CAD\SERA-24-01-VM01.dwg | Layout: FIGURE 1

LEGEND:

CPT-1 ◬ CONE PENETROMETER

N

0 40 100

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®, SEPTEMBER 30, 2015

GEODESIGN INC
15575 SW Sequoia Parkway - Suite 100
Portland OR 97224
Off 503.968.8787 Fax 503.968.3068

SERA-24-01	**SITE PLAN**	
OCTOBER 2015	CLACKAMAS COUNTY COURTHOUSE OREGON CITY, OR	**FIGURE 2**

Printed By: aday | Print Date: 9/30/2015 2:55:35 PM
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ATTACHMENT A

ATTACHMENT A

CONE PENETROMETER TESTING

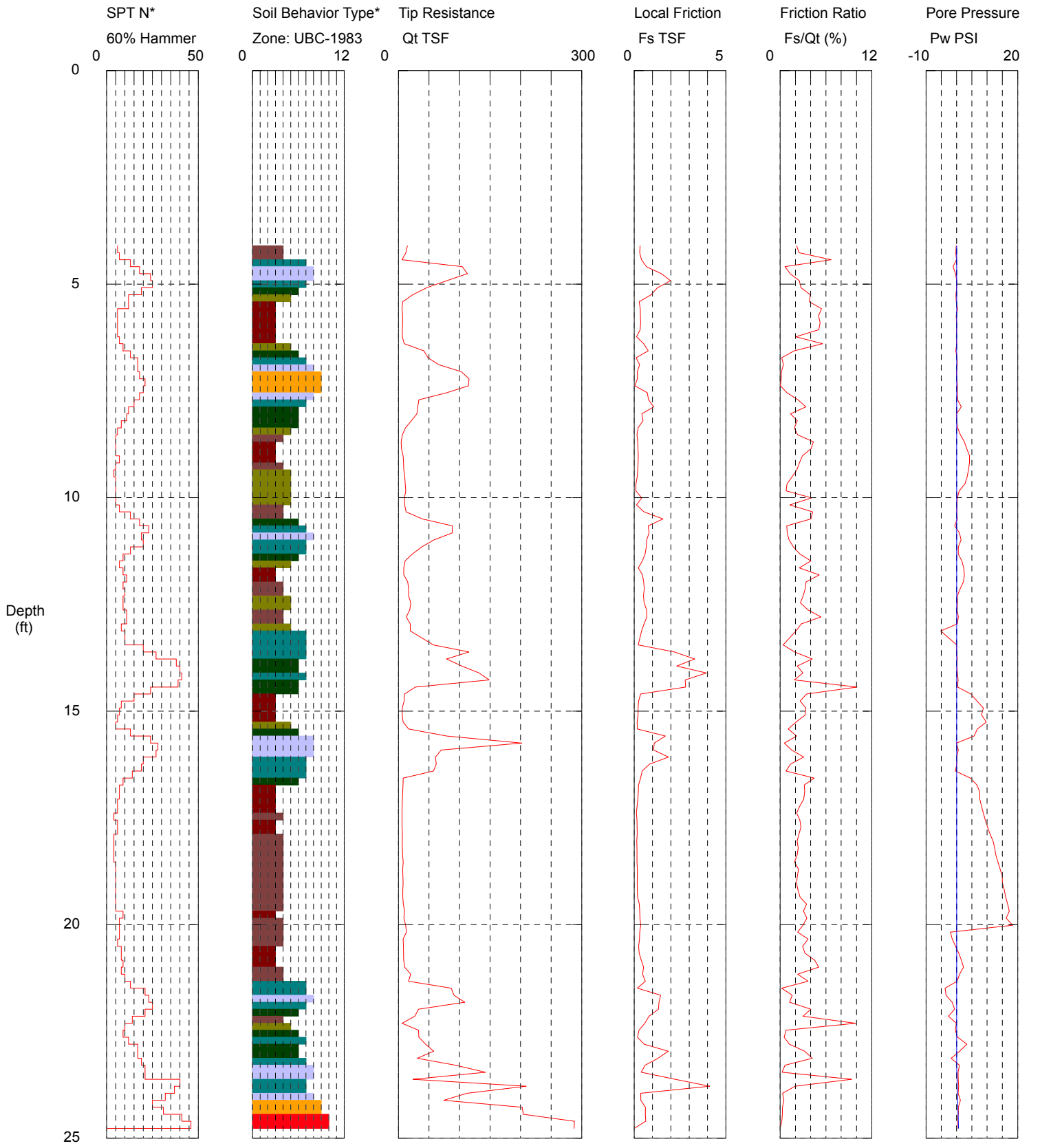
Our subsurface exploration program included one CPT (CPT-1) to a depth of 24.8 feet BGS. The CPT exploration was conducted at the southwest corner of the existing building. Figure 2 shows the location of the CPT relative to existing site features. The CPT was performed in general accordance with ASTM D 5778 by Oregon Geotechnical Explorations of Keizer, Oregon, on September 12, 2015.

The CPT is an in situ test that provides characterizes subsurface stratigraphy. The testing includes advancing a 35.6-millimeter-diameter cone equipped with a load cell and a friction sleeve through the soil profile. The cone is advanced at a rate of approximately 2 centimeters per second. Tip resistance, sleeve friction, and pore pressure at are typically recorded at 0.1-meter intervals. At selected depths, the advancement of the cone was suspended and pore water dissipation rates measured to estimate the groundwater level.

GeoDesign / CPT-1a / Clackamas Co Courthouse Oregon City

Operator: OGE TAJ
Sounding: CPT-1a
Cone Used: DPG1211

CPT Date/Time: 9/12/2015 3:49:02 PM
Location: GeoDesign / CPT-1a / Clackamas Co Courthouse Oregon City
Job Number: 15065 / GeoDesign / CPT-1a / Clackamas County Courtho



Maximum Depth = 24.77 feet

Depth Increment = 0.164 feet

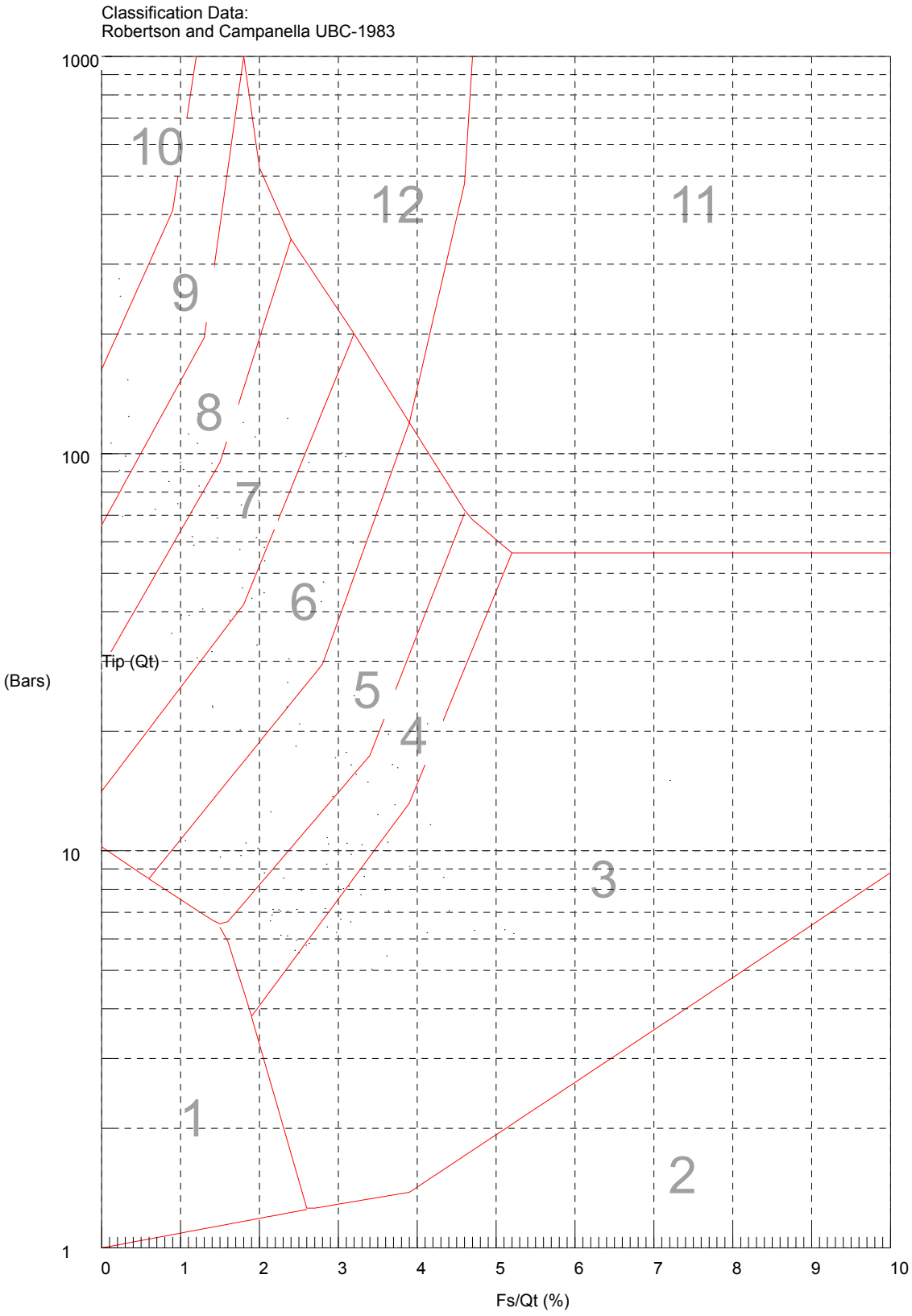
1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

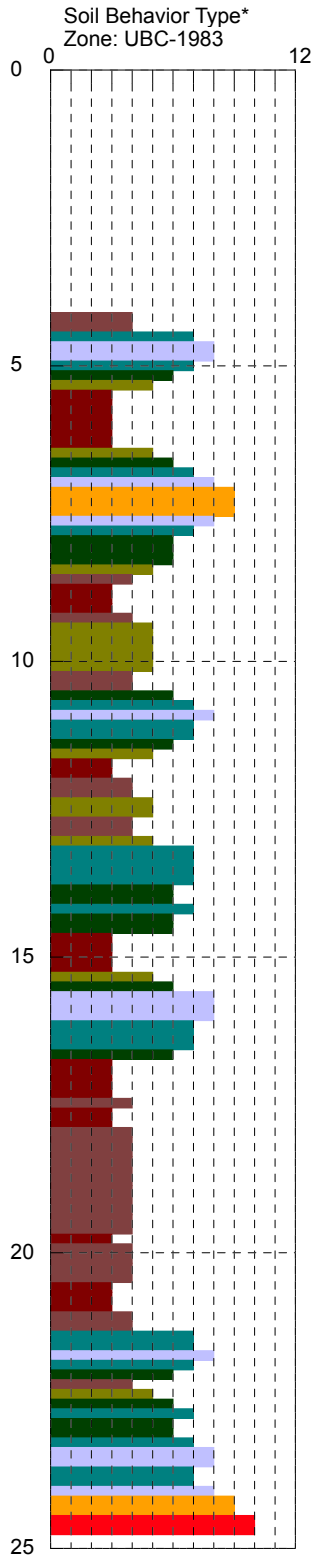
*Soil behavior type and SPT based on data from UBC-1983

GeoDesign / CPT-1a / Clackamas Co Courthouse Oregon City

Operator: OGE TAJ
Sounding: CPT-1a
Cone Used: DPG1211

CPT Date/Time: 9/12/2015 3:49:02 PM
Location: GeoDesign / CPT-1a / Clackamas Co Courthouse Oregon City
Job Number: 15065 / GeoDesign / CPT-1a / Clackamas County Courtho



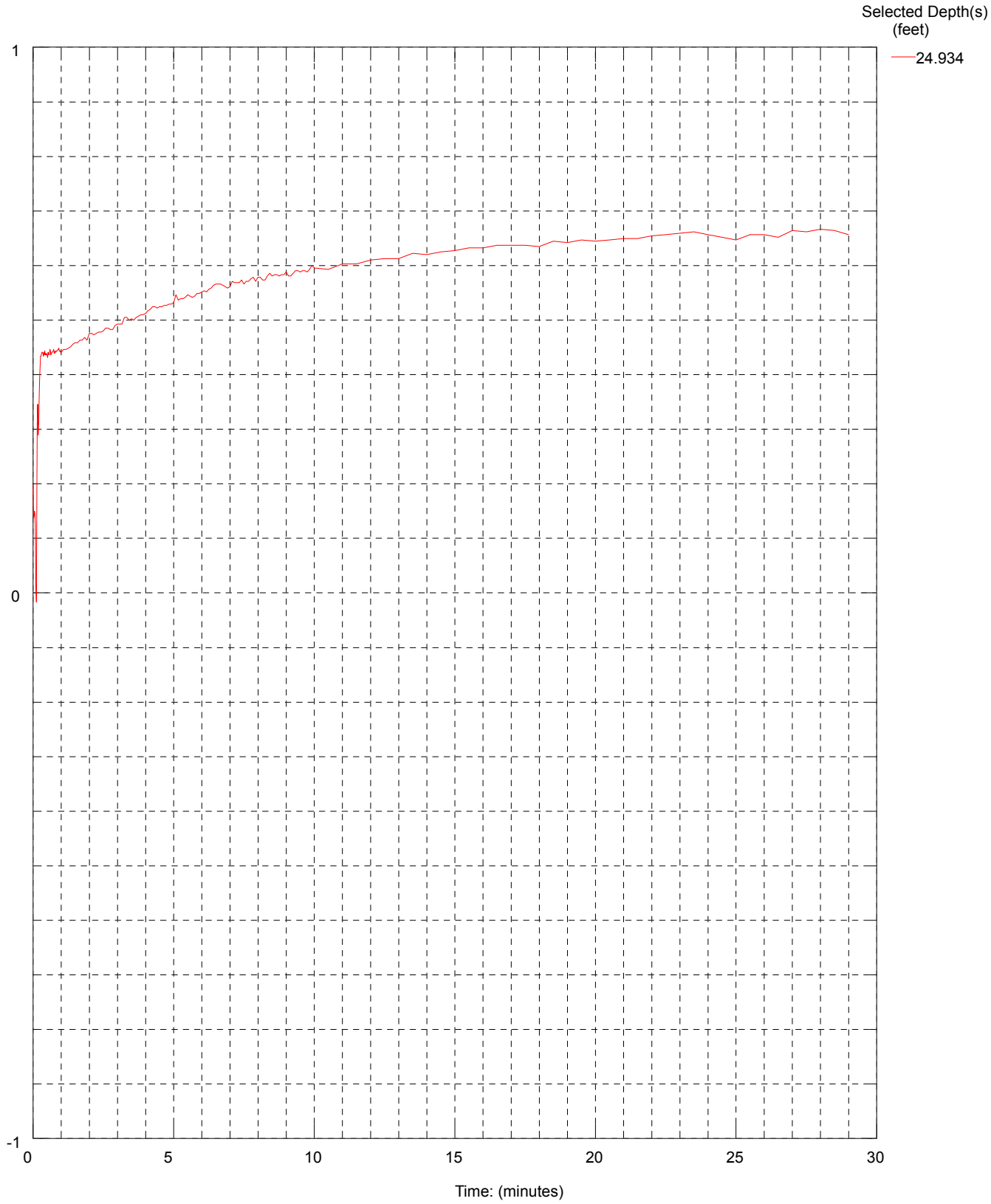


1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

GeoDesign / CPT-1a / Clackamas Co Courthouse Oregon City

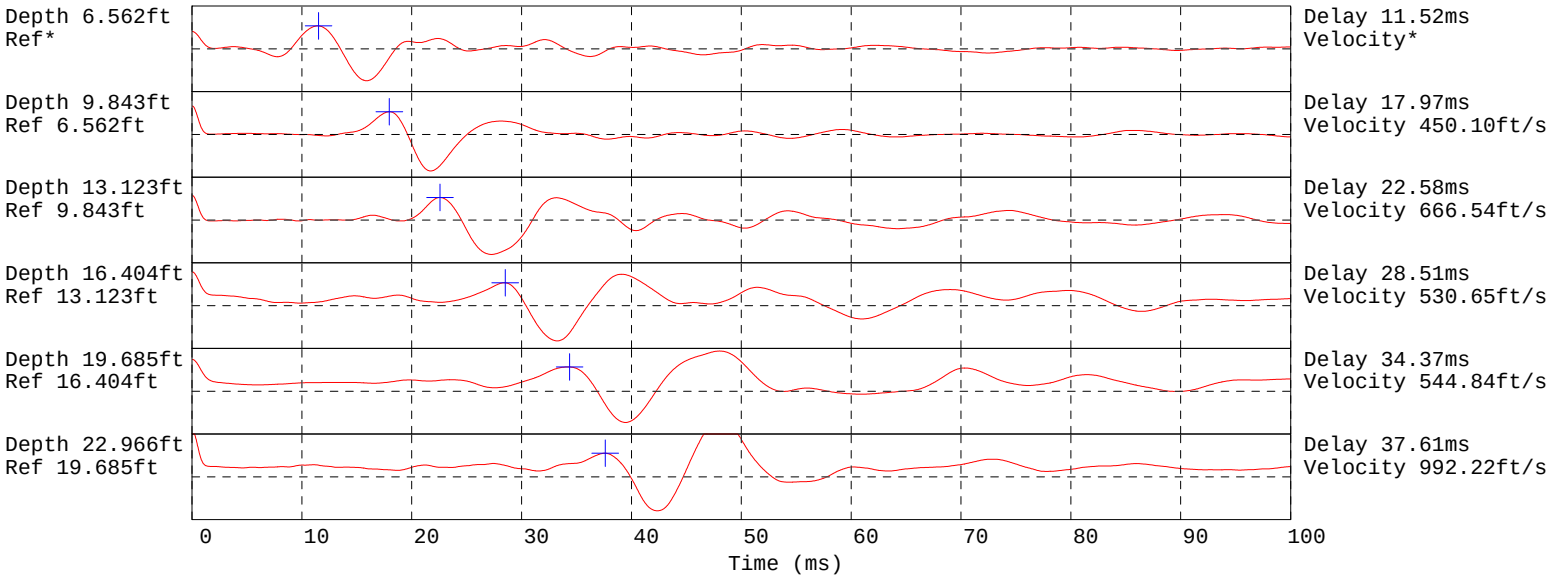
Operator OGE TAJ
Sounding: CPT-1a
Cone Used: DPG1211

CPT Date/Time: 9/12/2015 3:49:02 PM
Location: GeoDesign / CPT-1a / Clackamas Co Courthouse Oregon City
Job Number: 15065 / GeoDesign / CPT-1a / Clackamas County Courth



Maximum Pressure = 0.666 psi

GeoDesign / CPT-1a / Clackamas Co Courthouse Oregon City

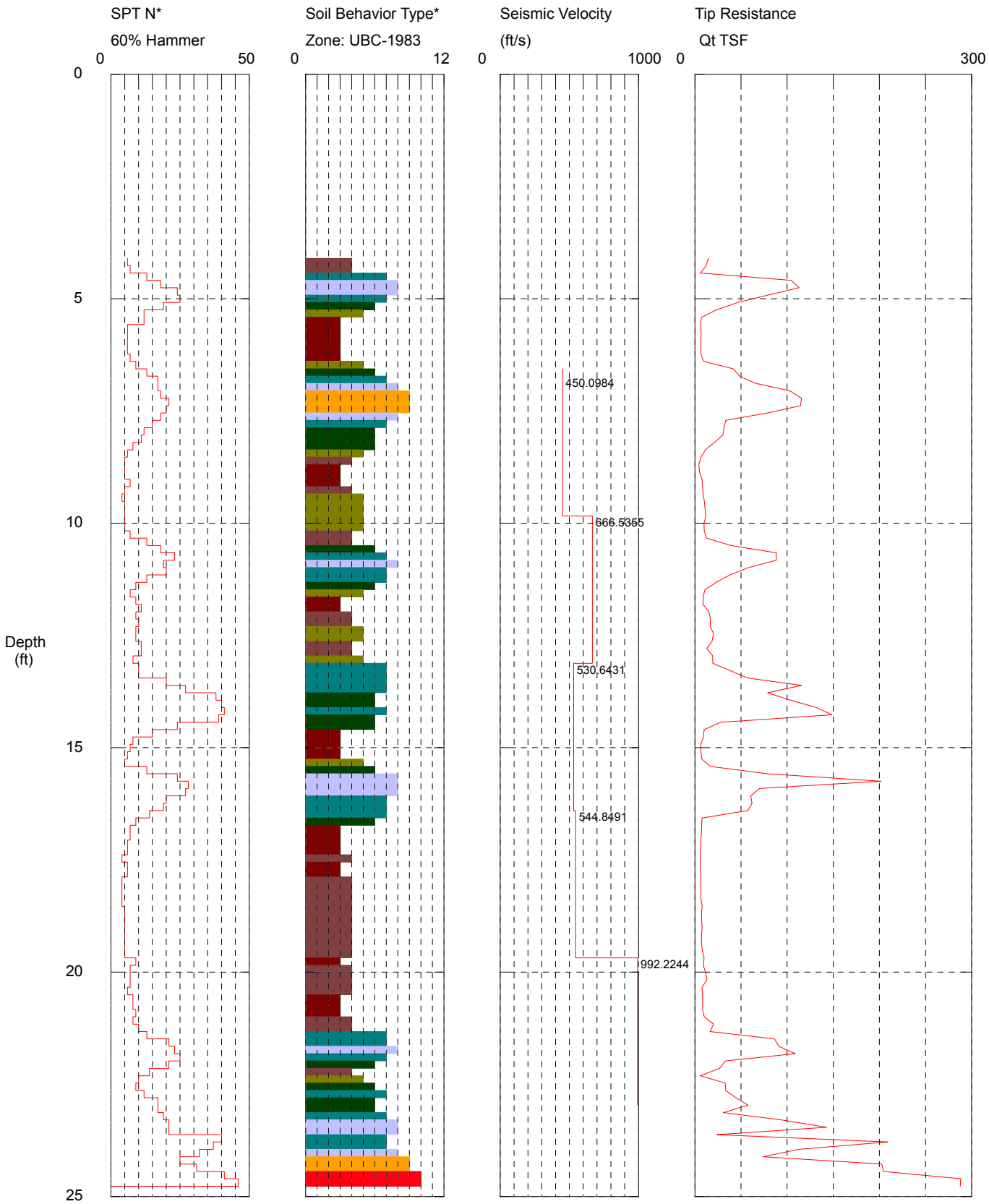


Hammer to Rod String Distance 1.3 (m)
* = Not Determined

GeoDesign / CPT-1a / Clackamas Co Courthouse Oregon City

Operator: OGE TAJ
Sounding: CPT-1a
Cone Used: DPG1211

CPT Date/Time: 9/12/2015 3:49:02 PM
Location: GeoDesign / CPT-1a / Clackamas Co Courthouse Oregon City
Job Number: 15065 / GeoDesign / CPT-1a / Clackamas County Courtho



Maximum Depth = 24.77 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

Data File:CPT-1a 9/12/2015 3:49:02 PM
Operator:OGE TAJ Location:GeoDesign / CPT-1a / Clackamas Co Courthouse Oreg
Cone ID:DPG1211 Job Number:15065 / GeoDesign / CPT-1a / Clackamas County Co
Customer: Units:

Depth (ft)	Qt TSF	Fs TSF	Fs/Qt (%)	Pw PSI	SPT N* 60% Hammer	Zone	Soil Behavior Type UBC-1983
4.10	14.57	0.3161	2.170	-0.093	6	4	silty clay to clay
4.27	12.17	0.3003	2.467	-0.267	7	4	silty clay to clay
4.43	6.00	0.4003	6.675	-0.042	13	7	silty sand to sandy silt
4.59	104.43	0.6557	0.628	-1.161	18	8	sand to silty sand
4.76	112.88	1.4836	1.314	-0.343	24	8	sand to silty sand
4.92	78.82	1.9842	2.517	0.000	25	7	silty sand to sandy silt
5.09	46.54	1.2695	2.728	0.010	19	6	sandy silt to clayey silt
5.25	23.45	0.9248	3.944	-0.240	12	5	clayey silt to silty clay
5.41	7.00	0.2680	3.826	-0.098	12	3	clay
5.58	6.00	0.3257	5.425	0.345	6	3	clay
5.74	6.72	0.3385	5.035	-0.147	6	3	clay
5.91	6.68	0.3489	5.227	0.044	6	3	clay
6.07	6.42	0.3250	5.060	-0.002	6	3	clay
6.23	6.38	0.1296	2.031	-0.083	7	3	clay
6.40	9.34	0.5201	5.571	0.047	9	5	clayey silt to silty clay
6.56	41.72	0.7635	1.830	-0.265	13	6	sandy silt to clayey silt
6.73	48.35	0.1029	0.213	0.132	17	7	silty sand to sandy silt
6.89	66.23	0.2929	0.442	0.211	17	8	sand to silty sand
7.05	103.00	0.1687	0.164	-0.027	18	9	sand
7.22	115.48	0.1732	0.150	0.032	21	9	sand
7.38	114.50	0.0378	0.033	0.296	20	9	sand
7.55	78.80	0.7135	0.905	0.245	18	8	sand to silty sand
7.71	33.45	0.7826	2.339	0.340	15	7	silty sand to sandy silt
7.87	31.57	1.0649	3.373	1.560	12	6	sandy silt to clayey silt
8.04	30.25	0.4129	1.365	-0.002	11	6	sandy silt to clayey silt
8.20	21.30	0.4785	2.247	0.054	8	6	sandy silt to clayey silt
8.37	11.55	0.2150	1.863	0.345	6	5	clayey silt to silty clay
8.53	6.39	0.1461	2.288	1.259	5	4	silty clay to clay
8.69	4.37	0.1902	4.354	2.574	5	3	clay
8.86	5.01	0.2027	4.043	3.363	5	3	clay
9.02	7.66	0.2230	2.911	4.257	7	3	clay
9.19	8.40	0.2128	2.534	4.225	5	4	silty clay to clay
9.35	8.86	0.1947	2.198	3.899	4	5	clayey silt to silty clay
9.51	10.30	0.1602	1.555	3.453	5	5	clayey silt to silty clay
9.68	11.06	0.0988	0.894	2.738	5	5	clayey silt to silty clay
9.84	11.89	0.0929	0.781	0.867	5	5	clayey silt to silty clay
10.01	9.83	0.4062	4.131	0.255	5	5	clayey silt to silty clay
10.17	10.08	0.1297	1.286	0.145	7	4	silty clay to clay
10.33	12.51	0.5330	4.262	0.078	13	4	silty clay to clay
10.50	39.02	1.5761	4.039	0.267	18	6	sandy silt to clayey silt
10.66	88.27	0.7658	0.868	-0.629	23	7	silty sand to sandy silt
10.83	88.21	0.8090	0.917	0.923	19	8	sand to silty sand
10.99	58.00	0.6796	1.172	1.474	20	7	silty sand to sandy silt
11.15	38.14	0.6603	1.731	0.595	13	7	silty sand to sandy silt
11.32	23.09	0.5918	2.563	0.517	9	6	sandy silt to clayey silt
11.48	10.95	0.4408	4.027	1.724	7	5	clayey silt to silty clay
11.65	8.82	0.2224	2.521	2.314	9	3	clay
11.81	8.82	0.4522	5.128	2.562	11	3	clay
11.98	15.29	0.5185	3.391	2.239	9	4	silty clay to clay
12.14	16.81	0.5500	3.271	1.149	10	4	silty clay to clay
12.30	16.69	0.5047	3.024	0.247	9	5	clayey silt to silty clay
12.47	20.25	0.5367	2.650	0.313	9	5	clayey silt to silty clay
12.63	18.50	0.6758	3.653	0.223	11	4	silty clay to clay
12.80	12.89	0.6893	5.348	0.551	11	4	silty clay to clay
12.96	19.29	0.5351	2.774	0.250	8	5	clayey silt to silty clay
13.12	19.39	0.4044	2.086	-5.200	10	7	silty sand to sandy silt
13.45	57.20	0.2201	0.385	0.054	20	7	silty sand to sandy silt
13.62	115.41	2.1859	1.894	0.042	27	7	silty sand to sandy silt

*Soil behavior type and SPT based on data from UBC-1983

Depth (ft)	Qt TSF	Fs TSF	Fs/Qt (%)	Pw PSI	SPT N* 60% Hammer	Zone	Soil Behavior Type UBC-1983
13.78	78.88	3.3071	4.193	0.228	38	6	sandy silt to clayey silt
13.94	103.61	2.3219	2.241	0.064	40	6	sandy silt to clayey silt
14.11	131.96	3.9408	2.986	0.299	41	7	silty sand to sandy silt
14.27	148.53	2.7785	1.871	0.487	39	6	sandy silt to clayey silt
14.44	27.87	2.8056	10.068	0.321	24	6	sandy silt to clayey silt
14.60	9.99	0.3459	3.464	4.668	15	3	clay
14.76	9.25	0.2418	2.614	6.713	8	3	clay
14.93	6.29	0.2126	3.379	8.756	7	3	clay
15.09	6.30	0.2058	3.268	8.197	6	3	clay
15.26	7.56	0.1574	2.083	9.706	5	5	clayey silt to silty clay
15.42	16.62	0.1743	1.049	6.801	13	6	sandy silt to clayey silt
15.58	79.15	1.7003	2.148	5.712	24	8	sand to silty sand
15.75	201.83	1.0920	0.541	-0.032	28	8	sand to silty sand
15.91	70.01	1.0594	1.513	0.568	27	8	sand to silty sand
16.08	60.56	1.8703	3.088	0.047	20	7	silty sand to sandy silt
16.24	61.96	0.8407	1.357	0.073	19	7	silty sand to sandy silt
16.40	57.40	0.4351	0.758	-0.394	14	7	silty sand to sandy silt
16.57	7.82	0.3490	4.462	4.502	9	6	sandy silt to clayey silt
16.73	7.36	0.2318	3.150	6.645	7	3	clay
16.90	6.93	0.2232	3.219	7.605	7	3	clay
17.06	6.45	0.1992	3.087	7.583	6	3	clay
17.22	6.13	0.1584	2.581	8.168	6	3	clay
17.39	5.74	0.1242	2.162	8.753	4	4	silty clay to clay
17.55	5.71	0.1480	2.591	9.427	6	3	clay
17.72	5.86	0.1599	2.728	10.140	6	3	clay
17.88	6.54	0.1614	2.467	10.941	4	4	silty clay to clay
18.04	6.26	0.1390	2.219	11.957	4	4	silty clay to clay
18.21	6.32	0.1496	2.369	12.449	4	4	silty clay to clay
18.37	6.63	0.1473	2.223	12.863	4	4	silty clay to clay
18.54	7.92	0.1485	1.875	13.534	5	4	silty clay to clay
18.70	7.04	0.1696	2.410	14.279	5	4	silty clay to clay
18.86	7.34	0.1658	2.258	14.935	5	4	silty clay to clay
19.03	7.70	0.1650	2.144	15.021	5	4	silty clay to clay
19.19	7.20	0.1682	2.337	15.633	5	4	silty clay to clay
19.36	7.14	0.1862	2.608	16.067	5	4	silty clay to clay
19.52	8.06	0.2796	3.470	16.701	5	4	silty clay to clay
19.69	9.97	0.3049	3.059	17.259	9	3	clay
19.85	8.96	0.3134	3.497	16.253	7	4	silty clay to clay
20.01	11.77	0.3515	2.985	18.362	7	4	silty clay to clay
20.18	13.05	0.2997	2.297	-2.040	7	4	silty clay to clay
20.34	7.79	0.2855	3.665	-1.408	6	4	silty clay to clay
20.51	8.17	0.2415	2.955	-0.375	8	3	clay
20.67	8.32	0.2706	3.254	0.703	8	3	clay
20.83	8.46	0.3838	4.535	1.582	9	3	clay
21.00	10.07	0.5091	5.054	2.270	8	4	silty clay to clay
21.16	20.12	0.4593	2.283	0.985	10	4	silty clay to clay
21.33	16.50	0.6056	3.670	0.167	13	7	silty sand to sandy silt
21.49	86.34	0.1743	0.202	-3.769	21	7	silty sand to sandy silt
21.65	90.90	1.4375	1.581	-3.473	23	8	sand to silty sand
21.82	108.67	1.3487	1.241	-1.460	25	7	silty sand to sandy silt
21.98	32.82	1.3190	4.019	-0.654	21	6	sandy silt to clayey silt
22.15	26.76	0.8025	2.999	-2.643	14	4	silty clay to clay
22.31	5.86	0.5788	9.880	-0.081	10	5	clayey silt to silty clay
22.47	32.78	0.2586	0.789	-0.448	9	6	sandy silt to clayey silt
22.64	33.40	0.1765	0.528	0.333	12	7	silty sand to sandy silt
22.80	44.38	0.5417	1.220	3.373	17	6	sandy silt to clayey silt
22.97	57.67	1.8554	3.217	0.992	17	6	sandy silt to clayey silt
23.13	30.81	1.2988	4.216	-1.798	19	7	silty sand to sandy silt
23.29	93.46	0.5911	0.632	0.958	21	8	sand to silty sand
23.46	142.44	0.3757	0.264	0.507	21	8	sand to silty sand
23.62	23.93	2.2356	9.341	0.527	40	7	silty sand to sandy silt
23.79	209.07	4.1154	1.968	0.674	37	7	silty sand to sandy silt
23.95	112.37	0.3541	0.315	0.495	32	8	sand to silty sand

*Soil behavior type and SPT based on data from UBC-1983

Depth (ft)	Qt TSF	Fs TSF	Fs/Qt (%)	Pw PSI	SPT N* 60% Hammer	Zone	Soil Behavior Type UBC-1983
24.11	74.08	0.3591	0.485	1.242	25	9	sand
24.28	202.56	0.6118	0.302	0.583	31	9	sand
24.44	204.48	0.6095	0.298	0.576	41	10	gravelly sand to sand
24.61	288.11	0.6319	0.219	0.252	46	10	gravelly sand to sand
24.77	287.59	-32767.9700	-11393.910	0.252	0	0	<out of range>

*Soil behavior type and SPT based on data from UBC-1983

ATTACHMENT B

ATTACHMENT B

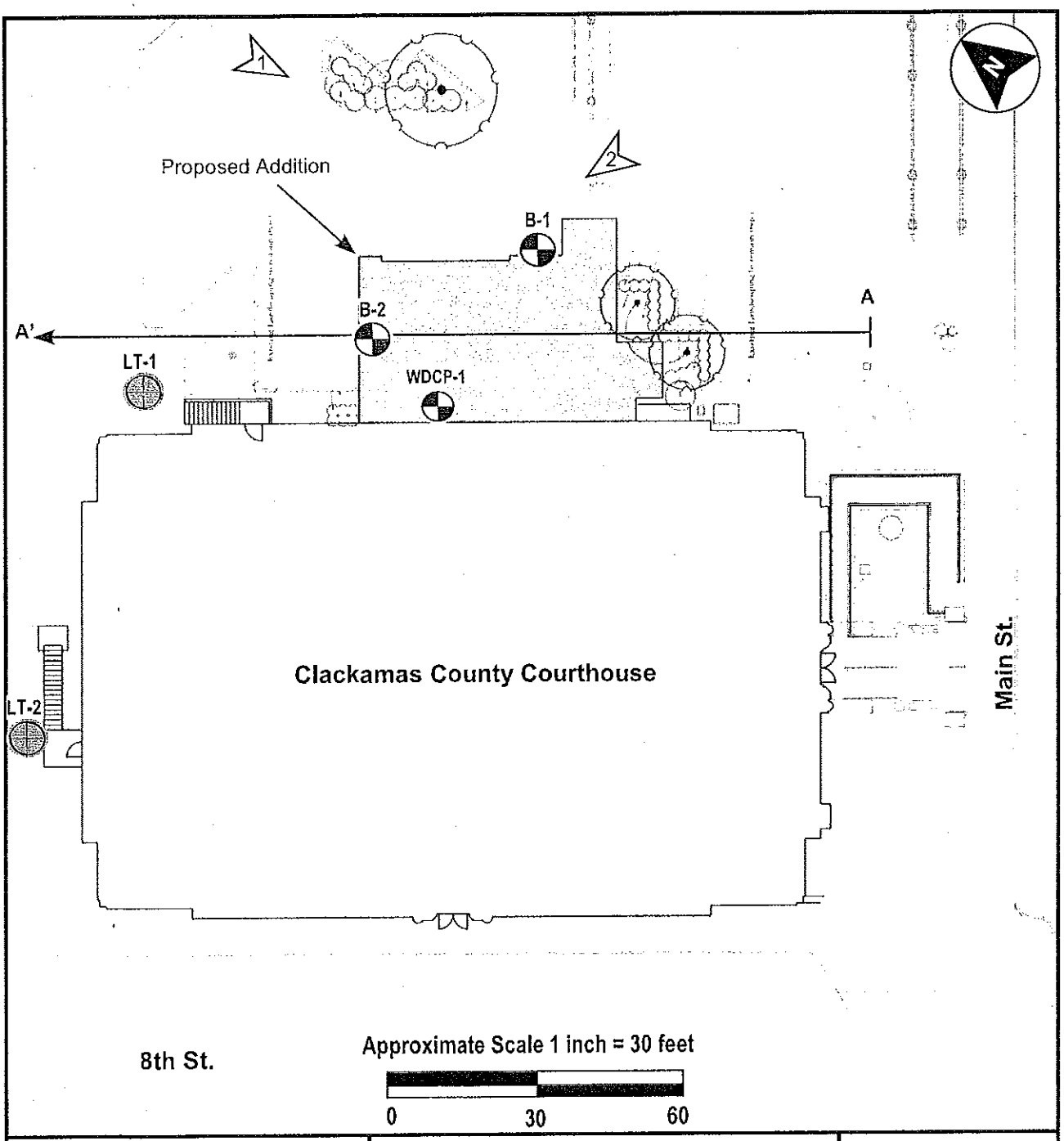
PREVIOUS STUDIES FOR BUILDING ADDITION

We reviewed the following report for an addition to the existing building to help develop conclusions regarding the site:

- *Report of Geotechnical Investigation & Site-Specific Seismic Hazard Study; Clackamas Courthouse Addition; 807 Main Street; Oregon City, Oregon,* prepared by Carlson Geotechnical dated October 20, 2011

The relevant explorations logs as well as applicable DCP test results from these explorations are presented in this attachment.

SITE PLAN
CLACKAMAS COUNTY COURTHOUSE ADDITION- OREGON CITY, OREGON



NOTES: Drawing based on site plan prepared by LRS Architects and observations made while on site.

LEGEND

WDCP-1 — Approximate cone penetrometer test location.

B-1 — Approximate auger boring location.

LT-1 — Approximate previous boring locations by Landslide Technology.

2 — Number, location, and direction of site photographs shown on Figure 3.

CGT Job No. G1103625

CARLSON GEOTECHNICAL CGT 503-601-8250

Carlson Geotechnical
P.O. Box 23814
Tigard, Oregon 97281

FIGURE 2

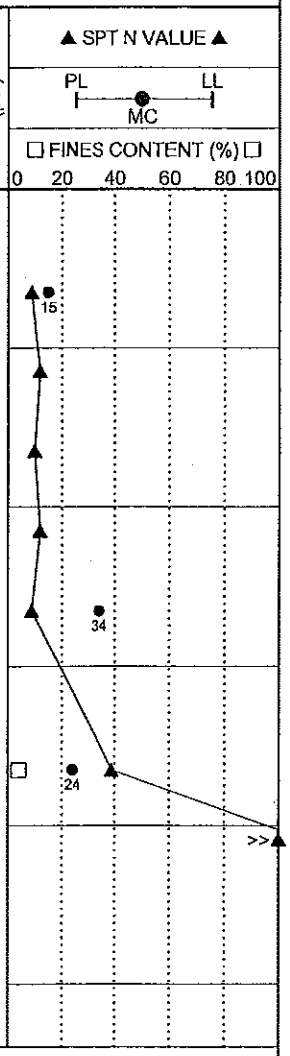
Carlson Geotechnical
PO Box 23814
Tigard, OR 97281

FIGURE 6

Boring B1

CLIENT Clackamas County Courthouse
PROJECT NAME Clackamas County Courthouse
PROJECT NUMBER G1103625
PROJECT LOCATION Oregon City,OR
DATE STARTED 9/24/11
ELEVATION DATUM Feet MSL
DRILLING CONTRACTOR Subsurface Technologies
GROUND ELEVATION 65.5 ft
DRILLING METHOD Hollow Stem Auger & NX Core
GROUND WATER LEVELS:
LOGGED BY Jeff Jones CHECKED BY
AT TIME OF DRILLING 12.0 ft / Elev 53.5 ft
NOTES
AFTER DRILLING ---

ELEVATION (ft)	GRAPHIC LOG	U.S.C.S.	MATERIAL DESCRIPTION	GROUNDWATER	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
65		GP	AC - 3 inches thick Base rock - 6 inches thick		0					
		ML Fill	**SANDY SILT FILL** - brown, moist, with rounded gravel and brick debris.			SPT 1	44	4-4-5 (9)		
60					5	SPT 2	33	4-5-7 (12)		
			Minimal sample return - plastic debris stuck in tip.			SPT 3	6	4-4-6 (10)		
55					10	SPT 4	6	4-6-6 (12)		
		ML	**SANDY SILT** - stiff, mottled brown and red-brown, wet to saturated. With layers of fine, silty sand.	▽		SPT 5	56	4-4-5 (9)		
50		SP	**POORLY GRADED SAND** - dense, gray-brown, saturated, fine- to medium-grained with rounded gravel.		15	ST 6	0			
						SPT 7	44	5-15-24 (39)		
45			Gravelly below 19 feet bgs.		20	SPT 8	93	45-50/5"		
			BASALT - hard to very hard (R4 to R5), fresh, dark gray, aphanitic, with minor vesicles.							
40			Note: No water circulation during coring. Compressive Strength: 20,450 psi		25	RCN 9	102 (85)			
			Compressive Strength: 10,350 psi							
35			Auger refusal at 22 feet, switched to rock coring. Boring terminated at an approximate depth of 27 feet. Groundwater encountered at an approximate depth of 12 feet. Boring backfilled with bentonite and asphalt surface patched upon completion.							
30										



Carlson Geotechnical
PO Box 23814
Tigard, OR 97281

FIGURE 7

Boring B2

CLIENT Clackamas County Courthouse
PROJECT NAME Clackamas County Courthouse
PROJECT NUMBER G1103625
PROJECT LOCATION Oregon City,OR
DATE STARTED 9/24/11
ELEVATION DATUM Feet MSL
DRILLING CONTRACTOR Subsurface Technologies
GROUND ELEVATION 65.5 ft
DRILLING METHOD Hollow Stem Auger & NX Core
GROUND WATER LEVELS:
LOGGED BY Jeff Jones CHECKED BY
AT TIME OF DRILLING 15.0 ft / Elev 50.5 ft
NOTES
AFTER DRILLING ---

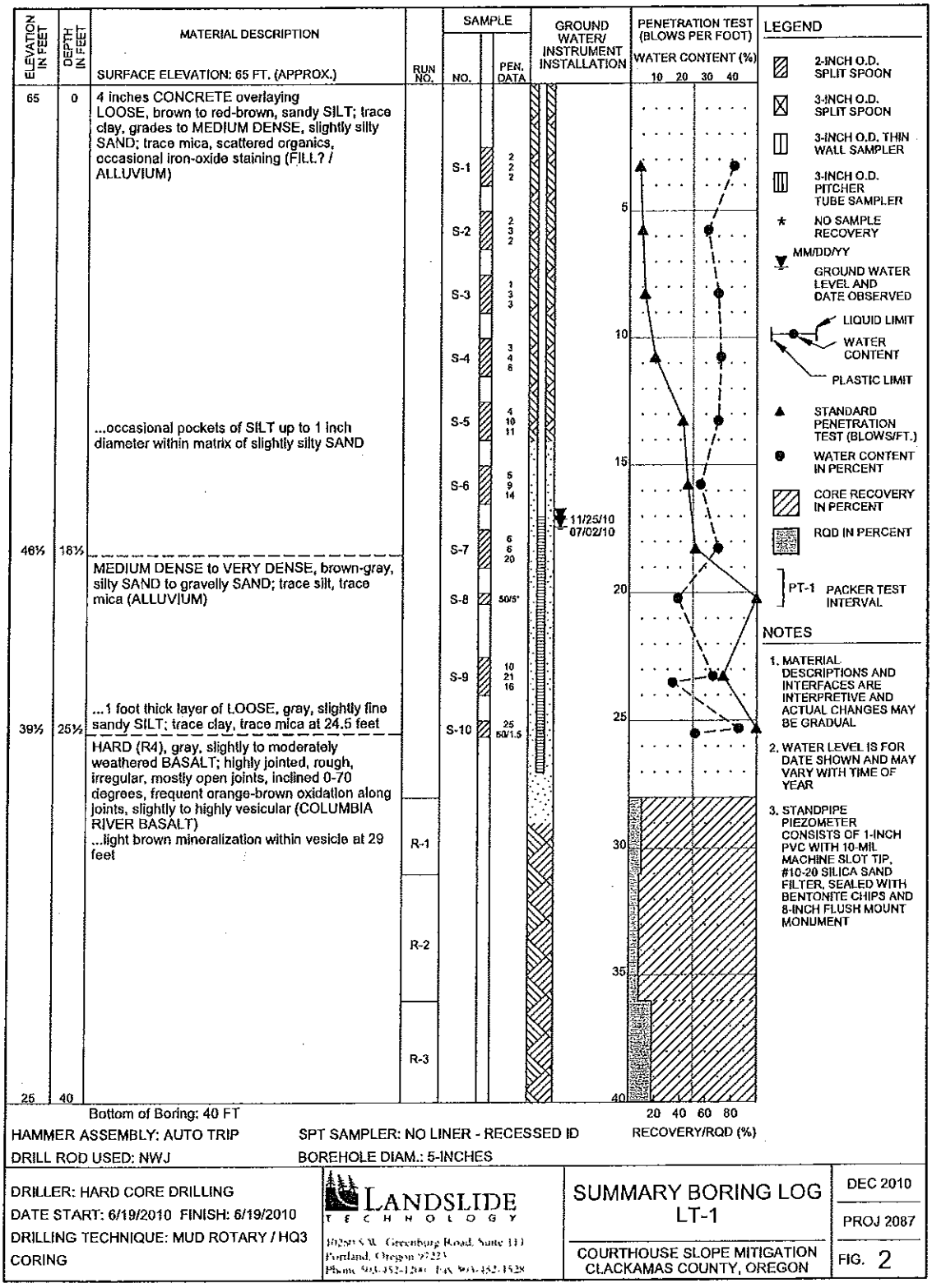
ELEVATION (ft)	GRAPHIC LOG	U.S.C.S.	MATERIAL DESCRIPTION	GROUNDWATER	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
65		GP	AC - 3 inches thick Base rock- 6 inches thick		0					
			SANDY SILT - medium stiff, brown, moist to wet, with interbedded, fine-grained, silty sand.			SPT 1	44	2-3-3 (6)		
60					5	SPT 2	78	3-3-4 (7)		
		ML/SM				ST 3	71			
55			Mottled gray and brown.		10	SPT 4	100	4-3-4 (7)		
			Becomes saturated.	▽		SPT 5	100	5-3-4 (7)		
50					15	SPT 6	89	3-4-5 (9)		
			POORLY GRADED SAND - medium dense, gray-brown, saturated, fine- to medium-grained with subrounded to rounded gravel.							
45		SP	Driller indicated some heaving evident.		20	SPT 7	67	3-7-18 (25)		
40					25	SPT 8	44	15-6-6 (12)		
			BASALT - hard to very hard (R4 to R5), fresh, dark gray, aphanitic, vessicular.							
35					30	RCN 9	90 (73)			
			Compressive Strength: 4810 psi							
30										

▲ SPT N VALUE ▲
PL LL MC
☐ FINES CONTENT (%) ☐
0 20 40 60 80 100

Auger refusal at 29 feet, switched to rock coring.
Boring terminated at an approximate depth of 34 feet.
Groundwater encountered at an approximate depth of 15 feet.
Boring backfilled with bentonite and asphalt surface patched upon completion.

CGT BOREHOLE - GRAPHIC LAB G1103625.GPJ GINT US.GDT 10/20/11

LT1 BORING LOG
CLACKAMAS COUNTY COURTHOUSE ADDITION - OREGON CITY, OREGON



HAMMER ASSEMBLY: AUTO TRIP
SPT SAMPLER: NO LINER - RECESSED ID
DRILL ROD USED: NWJ
BOREHOLE DIAM.: 5-INCHES

DRILLER: HARD CORE DRILLING
DATE START: 6/19/2010 FINISH: 6/19/2010
DRILLING TECHNIQUE: MUD ROTARY / HQ3 CORING

LANDSLIDE TECHNOLOGY
10220 S.W. Greenburg Road, Suite 111
Portland, Oregon 97223
Phone: 503-452-1260 Fax: 503-452-1528

SUMMARY BORING LOG
LT-1

COURTHOUSE SLOPE MITIGATION
CLACKAMAS COUNTY, OREGON

DEC 2010
PROJ 2087
FIG. 2

CARLSON GEOTECHNICAL 503-601-6250
Carlson Geotechnical
P.O. Box 23814
Tigard, Oregon 97281

NOTE: Excerpted from Landslide Technology (LT) report for the Clackamas County Courthouse Northwest Slope Mitigation, dated December 13, 2010.

CGT Job No. G1103625

FIGURE 8

WILDCAT DYNAMIC CONE LOG

Carlson Geotechnical
PO Box 23814
Tigard, Oregon 97281

PROJECT NUMBER: G1103625
DATE STARTED: 10-01-2011
DATE COMPLETED: 10-01-2011

HOLE #: WDCP-1
CREW: MDI
PROJECT: Clackamas County Court House
ADDRESS: 807 Main Street
LOCATION: Oregon City, Oregon

SURFACE ELEVATION: 100.5 feet
WATER ON COMPLETION: Unknown
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	TESTED CONSISTENCY COHESIVE
	1	4.4	•	1	VERY LOOSE	VERY SOFT
	0	0.0		0	VERY LOOSE	VERY SOFT
1 ft	0	0.0		0	VERY LOOSE	VERY SOFT
	13	57.7	••••••••••••••••	16	MEDIUM DENSE	VERY STIFF
	11	48.8	••••••••••••••	13	MEDIUM DENSE	STIFF
2 ft	8	35.5	•••••••••	10	LOOSE	STIFF
	6	26.6	•••••••	7	LOOSE	MEDIUM STIFF
	7	31.1	••••••••	8	LOOSE	MEDIUM STIFF
3 ft	7	31.1	••••••••	8	LOOSE	MEDIUM STIFF
1 m	8	35.5	•••••••••	10	LOOSE	STIFF
	3	11.6	•••	3	VERY LOOSE	SOFT
4 ft	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
	2	7.7	••	2	VERY LOOSE	SOFT
	4	15.4	••••	4	VERY LOOSE	SOFT
5 ft	5	19.3	•••••	5	LOOSE	MEDIUM STIFF
	3	11.6	•••	3	VERY LOOSE	SOFT
	7	27.0	•••••••	7	LOOSE	MEDIUM STIFF
6 ft	4	15.4	••••	4	VERY LOOSE	SOFT
	5	19.3	•••••	5	LOOSE	MEDIUM STIFF
2 m	3	11.6	•••	3	VERY LOOSE	SOFT
7 ft	6	20.5	•••••	5	LOOSE	MEDIUM STIFF
	3	10.3	••	2	VERY LOOSE	SOFT
	3	10.3	••	2	VERY LOOSE	SOFT
8 ft	3	10.3	••	2	VERY LOOSE	SOFT
	5	17.1	••••	4	VERY LOOSE	SOFT
	6	20.5	•••••	5	LOOSE	MEDIUM STIFF
9 ft	4	13.7	•••	3	VERY LOOSE	SOFT
	4	13.7	•••	3	VERY LOOSE	SOFT
	5	17.1	••••	4	VERY LOOSE	SOFT
3 m 10 ft	3	10.3	••	2	VERY LOOSE	SOFT
	6	18.4	•••••	5	LOOSE	MEDIUM STIFF
	6	18.4	•••••	5	LOOSE	MEDIUM STIFF
	5	15.3	••••	4	VERY LOOSE	SOFT
11 ft	7	21.4	•••••••	6	LOOSE	MEDIUM STIFF
	8	24.5	•••••••	6	LOOSE	MEDIUM STIFF
	4	12.2	•••	3	VERY LOOSE	SOFT
12 ft	6	18.4	•••••	5	LOOSE	MEDIUM STIFF
	6	18.4	•••••	5	LOOSE	MEDIUM STIFF
	6	18.4	•••••	5	LOOSE	MEDIUM STIFF
4 m 13 ft	6	18.4	•••••	5	LOOSE	MEDIUM STIFF

FIGURE 8

HOLE #: WDCP-1

WILDCAT DYNAMIC CONE LOG

PROJECT: Clackamas County Court House

PROJECT NUMBER: G1103625

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	TESTED CONSISTENCY COHESIVE
	5	13.9	••••	3	VERY LOOSE	SOFT
	1	2.8		0	VERY LOOSE	VERY SOFT
14 ft	3	8.3	••	2	VERY LOOSE	SOFT
	1	2.8		0	VERY LOOSE	VERY SOFT
	3	8.3	••	2	VERY LOOSE	SOFT
15 ft	3	8.3	••	2	VERY LOOSE	SOFT
	5	13.9	••••	3	VERY LOOSE	SOFT
	6	16.6	••••	4	VERY LOOSE	SOFT
16 ft	7	19.4	•••••	5	LOOSE	MEDIUM STIFF
5 m	6	16.6	••••	4	VERY LOOSE	SOFT
	4	10.2	••	2	VERY LOOSE	SOFT
17 ft						
18 ft						
19 ft						
6 m						
20 ft						
21 ft						
22 ft						
7 m 23 ft						
24 ft						
25 ft						
26 ft						
8 m						
27 ft						
28 ft						
29 ft						
9 m						

FIGURE 9

CREEKSIDE ENVIRONMENTAL CONSULTING, LLC

21790 SW Chehalis Court ♦ Tualatin, Oregon 97062

TECHNICAL MEMORANDUM

TO: Becky Epstein
SERA Architects, Inc.
338 NW 5th Ave.
Portland, OR 97209

DATE: November 16, 2015

RE: **Risk Assessment of "Other Hazards" for Clackamas County RSMP**
Clackamas County Courthouse
807 Main Street, Oregon City, OR 97045
SERA Project No. 1401030

The following succinct summary of has been prepared according to your communications and with the purpose of being inserted into a larger chapter and document.

The City of Oregon City provides a gallery of GIS maps as a public resource[1], a number of these are referenced in our discussion. Please consider including portions of these maps as visuals. (We have included screenshots in text for general reference but understand visuals would be developed by SERA and included as an attachment.)

The current location of the Clackamas County Courthouse has the potential to pose significant risk to human health and/or to uninterrupted operations during the following scenarios:

- **Geologic Hazards: Flooding, Landslide, and Earthquake**
- **Road Restrictions or Closures**
  - **Flooding**
  - **Bridge Failure or Closure**
  - **Transportation – Large Volume of Traffic or Vehicle Accident**
  - **Railroad Use**
- **Industrial / Chemical Accident**

Geologic Hazards pose a significant threat to the courthouse and any humans present due to its location and consequent potential for a mass wasting event.

Geography/Geomorphology: The Clackamas County courthouse is located in the fully developed, historic downtown area of Oregon City, Oregon. It occupies approximately one-half of a city block, and is bordered by Main Street on the southeast, 8th Street on the southwest, Highway 99 East and the Willamette River on the northwest, and a public square, parking lot, and restaurant on the

[1] https://webmaps.orcity.org/galleries/mapsPublic/index.html

northeast. The historic downtown area of Oregon City is situated on a flat to gently sloping terrace located along the southeast bank of the Willamette River. The terrace is less than 500 feet wide, and is bounded by the 30- to 40-foot high, very steep bank of the Willamette River on the northwest and by a more than 50-foot high, very steep, cliff on the southeast. A small embayment is present along the riverbank immediately adjacent to the courthouse.

Hydrology: The northeast flowing Willamette River is located adjacent to the northwest side of the courthouse property. No other surface water features are located on or near the subject property. However, it is likely that Singer Creek formerly flowed across the site and discharged to the Willamette River at or near the small embayment mentioned above. Originally, Singer Creek flowed down the steep cliff southeast of the subject property, across the terrace where the downtown area is now located, and into the Willamette River. In 1936, the same year the courthouse was built, Singer Creek was diverted into a man-made series of falls that cascade down the rock cliff, and then piped under the downtown district and into the river. It is likely that the riverbank embayment adjacent to the courthouse property was formerly the confluence of Singer Creek and the Willamette River.

Geology: Adjacent to the subject property, the channel of the Willamette River is cut into the layered basalt flows of the Columbia River Basalt Group[2]. This hard bedrock underlies the terrace on which downtown Oregon City is situated, and forms the steep cliff to the southeast of downtown. According to geologic logs prepared from test borings completed on the subject property[3], the basalt is overlain by 20- to more than 30-feet of unconsolidated alluvium (primarily silt and sand) and fill (silt, sand and brick). The alluvium sits directly on top of the basalt, and the fill is present locally above the alluvium. Evidently the fill was placed in low lying areas (possibly the former channel of Singer Creek) to prepare the site for building construction. The horizontal and vertical extent of the fill materials and thickness of the alluvial deposits beneath the entire subject property has not been accurately determined. The limited subsurface information that has been obtained suggests that the thickness of these unconsolidated materials varies across the site, and that they are seasonally saturated by ground water to within 5- to 10-feet of ground surface.

Hazard Analysis: Potential geologic hazards associated with the courthouse site include flooding, slope instability, and soil liquefaction and/or settlement due to earthquake shaking.

The Willamette River is the major drainage for the entire Willamette Valley, and is subject to seasonal and cyclic flooding. There have been more than 10 flood events since 1895 in which river water level at the Willamette Locks near Oregon City rose to elevations of more than 66.5-feet MSL[2]. Ground surface elevation at the courthouse site ranges between approximately 60 and 70 feet MSL. As a result, major flooding on the Willamette has the potential to partially

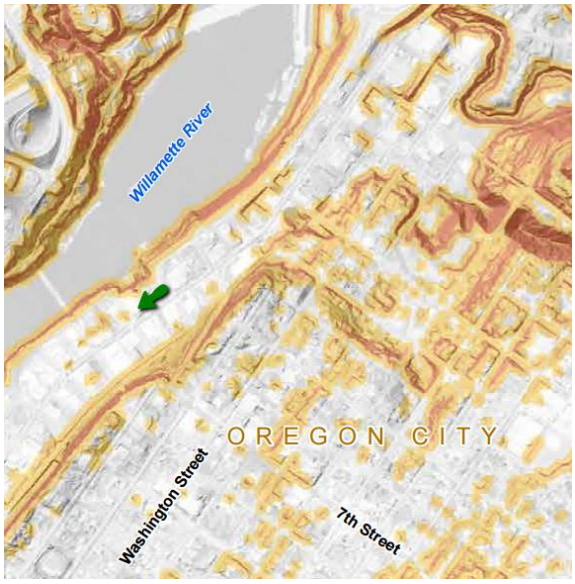
[2] Schlicker, H.G. and Finlayson, C.T., 1979, Geology and geologic hazards of northwestern Clackamas County, Oregon: Oregon Dept. of Geology and Mineral Industries, Bulletin 99, 79 p.

[3] Carlson Geotechnical, October 20, 2011, Geotechnical investigation &site-specific seismic hazard study, Clackamas County Courthouse addition, 807 Main Street, Oregon City, Oregon: Client report prepared for LRS Architects, 89 p.

inundate, or severely restrict access to, the site. The northwest edge of the subject property is the steeply sloping southeast bank of the Willamette River. There is evidence (undercut shot-crete surface cover and slump scarps) of the down slope movement of shallow soil on the slope below the courthouse, and evidence of slope failure (tension cracks and settlement) on the pavement and ground surface between the northwest side of the courthouse building and the riverbank. The down slope movement of soil is likely a result of the unconsolidated nature of the fill material and alluvium exposed in the river bank and the steepness of the slope. The rise and fall of river level and the presence of shallow ground water in the alluvium and fill may also contribute to slope failure. At the north corner of the courthouse, the top edge of the bank is less than 5 feet from the building foundation.

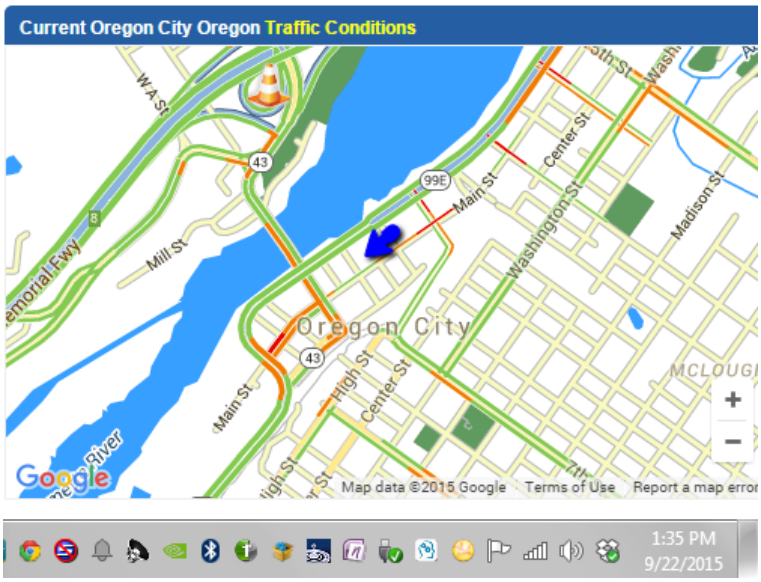
A 2011 site-specific seismic hazard study[3] completed for a three story addition to the Clackamas County Courthouse found that the alluvium and fill material underlying the courthouse would likely experience soil liquefaction and/or significant settlement as a result of a major crustal or subduction zone earthquake. The study recommended that the foundation for the addition be tied (with pilings or piers) to the basalt bedrock beneath the surficial fill and alluvium. Determination of the degree of damage to the courthouse that could be expected to result from a major earthquake event can't be made without a detailed understanding of the nature and extent of the fill material and alluvial deposits that underlie the courthouse and adjacent properties.

The Landslide Hazard & Risk Study of Northwestern Clackamas County produced by Oregon Department of Geology and Mineral Industries in 2014 shows that the steep slope directly below the courthouse has high susceptibility to shallow landslides. Similarly, upslope one block southeast, the steep slope that rises above the site has moderate to high susceptibility to shallow landslides.



Road Restrictions or Closure. The courthouse has limited physical access due to its location on the narrow geologic terrace. Immediately to the northwest is Highway 99E (constructed on a bridge) and the Willamette River. The toe of the slope below the courthouse is under the bridge

and at the edge of the Willamette River. To the southeast one block is a railroad right-of-way and a steep upslope. The following map of traffic conditions[4] from a Tuesday afternoon at 1:35 pm demonstrate that the site's setting presents access restrictions under normal conditions.



The following hazards have the potential to further restrict or close traffic access to the courthouse.

- *Flooding.* Oregon City is located at the confluence of the Willamette and Clackamas River and has a documented history of severe flooding over the last century as described above. Even if flood elevations do not reach the Courthouse, severely restricted access to the courthouse due to road closure is likely (both from flooding and for safety reasons).

- *Bridge Failure or Closure.* The Oregon City Bridge is a steel through arch bridge built in 1922 spanning the Willamette River between Oregon City and West Linn. This narrow two-lane bridge was closed from 2010-2012 for rehabilitation with the intent to restore the bridge's original load-carrying capacity, which would permit TriMet buses to resume using the bridge. As of September 2013 TriMet service has not returned to the bridge.

  The Oregon City Bridge (also State Highway 43) connects to Oregon City one block west of the courthouse and is a heavily used access point: a 2012 news article reported that more than 14,000 vehicles are expected to cross the bridge every day.[5] Closure and restriction of this bridge for any reason limits existing access to the courthouse from the northwest.

- *Transportation – Heavy Traffic or Accident (Vehicle).* Vehicular access to the courthouse is constrained on a normal basis due to its location on the plateau. Heavy traffic or a vehicle accident has the potential to severely restrict access to the courthouse.

[4] http://www.navbug.com/oregon/oregon_city_traffic.htm#popmap
[5] http://www.kgw.com/story/news/2014/07/24/12350880/

- *Railroad Use.* The Union Pacific (UP) Railroad, the largest freight railroad in the US[6], is present one block southeast of the courthouse. When trains travel through they block access to the plateau from the southeast. Any event that would cause or require a train to stop on the tracks in the plateau will limit access to the courthouse from this direction.

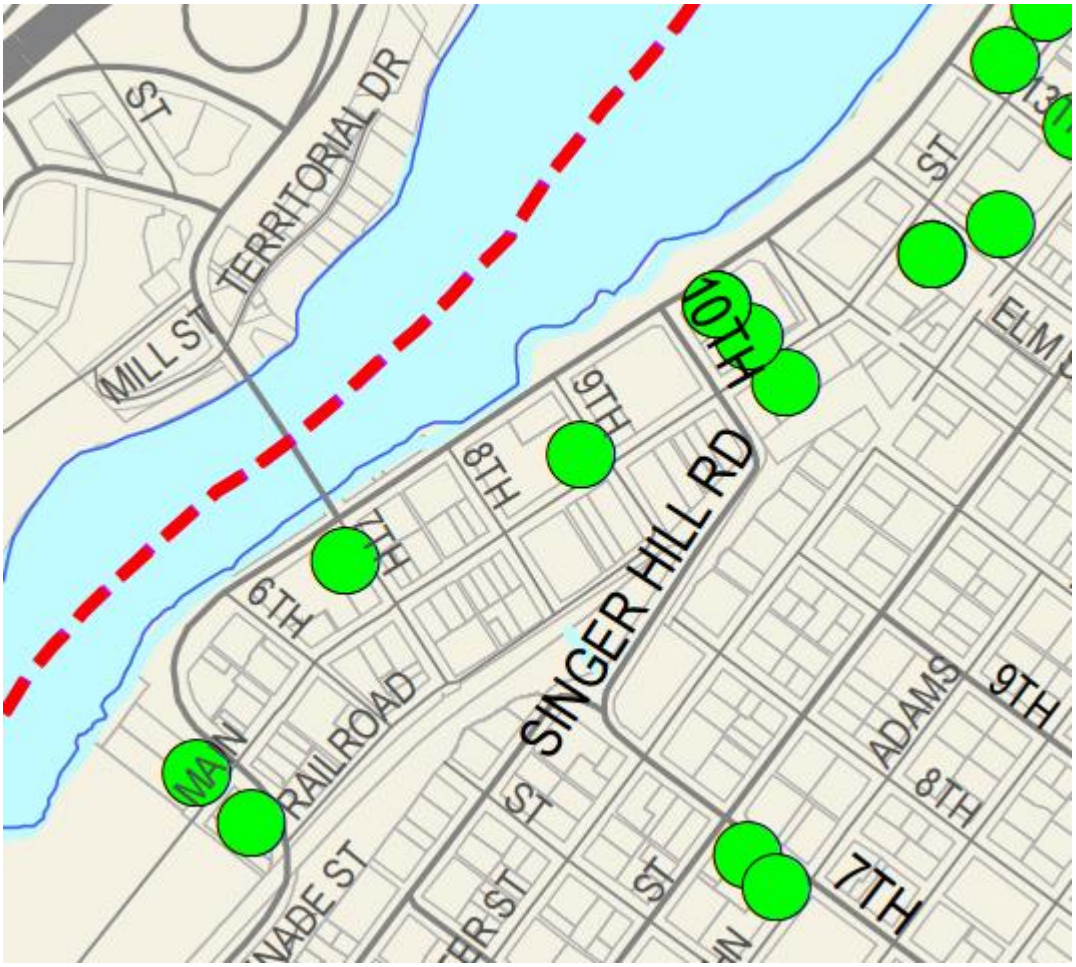
Industrial / Chemical Accidents. According to the Clackamas County Fire District, "*The risk of a Hazardous Materials (HAZMAT) incident in Clackamas County is great. Over ten billion pounds of hazardous materials are shipped, stored, processed, or manufactured in or through the county each year.*" Due to the increased risk, the District has gone beyond the boundaries of emergency response by implementing a hazardous materials program.[7]

Three main transportation routes adjacent to or within one block of the courthouse (i.e., Highway 99E, Highway 43, and UP Railroad) create a higher than normal risk for exposure to a hazardous materials release or explosion. The potential impact from an accident could range from no or restricted access to the courthouse to damage to property/risk to human health.

The next page shows a review of local sites reported with Hazardous Materials. These could be expanded upon in this section, however may take space to explain.

[6] https://en.wikipedia.org/wiki/Union_Pacific_Railroad
[7] http://www.clackamasfire.com/hazmat.html

Review of local Hazardous Materials sites (Map from Oregon City Gallery):



From West to East on plateau:

West of 99E: Blue Heron Paper Company / Large Industrial Complex

On 7th Street: Superior Radiator & Air Conditioning

Main & 9th Streets: Clackamas County Law Library

On 10th Street: Chevron, JJ Kanso Enterprises (Auto Repair Shop), Clackamas Auto Parts

This work was conducted by Brent Jorgensen, CHMM, and Lynn D. Green, a Certified Engineering Geologist licensed in Oregon, and is subject to the limitations described below.

<< Lynn STAMP>>

LIMITATIONS

The professional opinion presented in this technical memo has been made based on the information provided by others, as described above. No other representation, expressed or implied, and no warranty or guarantee is included or intended. The standard of care used to conduct this work was consistent with reasonable and normal standards used by engineering and certified engineering geologist professionals. Neither the professionals (Brent Jorgensen and Lynn D. Green, CEG) nor their firms (Creekside Environmental Consulting LLC and EVREN Northwest, Inc.) may be held responsible for conditions that they did not specifically evaluate at the time this report was prepared.

The information presented in this document is intended to provide a brief description of the site setting, and a preliminary assessment of the potential geologic hazards associated with the Clackamas County Courthouse property in Oregon City, Oregon. The information presented was obtained from a review of selected published and unpublished documents and maps, and from observations made during a brief visit to the site on September 28, 2015. No subsurface investigation, sample collection, or laboratory analysis was completed for this preliminary assessment.

We have performed our services for this project in accordance with our agreement and understanding with the Client. This document and the information contained herein have been prepared solely for the use of the Client.

Clackamas County Courthouse Evaluation: MEP Building Assessment

DRAFT

October 2, 2015

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Table of Contents

Project Directory

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1.0 Project Description

1.1 Executive Summary

The existing mechanical and electrical systems were found to be severely lacking for the continued use of the current Clackamas County Courthouse. Much of the mechanical equipment is beyond the end of its useful life and is unreliable. Maintenance personnel are required to work excessive hours in order to keep the building's systems running to an evenly moderately acceptable degree and those hours are expected to only increase as the equipment ages further. The electrical systems face similar problems in that they are old, outdated, and unreliable. Continued use and maintenance of all these systems is not recommended as it will be expensive and ultimately serve only as a stopgap before complete failure. Replacing any of these systems will be significantly intrusive and potentially infeasible in the existing courthouse and for the occupants. It is expected that when, rather than if, the equipment fails to the point of becoming non-operational, court operations will be detrimentally impacted before repairs can take place. Such repairs would potentially impact the courthouse beyond its capacity to efficiently operate while under such a large overhaul of building systems.

1.2 General Building Description

The Clackamas County Courthouse is located in Oregon City, Oregon. It is approximately 65,000 sq. ft. and was originally constructed in 1936.

Consisting of three stories above grade and a basement level the courthouse contains 8 primary court rooms, District Attorney's offices, State Court offices, and other circuit court support functions.

Main building utilities are located within the basement and penthouse levels of the building.

1.3 PAE Scope

PAE toured the existing courthouse with SERA Architects and courthouse maintenance staff on September 1, 2015.

Basement and penthouse mechanical, electrical and telecommunication rooms were reviewed with maintenance staff to understand current operational and maintenance issues with these systems and their components.

In addition to equipment spaces, general areas of the building were reviewed and assessed. PAE has summarized operational and maintenance issues as well as any code deficiencies observed at the building.

The courtrooms and associated judges' chambers were not accessible at the time of the tour and were not assessed in the descriptions below.

2.0 Mechanical Systems

2.1 HVAC

2.1.1 Cooling System

Description

The courthouse cooling plant consists of a chiller, cooling tower and pumps. The equipment was installed in 1986.

The chiller (Photo #M1) is a 140-ton water-cooled, reciprocating unit that is located in the basement.

The cooling tower (Photo #M2) is a matching centrifugal, counterflow unit that is located on the roof. The tower is served by an automatic chemical feed system (Photo #M3) located in the basement.

Two constant speed chilled water pumps (Photo #M4) circulate chilled water to two air handling units. One pump serves an air handling unit located in the basement. The other pump serves an air handling unit located in the penthouse.

A single, constant speed condenser water pump circulates water between the chiller and the cooling tower.

The cooling plant operates whenever the outside air temperature is above approximately 62 °F. When temperatures are below that point the air handling units are capable of providing "economizer" cooling with outside air.

General Condition

The chiller, cooling tower and associated pumps are operational but are beyond the end of their useful lives. Equipment of this age can be expected to require excessive maintenance, use more energy than more efficient modern equipment, and be unreliable.

The chiller main control module is not operable, requiring the chiller to be operated manually.

A visual inspection of the cooling tower casing, frame and internal parts indicate the unit is significantly corroded.

The chilled water and condenser water piping appears to be in fair condition, but are also showing signs of aging and can be expected to be unreliable and require excessive maintenance.

The chemical feed system appears relatively new and in good condition.

Operational and Maintenance Issues

The chiller main control module has recently failed and the chiller is being controlled manually.

Cooling plant equipment is not energy efficient. A modern cooling plant would be approximately 30% more efficient.

Cooling plant equipment is not reliable in day-to-day operation and has many "single points of failure" that will result in loss of cooling to the entire building.

Code Issues

None noted.

Recommendations

The chiller, cooling tower and pumps should be replaced with new, energy efficient, reliable machines before the current dilapidated equipment becomes non-operational.

The chilled water and condenser water piping should be replaced with new, reliable piping with energy efficient insulation.

2.1.2 Heating Systems

Description

The heating plant consists of a boiler, feedwater System and condensate pump set.

The boiler (Photo #M5) is a low pressure, natural gas-fired, forced-draft, cast iron sectional unit that is located in the basement mechanical room.

The feedwater System (Photo #M6) is located in the basement, adjacent to the Boiler, and includes a vented receiver, duplex feedwater pumps and related controls.

The condensate pump set (Photo #M7) is located in the basement, adjacent to the boiler, and includes a vented receiver, duplex transfer pumps and related controls.

Additionally, there is a remote condensate pump set located in the penthouse, adjacent to the air handling unit. This unit includes a vented receiver, simplex transfer pump and related controls.

Low pressure steam (8 PSIG) is distributed to convectors located in the basement and on the first Floor, and to the air handling unit located in the penthouse. There is one convector located on the second floor. The air handling unit located in the basement was originally equipped with a steam heating coil; however, that coil failed and has been disconnected and removed. (For more detail on the coil, refer to Ventilation Systems below.)

The heating plant operates whenever the outside air temperature is below approximately 68 °F.

General Condition

The boiler, feedwater system and condensate pump sets are operational but are beyond the end of their useful lives. Equipment of this age can be expected to require excessive maintenance, use more energy than more efficient modern equipment, and be unreliable.

The steam piping appears to be in fair condition, but is showing signs of aging and can be expected to be unreliable and require excessive maintenance. Some of the steam piping is embedded within the brick and concrete structure and will be very difficult and expensive to replace.

Condensate piping is corroded and in poor condition, and according to facilities representatives requires excessive maintenance. The steam traps

are also in poor condition. All but one are original to the building and can be expected to fail at any time.

Operational and Maintenance Issues

Excessive maintenance is required.

Equipment is not energy efficient.

Equipment is not reliable in day-to-day operation, and the system has many "single points of failure" that will result in loss of heat to the entire building when they fail.

The convectors are blocked in many areas by the interior furnishings and prevent proper heating throughout the building.

Code Issues

None noted.

Recommendations

The boiler, feedwater system and condensate pump sets should be replaced with new, energy efficient, reliable machines.

Since steam, condensate piping, and steam traps are in poor condition, they should be completely replaced.

Since floor space is at a premium in the building integrating floor/wall convectors is not an efficient use of space. The convectors should be replaced with heating units located within the ceiling to allow proper and even heating of the building.

2.1.3 Ventilation Systems

Description

The building is served by two primary air handling units.

A single zone, variable volume air handling unit is located in the basement and serves the basement and first floor. It is equipped with two return fans, a cooling coil, outside air damper and relief air damper. The capacity is reported to be approximately 13,500 CFM.

A multi-zone, constant volume air handling unit is located in the penthouse. This unit serves the second and third floors. It is equipped with a return air fan, cooling coil, heating coil, outside air damper, return air damper, relief air damper, and zone mixing dampers. The capacity is reported to be approximately 23,500 CFM.

Air is delivered from the air handling units through low pressure ductwork to grilles and diffusers located in the ceilings; the return air system is ducted.

Several exhaust fans serve toilet rooms and janitor's closets.

General Condition

The air handling units are in fair condition, but are showing signs of aging and can be expected to be unreliable and require excessive maintenance.

Operational and Maintenance Issues

An air handling unit located in the basement supplies cooling and ventilation air to the basement and first floors. The unit no longer contains a heating coil, so the air is relatively cool during cold weather. The lack of a heating coil creates drafty conditions within occupied spaces.

The air handling unit located in the penthouse has limited capacity and is equipped with a limited number of zones, making it difficult to maintain comfort conditions in all areas of the second and third floors. It is estimated that approximately 10% of the spaces are uncomfortable at any point in time. In addition, ceiling space for ductwork is very limited and some of the ductwork is not adequately sized to deliver the required amount of air to all areas.

The air handling unit located in the penthouse is a constant volume, multi-zone type of unit, which is a very inefficient design that has been prohibited by the Oregon Energy Code for decades.

Many of the hallways and corridors are not ventilated and have poor air quality and no temperature control.

Code Issues

None noted, other than current system would not meet current Oregon Energy Code requirements.

Recommendations

The air handling unit located in the basement should be replaced with a modern unit that can provide temperature control for all the zones served by the unit. Extensive ductwork modifications will be required to provide adequate temperature control.

The air handling unit located in the penthouse should be replaced with a modern, energy efficient unit. Some ductwork modifications will be required to increase cooling capacity in some of the zones. Architectural modifications such as lowered ceilings, shafts and soffits will be required to accommodate larger ductwork.

2.1.4 HVAC Control System

Description

A Johnson Controls Metasys DDC control system was installed at the building in 2013. This system controls all HVAC equipment and provides remote monitoring and alarm functions for maintenance staff.

General Condition

The control system is in good condition.

Operational and Maintenance Issues

None noted.

Code Issues

None noted.

Recommendations

None.

2.2 Plumbing Systems

2.2.1 Domestic Water, Storm Drain, Sanitary Sewer

Description

Domestic water piping serves fixtures in toilet rooms and break rooms throughout the building. Piping material appears to be primarily galvanized steel.

Domestic hot water is provided by several electric, tank-type hot water heaters (Photo #M9).

Storm drain piping serves roof drains and area drains. The material appears to be cast iron.

Sanitary sewer piping serves fixtures in toilet rooms and break rooms throughout the building. The material appears to be cast iron.

General Condition

The domestic water piping is in very poor condition (Photo #M8) and can be expected to fail in various locations at any time.

Hot water heaters appear to be in good condition.

The storm drain piping appears to be in fair condition but is showing signs of aging and can be expected to be unreliable and require excessive maintenance.

The sanitary sewer piping appears to be in fair condition but is showing signs of aging and can be expected to be unreliable and require excessive maintenance.

2.2.2 Operational and Maintenance Issues

Excessive maintenance is required.

Piping is not reliable in day-to-day operation.

Code Issues

None noted.

Recommendations

The domestic water piping should be completely replaced.

The storm drain piping should be further tested to determine whether a partial or complete replacement is warranted.

The sanitary sewer piping should be investigated and tested more completely to determine whether a complete replacement is warranted.

2.2.3 Plumbing Fixtures

Description

Plumbing fixtures include lavatories, water closets, sinks and mop sinks. The material appears to be vitreous china and stainless steel.

General Condition

The plumbing fixtures appear to be in fair condition, but are showing signs of aging and can be expected to be unreliable and require excessive maintenance.

Operational and Maintenance Issues

Excessive maintenance is required.

Fixtures use excessive amounts of water.

Fixtures are not reliable in day-to-day operation.

Code Issues

None noted.

Recommendations

The plumbing fixtures should be replaced with modern, low water-use fixtures.

2.3 Fire Protection Systems

Description

The building is equipped with an automatic sprinkler system (Photo #M10), which was installed throughout the building in 2007.

General Condition

The automatic sprinkler system appears to be in good condition.

Operational and Maintenance Issues

None noted.

Code Issues

None noted.

Recommendations

None.

3.0 Electrical

3.1 Service and Distribution

Description

There are two metered PGE services entering the courthouse from pole mounted transformers located on north side of property. Service feeders are routed underground to east side of building and terminate in CT enclosures in basement. PGE meters are located outside of building on east side. One service is 1200 amps, 120/240 – 3 phase – 4 wire and serves a main distribution panel (Panel MDP) in basement. Second service is 400 amp, 120/208 volt – 3 phase – 4 wire and serves 400 amp – 3 pole main circuit breaker in basement to support added program in 2013.

General Condition

The majority of electrical equipment is located within the basement shared mechanical/electrical room. Additional electrical equipment is located on upper floors as described below.

Record documents and drawings indicating when the MDP was installed could not be located, however, it appears it was prior to 1974. The MDP appears to be in good working order, but is at the end of its life expectancy.

A 600 amp subdistribution panel (Panel S) was installed in 1974 and is served from MDP. MDP serves branch panelboards on first floor through the penthouse. The MDP also serves a wire gutter with circuit breakers located in basement main electrical room that serve additional branch panelboards in basement thru third floor.

Panelboards throughout the building have been installed at various times, so the degree of life expectancy and reliability vary. However, the majority of panelboards appear to have been installed at same time as MDP, therefore, reaching life expectancy.

Panel DA, served by 400 amp – 3 pole service circuit breaker in basement, was installed in 2013 and is in good working order. All branch panelboards served from panel DA were installed in 2013 and are in good working order.

The MDP and the miscellaneous circuit breakers that serve branch panelboards appear to have been in service near or beyond their life expectancy. Sourcing replacement parts for these breakers will likely be difficult.

The interiors of MDPs and branch panelboards were not visually inspected because the service disconnects must be switched off to safely allow removal of the equipment covers for inspection.

Operational and Maintenance Issues

The electrical equipment, to include individual circuit breakers (Photo #E1), for the building distribution system have not been located in an orderly fashion over the years and as a result, does not provide for easy maintenance or functionality for building operation.

Code Issues

A utility current transformer enclosure for the 120/208 volt service appears to contain water inside from service entrance conduits penetrating the basement wall. This is an unsafe condition as the water pools on the floor and within the CT enclosure and could create a shock hazard for maintenance personnel. Provide main disconnect labeling for MDP per NEC 230.70B (Photo #E2).

Mechanical ductwork and piping are routed over the top panels P and CP in penthouse in violation of the NEC 110.26-F-1a.

Recommendations

To consolidate and cleanup electrical service to the building, PAE would recommend providing a single PGE metered 1600 amp 120/208 volt – 3 phase – 4 wire service to serve new 1600 amp MDP to include 25% capacity for future growth in compliance with General Facilities Design Assessment Criteria.

Additional recommendations include locating the utility meter in same location as existing. Remove all miscellaneous circuit breakers located in electrical room and consolidate all into MDP. Provide new branch panelboards and associated feeders. Arrange equipment to provide NEC clearances and working space.

3.2 Emergency Power

Description

The courthouse does not have any emergency generation or battery inverter equipment. The only designated emergency power is an original 40 amp circuit breaker located in basement electrical room served from an undetermined normal utility power. Emergency egress and security lighting is provided through integral luminaire battery packs or lamp head emergency units.

General Condition

Luminaires with integral battery pack appear in good working order, only a small portion of luminaires were tested during the tour.

Operational and Maintenance Issues

Individual luminaire battery packs require monthly testing per code requirements. The also require routine maintenance throughout the courthouse and there is no indication to facilities as to when a battery ballast is failing or has failed.

Code Issues

All paths of egress will need to be verified to comply with OSSC 106 and NEC 700.16 requirements. Lighting levels along the path of egress were not evaluated at the tour.

Recommendations

Provide centralized battery inverter or generator for all emergency egress, security lighting to include all associated requirements in compliance with General Facilities Design Assessment Criteria.

3.3 Grounding

Description

Ground bus is located under 400 amp, 120/208 volt service CT enclosure.

General Condition

Ground bus appears in good condition.

Operational and Maintenance Issues

None noted.

Code Issues

None noted.

Recommendations

Provide new ground system per NEC 250 with new MDP distribution described above.

3.4 Branch Circuits

Description

Branch circuit wiring consists of conductors routed in conduit. Some older branch circuits do not contain a ground conductor and utilize conduit as ground path. All newer branch circuits contain a ground conductor.

General Condition

Branch circuits appeared to be in good condition and functional.

Operational and Maintenance Issues

It was noted by maintenance personnel that use of individual space heaters at workstations in Room 104 creates an electrical overload on branch circuits and causes nuisance tripping. Space heaters are used by employees since the heating system is perceived as not functioning appropriately.

Receptacles in first floor Breakroom are overloaded with number of appliances being utilized.

Code Issues

GFCI type receptacles installed in branch circuits not containing ground conductor are required to be installed per NEC 406.4D2b.

Grounding type receptacles installed in branch circuits not containing ground conductor are required to be installed per NEC 406.4D2c.

Recommendations

Provide new branch wiring with ground conductor and connect to ground type and GFCI type receptacles. Provide receptacles at all workstations, courtrooms, associated spaces and located in compliance with General Facilities Design Assessment Criteria. Provide Breakroom receptacles for dedicated equipment to run concurrently (i.e. microwave, refrigerators,).

3.5 Lighting

Description

Interior lights are predominately fluorescent with T8, 28 watt lamps and some downlights with compact fluorescent lamps. Most interior luminaires are outdated, but appear to be in good working order. Exterior lighting consists of building mounted luminaires and pole mounted luminaires in parking area.

General Condition

Circulation areas are surface mounted fluorescent luminaires of various sizes. Courtrooms 1, 2, 3, 4, 6, 7, 8 and 9 have fluorescent luminaires with on-off controls only. Courtroom 5 and 10 have recessed indirect fluorescent luminaires with preset Unison dimming controls. Per discussion with maintenance staff, individual Unison dimming modules are periodically failing in these units.

Courtroom 11 has recessed fluorescent luminaires and downlights with switches for fluorescent luminaires and wall dimmers for downlights.

Exterior lighting on the east side of building and in parking area appear to have been added in 2013.

Operational and Maintenance Issues

There appears to be no building lighting control system, therefore, no energy management. Many luminaires appear to be operating 24/7. Lighting controls for the courtrooms are not consistent with one another.

Code Issues

The lighting system does not appear to be energy code compliant.

Recommendations

Provide new lighting and controls in compliance with General Facilities Design Assessment Criteria and the Oregon Energy Efficiency Specialty Code 505.

3.6 Fire Alarm

Description

The courthouse has initiating, audible and ADA devices located throughout building. The Silent Knight main fire alarm control panel is located in the main electrical room in basement. The fire alarm system monitors a Potter PFC series dry pre-action fire protection system for the Data Room.

General Condition

The equipment in the building appears to be relatively new and in good condition and functional.

Operational and Maintenance Issues

None noted.

Code Issues

None noted.

Recommendations

Maintain existing fire alarm control panel, initiating, audible, ADA devices, associated NAC panels, fire alarm connections to elevator equipment and pre-action sprinkler systems. Add additional devices if required to meet OSSC 907 and Fire Code.

3.7 Telephone/Data

Description

Existing telephone/data service enters courthouse underground and enters building on east side and then routes across basement to main telephone/data room in basement. The main telephone/data room contains cable trays, communication racks and associated components. There is also communication rack and associated components in penthouse.

General Condition

Communication racks (Photo #E3) and associated components appear in good working order. Many cables in main telephone/data room are not routed in cable tray and/or properly supported (Photo #E4). Rack in penthouse is located in such a manner that is subject to damage (Photo #E5). There are cables in the main telephone/data room that appear are no longer utilized.

Operational and Maintenance Issues

None noted.

Code Issues

Abandoned telecommunications cabling should be removed per NEC requirements.

Recommendations

Provide new racks, associated components, rack mounted UPS and cable trays to include 20% future capacity for a complete functioning system. Provide sufficient cooling system and controlled access into room. Remove all abandoned cables in telephone room and building. Provide voice/data outlets at all workstations, courtrooms and associated spaces. All recommendations shall be in compliance with General Facilities Design Assessment Criteria.

3.8 Security

Description

The existing security system consists of door access, door security and CCTV. The new panels are located in multiple locations throughout building. CCTV is controlled and operated by the County Sheriff's office.

General Condition

Security system appears in good condition and functional.

Operational and Maintenance Issues

The existing door security and access panels are presently being reconnected to a new Johnson Control system (Photo #E6).

Code Issues

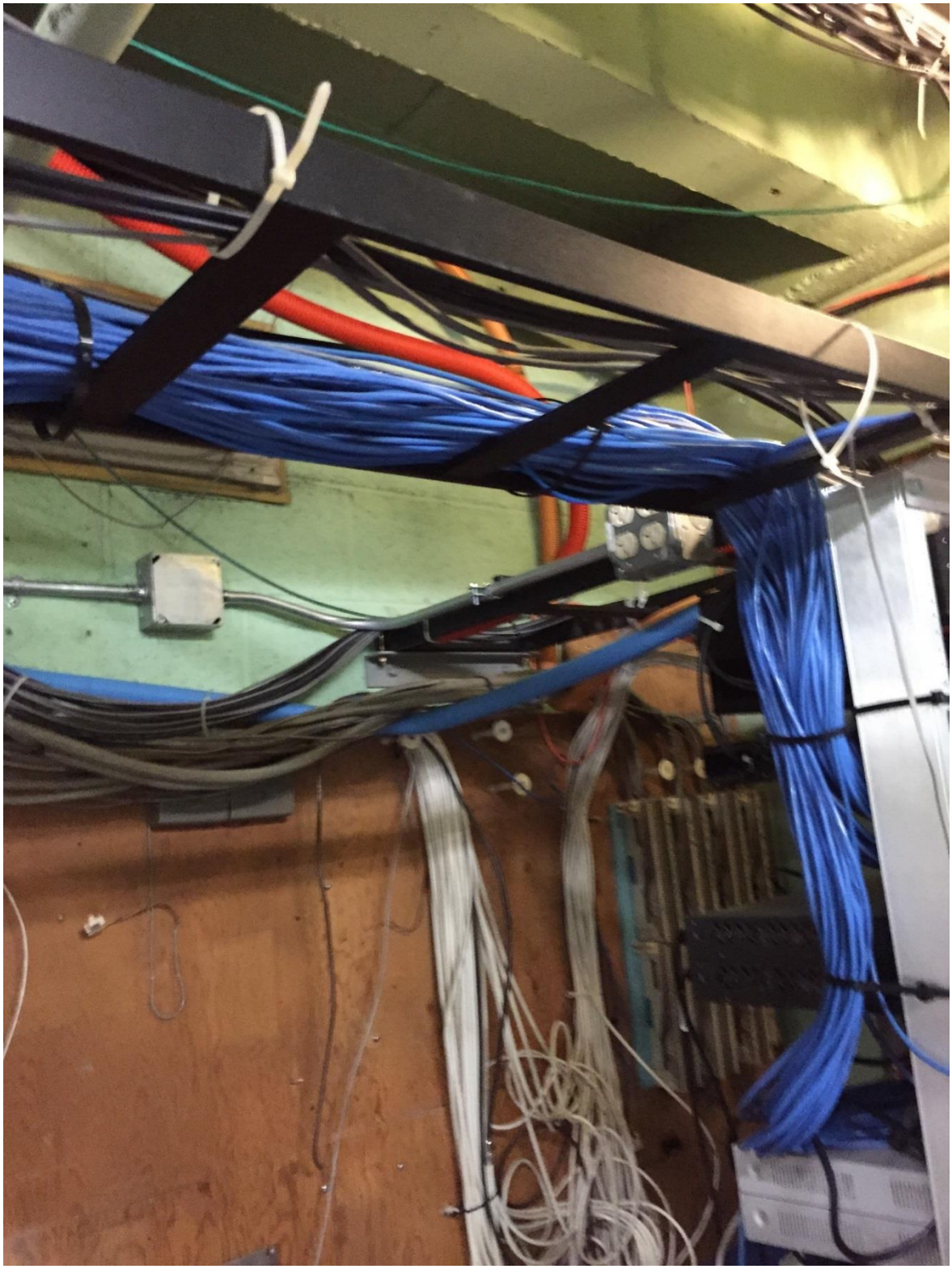
None noted.

Recommendations

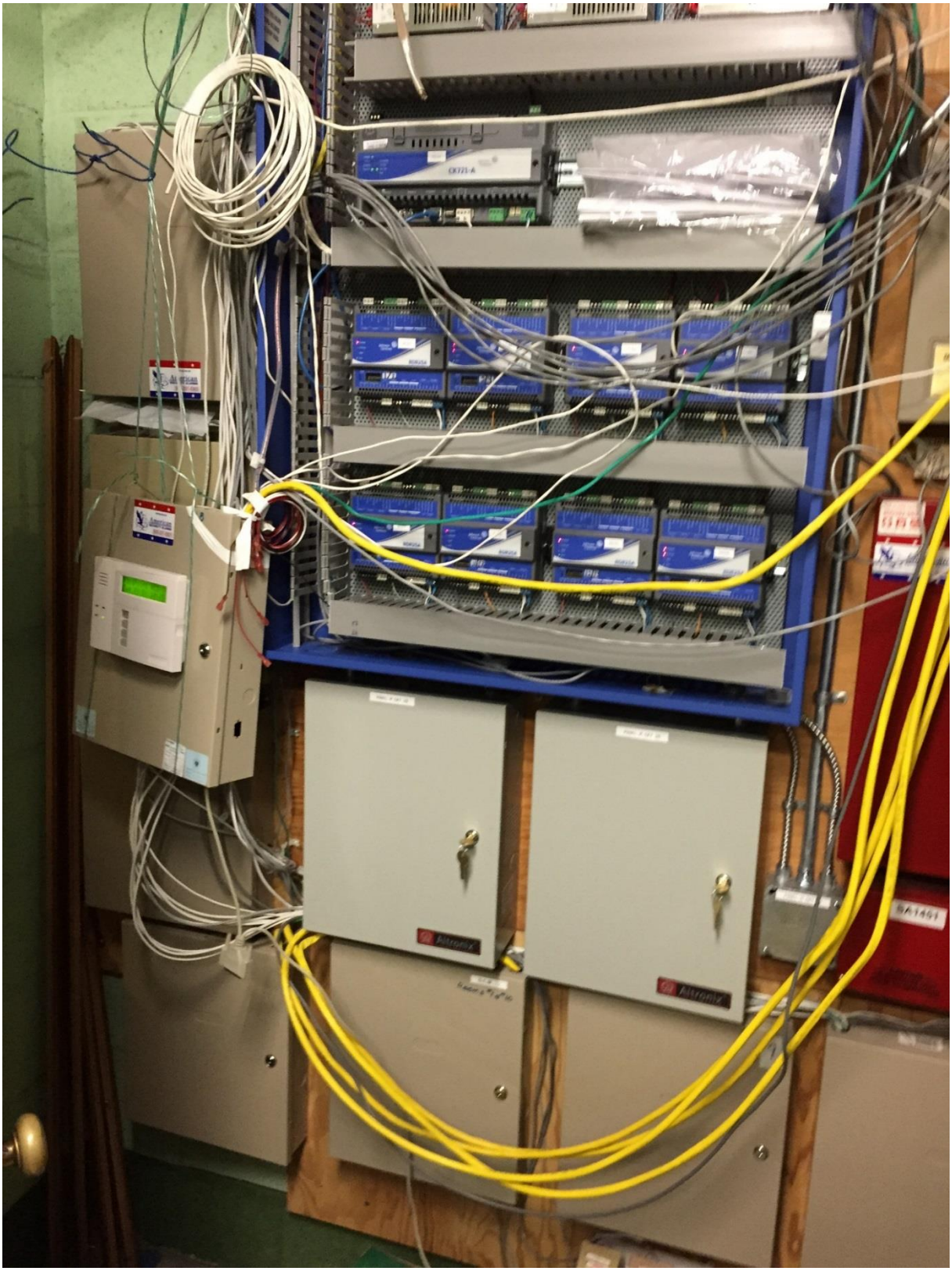
It appears the courthouse is undergoing an access control/security upgrade during the time of tour. Review of final installation is recommended to ensure the complete security system (including door access, intrusion detection alarms, CCTV surveillance, intercom and duress alarms) is in compliance with current General Facilities Design Assessment Criteria.

4.0 Appendix

4.1 Photo #E1: Cable distribution in basement tele/data room.



4.2 Photo #E2: New Johnson Controls door security system transition.



4.3 Photo #M1: Chiller