CITY OF COOS BAY URBAN RENEWAL AGENCY
Agenda Staff Report

MEETING DATE August 21, 2012	AGENDA ITEM NUMBER

TO: Chair Gene Melton and Board Members

FROM: Jennifer Wirsing, Engineering Service Coordinator
Through: Rodger Craddock, City Manager RCC
Jim Hossley, Public Works and Development Director

ISSUE: Provide Direction to Staff for the Next Phase Regarding the Egyptian Theatre Restoration Project

BACKGROUND:

The City of Coos Bay Urban Renewal Agency (URA) owns the Egyptian Theatre which is listed on the National Register of Historic Places. The theatre opened for motion picture use in 1925, and it remains one of the best examples of its type in the western United States. In December 2010, ZCS Engineers performed an in-depth facilities evaluation of the Egyptian Theatre for the purpose of identifying building improvement needs and creating a facilities improvement plan. ZCS presented the findings of the evaluation in the report titled, *Facilities Improvement Evaluation Report* dated December 2010. The evaluation effort identified significant structural problems which resulted in the closing of the theatre as required by the building codes. For reference, the text portion of ZCS's December 2010 report has been included with this staff report.

In order to correct the structural deficiencies, bring the building up to current structural standards, and repair other issues (electrical, plumbing, etc.) identified in the ZCS repo, it is estimated that the renovation will cost approximately $3.7 million over the course of two phases. It is important to note that this estimate of work would entail a seismic upgrade that meets current seismic standards for a new structure. Additionally, the seismic upgrade would allow the project to be eligible for state and federal funding and assistance. The purpose of upgrading the structure to current seismic standards and strengthen the structure to resist future design seismic events is to minimize and avoid catastrophic building failure and loss of life.

In December 2011, the URA hired George Kramer to assist and advise the URA with its restoration efforts of the Egyptian Theatre. Mr. Kramer has 30 years of experience in historic preservation, and he has helped restore theaters in Oregon and northern California. After reviewing the ZCS's Facilities Improvement Evaluation Report and examining the Egyptian Theatre, Mr. Kramer suggested hiring another structural engineering firm with experience in historic building restoration to review and evaluate ZCS's report and the conditions of the theatre for the purpose of exploring alternative approaches and more costly effective measures to address the identified structural deficiencies.

In July 2012, the URA contracted with KPFF Consulting Engineers to review the ZCS report, assess the building, and provide recommendations for upgrade that will remove the dangerous building designation and provide for an ADA accessible restroom. Engineers from KPFF have completed their assessment. At this time, KPFF has reviewed the ZCS report, assessed the building, coordinated with the City's Building Official, and provided recommendations for upgrades that will remove the dangerous building designation. Important to note is that KPFF's letter stated that in general they agree with the findings in the ZCS report. Attached you will find their report on the deficiencies of the structure, and their suggestions on how to mitigate those deficiencies which caused the closure of the building. The reports identifies that "[full] seismic upgrade work is typically only required by the Oregon Structural Specialty Code (OSSC) and municipal codes if a change in occupancy or an increase in structural demand occurs due to an alteration. Based on this information, the theatre would not require a [full] mandatory seismic upgrade as part of the currently recommended modifications." The improvements recommended and listed in the KPFF report will cost approximately $500,000 to $550,000 and they would include some voluntary seismic upgrades and an ADA restroom. Excerpts from KPFF's report have been included for your reference:

> *"Based on our limited structural evaluation, we generally agree with the structural deficiencies identified in the ZCS report, though we do not believe a full seismic upgrade is required to obtain occupancy per the OSSC. The majority of damage and movement appears to be isolated at the west end of the building and is likely due to the addition of the fly loft concrete walls and subsequent settlement. The other significant deficiencies include roof and floor framing members that are undersized for current code loading and the relocation of the two trusses. We recommend the following structural repairs:*
>
> - *Add micro piles, pin piles, or helical piles along the west wall to prevent additional settlement. (Alternate stabilization schemes will also be studied.)*
> - *Add vertical steel strong backs and braces to the west wall to stabilize the wall and anchor it to the fly loft roof diaphragm.*
> - *Provide new plywood sheathing and blocking at the fly loft roof diaphragm to resist wall bracing loads of the west wall.*
> - *Reinforce the fly loft roof beams with additional wood framing.*
> - *Add structural steel brackets and plates to enhance support of the relocated trusses. (A post option will also be reviewed.)*
> - *Add a wood ledger and new hanger supports at the roof beams where they have pulled away from the truss immediately south of the fly loft.*
> - *Add (4) new roof beams to reduce loads on existing main roof wood beams. New beams will extend the length of the main roof.*
> - *Add a steel beam and two posts below the mezzanine lobby to shorten the span of the existing mezzanine floor joists. (An alternate framing scheme will also be reviewed to avoid addition of posts.)*

- *Add continuous solid blocking between roof beams (existing and new) and the existing sheathing to improve truss top chord bracing.*
- *Remove the mechanical unit, CMU enclosure, and mechanical mezzanine slab at the north end of the stage. It is our understanding the unit is no longer in use. (This item may be deferred to a later phase of work.)*

The proposed foundation improvements, steel framing at the west wall, and re-sheathing of the fly loft roof diaphragm not only stabilize the fly loft under gravity loads, but also mitigate several significant seismic deficiencies. Other voluntary seismic improvements can be implemented as part of Phase 1, as budget allows. These items include the augmenting the truss connections at concrete walls and re-sheathing the main roof diaphragm."

Based on information gleaned from both the ZCS and KPFF reports, staff has determined that there are two potential options to present to the URA which if you chose can provide an avenue to seismically upgrade the building and remove the Dangerous Building designation. The options are as follows:

1. Option 1 includes creating final design plans and specifications for a full seismic upgrade as detailed in the December 2010 ZCS report. The seismic upgrade would be designed to resist significant structural damage during a design seismic event with the purpose of reducing potential risk of loss of life and property damage. Additionally, the improvements identified in the ZCS report also includes upgrading electrical and plumbing, upgrading snack bar appliances, upgrading lighting, new fire alarm and security system, new network and communication system, and provide new projection booth equipment and devises. The upgrades have been estimated at $3.7 million. If URA decides to proceed forward with a full scale seismic upgrade and the additional improvements mentioned above, the next step is to authorize staff to negotiate with ZCS to prepare final drawings.

2. Option 2 includes creating final design plans and specifications to perform seismic upgrades to the building to prevent collapse during a design seismic event. This will entail mitigating the structural deficiencies and adding seismic reinforcement where necessary. Additionally, with this option, voluntary seismic upgrades that were evaluated in the ZCS report will be recommended where economically feasible. As noted by ZCS and confirmed by George Kramer, since the theatre is not changing occupancy nor is it changing an increase in structural demand, a full seismic upgrade in compliance with the Oregon Structural Specialty Code (OSSC) and Municipal Code is not required. However, while this upgrade would protect the occupants within the building, it is very likely that the building will sustain significant structural damage. If URA decides to proceed forward with a Collapse Prevention approach mentioned above, the next step is to authorize staff to negotiate with KPFF to prepare final drawings.

ADVANTAGES & DISADVANTAGES:

The following is a table that summarizes the advantages and disadvantages of Option 1 and Option 2:

	OPTION 1: ZCS RECOMMENDED IMPROVEMENTS	OPTION 2: KPFF RECOMMENDED IMPROVEMENTS
ADVANTAGES	• Building will exceed minimum current seismic standards: • Protect Occupants • Protect Structure • Project will be eligible for state and federal funding • Upon completion of the project, the Dangerous Building designation will be removed • Scope includes upgrade of plumbing, equipment, snack bar, etc.	• Building will satisfy minimum seismic standards • Protect Occupants • Voluntary seismic upgrades that exceed minimum standards will be constructed where economically feasible • Cost effective option • Upon completion of the project, the Dangerous Building designation will be removed
DISADVANTAGES	• A seismic upgrade that exceeds minimum seismic standards is costly • Scope of work exceeds the minimum amount of work required for the theatre to start generating revenue • Exceeds minimum seismic standards	• Does not qualify for state or federal assistance • Scope of work does not include upgrade of electrical, plumbing, equipment, snack bar, etc. • Does not exceed minimum seismic requirements
CONSTRUCTION ESTIMATE[1]	Approximately $3.7 million[2]	Approximately $500K - $550K

1 Budget does not include consultant's time to prepare plans and specifications.
2 This estimate is in 2010 dollars and will have to be updated to reflect current prices and inflation.

DESIGN BUDGET:

If the URA decides to proceed forward with either option, the funds for the preparation of plans and specifications will be obtained from the Downtown Capitol Projects Fund (57-940-530-3133). This scope will be billed at "Time and Materials Not to Exceed".

ZCS RECOMMENDED IMPROVEMENTS: At this time a budget has not been obtained to prepare final design plans and specifications. It is anticipated that the budget will be more costly than the preliminary budget provided by KPFF due to the additional seismic upgrades and larger project scope being proposed.

KPFF Recommended Improvements: The budget provided by KPFF to prepare final plans and specifications for the recommended improvements was an estimate; and it was provided prior to KPFF preparing the August 10, 2012 letter. If URA would like staff to enter into negotiations with KPFF, it is anticipated that the cost to prepare the plans and specifications will not exceed $47,500.

REQUEST:

Staff is requesting URA to provide a decision on how to proceed forward with the Egyptian Theatre Restoration Project. Option 1 entails performing a full seismic upgrade and Option 2 entails a “collapse prevention” approach.

If Option 1 is chosen, staff is requesting the authority to begin negotiations with ZCS to prepare final plans and specifications for their recommended improvements.

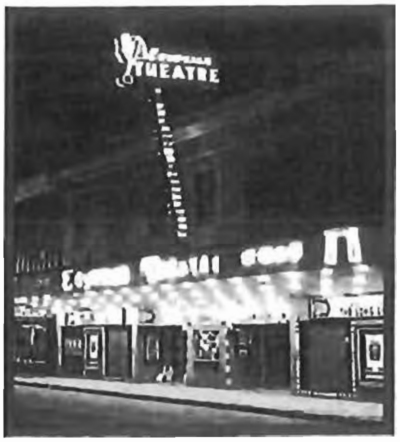
If Option 2 is chosen, staff is requesting the authority to begin negotiations with KPFF to prepare final plans and specifications.

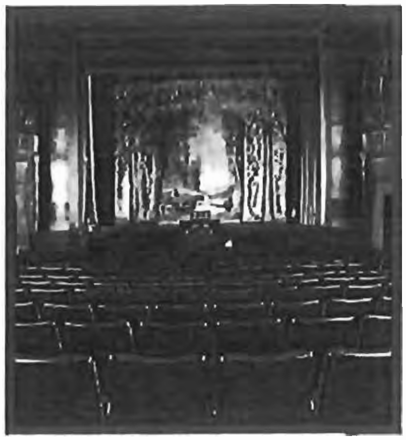
ATTACHMENTS:

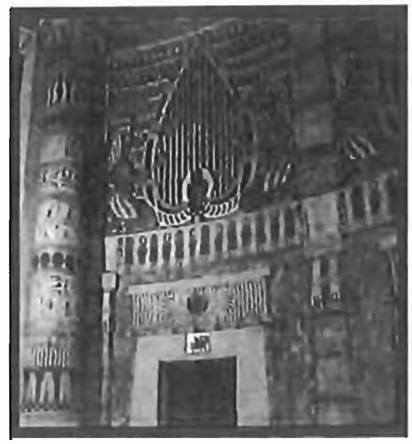
ZCS's report dated December 2010 titled, *Egyptian Theatre Facilities Improvement Evaluation Report,* (Appendices can be made available upon request)

KPFF's letter dated August 10. 2012 regarding the Egyptian Theatre Restoration Project – Phase 1

Email correspondence between Jennifer Wirsing (Engineering Service Coordinator) and Richard Foster (Grant Writer for the Egyptian Theatre Restoration Project) regarding the funding limitations associated with Option 2.







Egyptian Theatre

229 South Broadway Coos Bay, Oregon

Facilities Improvement Evaluation Report

Prepared For:

City of Coos Bay
Urban Renew Agency

December, 2010

Prepared by:
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Project Manager:
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Russell C. Carter, PE, SE
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ZCS
ZBINDEN • CARTER • SOUDERS
ENGINEERING Inc.

December, 2010

Mr. Jim Hossley, Director of Public Works
City of Coos Bay
500 Central Ave.
Coos Bay, Oregon 97420

Reference: Egyptian Theatre

Subject: Facility Improvement Evaluation

Mr. Hossley,

Please accept this report outlining our findings and recommendations for the facility improvement plan of the Egyptian Theatre located at 229 South Broadway in Coos Bay, Oregon. The purpose of our investigation was to verify the existing structural and non-structural systems and perform an assessment based on current building code requirements to determine deficiencies. In the enclosed report, we have outlined the findings of our evaluation.

If you have any questions or concerns, please do not hesitate to call me at (541) 479-3865 or email me at SyA@ZCSengineering.com.

Sincerely,

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OREGON
Sept. 19, 2006
SYLAS EMMETT ALLEN
EXPIRES: 12/31/11

Sylas E. Allen, PE
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18653PE
OREGON
July 16, 1996
RUSSELL C. CARTER
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Russell C. Carter, PE, SE
Engineer of Record

Enc: Structural seismic evaluation report and support drawings, pictures, survey data, preliminary calculations, and testing reports provided by ZCS Engineering, Inc.

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Figures

Appendix 'A'
Geotechnical Report by SHN Consulting Engineers & Geologists, Inc.
Dated September 14, 2010

Appendix 'B'
Code Summary by ZCS Engineering, Inc.
Dated December 1, 2010

Appendix 'C'
Environmental Reports by Koos Environmantal Services, Inc.
Dated December 12, 2007

Environmental Report by Department of Consumer and Business Services (OR-OSHA)
Dated December 21, 2007

Appendix 'D'
Historical Photos by State Historical Preservation Office
Dated May, 2010

Appendix 'E'
Opinion of Anticipated Project Budget by Mike Homfeldt, Estimator
Dated December, 2010

1.0 Introduction

We have been directed by the City of Coos Bay to evaluate the existing Egyptian Theatre building, currently in use by the community, located at 229 South Broadway in Coos Bay, Oregon. The purpose of our effort is to evaluate the existing structure, perform a structural assessment to identify structural deficiencies, and identify a voluntarily Facilities Improvement Plan. In addition, we have evaluated the building to determine non-structural deficiencies when compared to current building code requirements for fire & life safety and accessibility.

The following scope of work has been developed using information provided, ASCE 31 Seismic Evaluation of Existing Buildings, and visual observations of the structural systems throughout the building. We have performed site verification of all structural systems through non-destructive and localized destructive measures. A 3-D scan survey model of the entire structure has been prepared. With this information we have been able to assemble an accurate set of as-built drawings. In addition, we have modeled and analyzed the existing structural systems based on current code loading configurations. Within this report, we have attempted to outline a facility assessment based on the building status and clearly define upgrades required to meet an acceptable level of safety performance (collapse prevention).

As part of this scope of work, design development level drawings have been created to illustrate the level of understanding with regards to the effort that will be required to seismically rehabilitate this building and address known structural and non-structural deficiencies. These drawings have been prepared using the current Oregon Structural Specialty Code (OSSC 2010), current International Existing Building Code (IEBC 2009) as amended by Statewide Alternate Method Number OSSC 08-05 (SAM 08-05), and the ASCE 41 (Seismic Rehabilitation of Existing Buildings) as references for prescribed loading, building performance level ratings, and building operational safety.

Once rehabilitation efforts have been completed, the building will be able to achieve a level of performance of Life Safety Occupancy based on the OSSC and ASCE 41. The building will be fitted with a new electrical system, and a modern fire protection/ detection system. The building will continue to maintain its status on the historical preservation registry. In addition, selected accessibility deficiencies will be improved to enhance the safe use for all members of the community.

The following is a description of the building as observed. Structural and non-structural code assessments have been included. Some of the non-structural items that have been determined to be non-essential to the continued operation of the building have been split into a second phase in the budget.

2.0 Project Overview

The facility in question consists of a multi-story structure built at-grade in a High Seismicity Zone. The original building was remodeled from a garage into a theatre in 1925, and it has recently been listed on the National Register of Historic Places. The base foot print of the building is approximately 10,540 square feet *(Figure 2.1)*. The upper level mezzanine and second floor are approximately 4,550 SF, consisting of a small lobby for the mezzanine, an office, and the facility's only restrooms *(Figure 2.2)*. According to the OSSC, the occupancy of the building is an assembly, specifically classified as an "A-1" occupancy. Based on the occupancy load factors listed in Table 1004.1.1 of the OSSC, the total occupancy of the building is 1,189 persons. The structure consists of cast in place concrete frames, walls with brick infill, and a flexible diaphragm (ACSE 31 Classification C2A/C3A).

It is our understanding that no repair work or structural upgrades have been done to date. The building has experienced many non-structural alterations, primarily in the lobby and front façade. The primary décor and layout of the theatre currently resembles the original construction with the exception of a few changes including the relocation of the large columns to each side if the stage. At one time the theatre was modified to have three separate movie screens; two of them were located in the mezzanine and have since been removed. As a result of this work, the theatre was evaluated for hazardous materials and found to have asbestos in the ceilings plaster. The theatre has not yet been completely restored after the removal of the secondary theaters.

The structure measures approximately 73'-6" wide and 144' 6" long. The main structure has a peak roof height measuring approximately 36'-8" from street elevation. The rear fly loft roof height measures 48'-0" above the adjacent sidewalk *(Figure 2.3)*. A canopy is attached to the front of the structure over the walkway *(*Figure *2.4)*. The finish floor elevation is approximately 13' above sea level and within 'Zone AE' of the National Flood Insurance Program (NFIP) Flood Insurance Rate Map (FIRM) Panel 0327D *(Figure 2.5)*. The structure is within a block of buildings of similar dimension with the adjacent walls common to both spaces. The main entrance of the building fronts South Broadway, with the rear exits accessible by a shared access alley way. Refer to '*As-Built'* plans for additional information.

3.0 Main Roof Observation/ Assessment

3.1 Construction Deficiencies

The primary roof framing consists of heavy timber trusses spaced at 17' on-center (or less) supporting 4x6 rough sawn beams spaced at 14' o.c. The secondary roof framing consists of 2x6 rafters at 24" o.c. with 1x8 straight sheathing *(Figure 3.1)*. We performed several cores through the roof layers and discovered that the roof had been re-sheathed with 7/16" OSB over the original 3/16" thick asphaltic built-up roofing. The top layer consists of 1/4" thick asphaltic built-up roofing *(Figure 3.2)*. The ceiling construction consists of 2x8 rough sawn joists at 16" o.c. supported by the heavy timber truss bottom chords *(Figure 3.3)*. All of the framing is fastened together with 8d, 10d, and 20d common nails with the exception of the heavy timber trusses. The truss connections consist of 1/4" steel plates and through bolts *(Figure 3.4)*.

The trusses were analyzed using computer modeling software (RISA) to accurately determine a safe performance level and measure an acceptable deflection limit. The trusses were found to be performing within current codes standards for load capacity and deflection. However, it was determined the top chord of the truss was inadequately supported laterally *(Figure 3.5)*. The remaining roof framing elements were also analyzed and determined to be inadequate for load capacity during a code level event *(Figure 3.6)*.

A framing plan has been developed to illustrate the proposed solutions to the roof framing deficiencies described above *(Sheet S2.2)*. In general, the proposed solution includes the addition of roof beams to supplement existing beams to help support the existing rafters. This accomplishes three things: reduces the span of the existing rafters, strengthens the existing beams, and provide support to the existing truss top chord. In addition, the removal of the plaster ceiling will reduce the weight on the ceiling joists, alleviate a potential seismic falling hazard, and allow for proper abatement of known hazardous materials. Refer to '*Rehabilitation*' plans for additional information.

The roof is currently supported by a cast-in-place 12" thick concrete wall with 16" thick x 28" wide concrete pilasters at each truss *(Figure 3.7)*. It has been observed that the trusses at each end of the building have been moved off their original pilaster bearings (Gridline '2.4' and '7.5') and are currently resting on a 4" ledge supported by the 12" thick wall only *(Figure 3.8)*. It is our understanding the trusses were moved to make room of the fly loft and projection room construction when converted to a theatre in 1925. Unfortunately this condition was not properly addressed at the time of construction and has caused failure of connections and other roof framing members *(Figure 3.9)*. Supplemental support for the relocated trusses and unsupported roof framing has been illustrated in the framing plan provided for reference *(Sheet S2.1)*. Several large cracks have been identified along the exterior concrete walls at gridline '2.4' that appear to have been caused by differential settlement of the foundation *(Figure 3.10)*.

3.2 Seismic Deficiencies

The following list summarizes the structural seismic deficiencies noted during analysis.

- Top cord capacity and out-of-plan connection of exterior concrete walls to roof diaphragms
- Aspect ratio of roof diaphragms and lack of sheathing (straight sheathing)
- Out-of-plan capacity of partially reinforced concrete pilasters (up to 31' tall)
- Out-of-plane connection of heavy timber trusses to pilasters
- In-plane shear capacity of front wall concrete frame
- Anchorage of front entry canopy and marquee

3.3 Scope of Seismic Rehabilitation

The length-to-width ratio of the building and lack of out-of-plane connection creates the need to provide a plywood sheathed diaphragm at the ceiling elevation. This will cut the aspect ratios down to code acceptable levels and allow for proper resolution of top of concrete wall anchorage *(Sheet S2.1)*. We also recommend removing the existing roofing material and re-nailing the existing OSB sheathing to provide a dependable diaphragm for support of the truss top chords and parapet anchorage *(Sheet S2.2)*.

The concrete pilasters can be reinforced with steel wide flange columns located to each side of the pilaster and epoxy bolted to the existing concrete wall along its length. The top of the steel columns will then be connected to the trusses with a heavy steel bucket connection to provide a safe and dependable connection of the trusses to the walls *(Sheet S5.1)*. A steel braced frame needs to be installed at the inside face of the front wall inside the stair well to provide an adequate lateral force resisting system along the end of the building an out-of-plane support of the front wall pilasters *(Sheet S3.2)*. This work will require the foundation to be reinforced with micro piles to support additional seismic loads induced by the steel braced frames and reduce future settlement. Refer to '*Rehabilitation*' plans for additional information.

4.0 Mezzanine Observation/ Assessment

4.1 Construction Deficiencies

The primary mezzanine framing consists of cantilevered timber trusses spaced at 12" on-center supported by a W24x55 steel beam spanning 23' from exterior wall to interior steel 6" dia. columns, and 23' between interior columns (*Figure 4.1*). The trusses consist of 3x12 rough sawn members for top and (2) 2x14 bottom chords/webs. The trusses are over-framed with rough sawn 2x material to create the stepped stadium seating profile (*Figure 4.2*). We cut through the existing wall and ceiling finishes at several locations to provide inspection access to the framing. The remaining floor and ceiling framing for the projection room and lobby consists of 2x rough sawn framing supported by heavy timber rough sawn beams and posts. All of the framing is fastened together with 8d, 10d, and 20d common nails with the exception of the trusses. The truss connections consist of through bolts.

The trusses were analyzed using computer modeling software to accurately determine a safe performance level and measure an acceptable deflection limit. The trusses were found to be performing within current codes standards for load capacity and deflection. The remaining floor framing elements were also analyzed and determined to be within safe performance level with acceptable deflection limits. However, the floor framing in the mezzanine lobby area was found to be greatly overstressed when compared to current code loading configurations as an assembly area. It is plausible for the floor framing to eventually fail under heavy loading conditions such as a packed house where the lobby area is filled with people as standing room only.

A framing plan has been developed to illustrate the proposed solutions to the mezzanine framing deficiencies described above *(Sheet S1.2)*. In general, the proposed solution includes the addition of floor beams to supplement existing beams in supporting the existing floor joists. This accomplishes two things: reduces the span of the existing joists, and reduces the loads on the existing beams. The new beams can be concealed in the floor framing cavity and not impact the ceiling height in the lower lobby area. Refer to '*Rehabilitation*' plans for additional information.

4.2 Seismic Deficiencies

The following list summarizes the structural seismic deficiencies noted during analysis:

- Lateral dependence on out-of-plane connection of exterior concrete walls to steel beams on floor framing
- Out-of-plane capacity of partially reinforced concrete pilasters (up to 31' tall)
- In-plane shear capacity of front of mezzanine support columns
- Aspect ratio of floor diaphragms

4.3 Scope of Seismic Rehabilitation

The concrete pilasters can be reinforced with steel wide flange beams located to each side of the pilaster as described above in section '3.1'. However, this in not sufficient to support lateral forces generated by the mid height mezzanine framing. The mezzanine framing will be laterally supported by a special moment frame located between the two existing steel columns and place tight to the bottom of the mezzanine ceiling *(Sheet S3.1)*. To reduce the aspect ratio of the floor diaphragm, a steel braced frame needs to be installed at the inside face of the front lobby wall inside the stair well to provide an adequate lateral force resisting system in addition to the exterior walls *(Sheet S3.1)*. This work will require the foundation to be reinforced with micro piles to support additional seismic loads induced by the steel braced frames and reduce future settlement. Refer to '*Rehabilitation*' plans for additional information.

5.0 Fly Loft Observation/ Assessment

5.1 Construction Deficiencies

The primary roof framing consists of one heavy timber truss spanning the length of the fly loft supporting built-up 7 ½"x 2" (3&4 ply) rough sawn beams spaced at 14' o.c. The secondary roof framing consists of 2x6 rafters at 24" o.c. with 1x8 straight sheathing *(Figure 5.1)*. We performed several cores through the roof layers and discovered that the roof had been re-sheathed with 7/16" OSB over the two 1/8" layers of asphaltic roofing material. The top layer consists three 1/8" layers of asphaltic roofing material *(Figure 5.2)*. The ceiling construction consists of 2x8 rough sawn joists at 16" o.c. supported by built-up 11"x 2" (4 ply) rough sawn beams also used to support the backdrop rigging. All of the framing is fastened together with 8d, 10d, and 20d common nails with the exception of the heavy timber truss. The truss connections consist of 1/4" steel plates and through bolts *(Figure 5.3)*.

The truss was analyzed using computer modeling software (RISA) to accurately determine a safe performance level and measure an acceptable deflection limit. The truss was found to be indeterminate base on its dependence of the framing over the stage. However, the framing over the stage was determined to be inadequate and supported by the adjacent timber truss at gridline '2.4'. The connections are suspect and framing appears to be unstable worsened by the building separation along gridline '2.4' caused by the foundation settlement. The remaining roof framing elements were also analyzed and determined to be inadequate for load capacity during a code level event.

A framing plan has been developed to illustrate the proposed solutions to the roof framing deficiencies described above. In general, the proposed solutions include the complete demolition of the existing roof framing and replacement with modern steel construction for safe support of roof loads and rigging equipment. This approach will be become more apparent later in this evaluation report as it is necessary to facilitate a complete repair of the fly loft walls. Refer to '*Rehabilitation*' plans for additional information.

The roof is currently supported by a cast-in-place 12" thick concrete wall up to the main roof level. The fly loft was added later when it was converted to a theatre in 1925, so the upper walls have been cast directly over the original walls and reduced to 8" thick *(Figure 5.4)*. Again, 16" thick x 28" wide concrete pilasters have been provided at the truss and four ply beams at the back wall *(Figure 5.5)*. Unfortunately, this condition was not properly addressed at the time of construction and has caused failure of connections, roof faming, floor framing members on every level, and the foundation system *(Figure 5.6)*. A geotechnical analysis was performed to determine cause of settlement (*See Appendix A*).

Supplemental support for these systems would be very extensive and limited to the space available. Foundation solutions would be hindered and upgrades to the theatrical equipment would be difficult to accomplish. Several large cracks have been identified along the exterior concrete walls that appear to have been caused by differential settlement of the foundation. A 3-D scan survey of the entire building has been performed to determine the level of settlement experienced by the fly loft. Most of the settlement of the fly loft has occurred along the back wall and measures approximately 7" to 9" vertically and approximately 7" to 9" horizontally outward at the top of the wall *(Figure 2.3)*. Essentially, the wall is leaning away from the rest of the building pulling the side walls and framing with it. The separation is occurring between the upper fly loft wall and lower main roof and down to the foundation (Gridline '2.4').

It is our understanding the settlement has worsened over the past 30 years according to the gentlemen tasked with the job of maintaining the organ instruments. The organ instruments rooms are located at the line of separation described above *(Sheet A1.3)*. This presents an interesting challenge to the project. The organ and its instruments are currently fully operational and are very valuable to the theatre's historical value *(Appendix D)*. The settlement of the fly loft has caused the floor in the instrument rooms to be unlevel putting the instruments in jeopardy of damage and improper function *(Figure 5.7)*. The goal of this project would be to provide a safe and level space to continue the use of the organ instruments.

5.2 Seismic Deficiency

The following list summarizes the structural seismic deficiencies noted during analysis:

- Top cord capacity and out-of-plan connection of exterior concrete walls to roof diaphragms
- Aspect ratio of roof diaphragms/lack of sheathing (straight sheathing)
- Out-of-plane capacity of partially reinforced concrete pilasters (up to 45' tall)
- In-plane shear capacity of back wall concrete frame
- Lack of lateral resisting system at front of fly loft/main roof (vertical irregularity)
- Undependable foundation systems to resist gravity and seismic forces

5.3 Scope of Seismic Rehabilitation

Rather than reinforce the existing concrete walls of the fly loft, we recommend removing the rear wall completely and the demolition of the side walls down the original main roof elevation, just above the adjacent building roof elevations. This will allow for crucial access to the foundation systems and interior framing deficiencies stated above. The walls will be replaced with factory-cast full height concrete panels *(Sheet S3.1)*. The concrete panels will extend across the separation line between the fly loft and main roof providing a lateral force resisting system at the vertical irregularity. This work will also correct the disconnect caused by the settlement of the existing fly loft construction.

The length to width ratio of the building and lack of out-of-plane connection creates the need to provide a steel deck diaphragm at the roof and floor elevations. The tall concrete walls develop very large forces during a seismic event that can be difficult to restrain with the existing wood roof framing. The steel construction will cut the aspect ratios down to code acceptable levels and allow for proper resolution of top of concrete wall anchorage. The steel and concrete construction in the fly loft will also provide a safer condition with respect to fire protection of the valuable backdrops and other theatrical equipment. In addition, the new construction will be designed to support future additional loads as the theatre upgrades and adds to the equipment. Refer to '*Rehabilitation*' plans for additional information.

6.0 Evaluation of Non-Structural Items

6.1 Overview

It is not uncommon for incidental, non-structural items to play a major role in the expense of rehabilitating an existing building. These costs can sometimes be significant, and can also be very difficult to estimate. For the purpose of this evaluation, we have focused on the necessary items required to improve the safety of the building and continue efficient use of the facility only. It is our understanding the second phase of the project will likely include additional non-essential items to enhance the historical texture and performance of the theatre's use. We have attempted to outline some of the phase two items in the budget to provide a list of additional financial impacts to the overall project to be completed. However, our attempt to identify phase two historical protection and restorative needs should not be considered a comprehensive list. A further evaluation by experts in theatrical design and historical restoration is recommended. Also a consensus needs to be reached by the City, Preservation society, and Coos Bay community on the use and purpose of the Theater. Originally designed for vaudeville productions, it evolved into a theater. Future uses could be as a museum, Movie Theater, live theatrical productions, live music shows, and other community functions. By addressing the use and purposes of the theater long term, resources can be applied to the design and project in a way that will meet the needs for long term sustainability. At present the numbers and items outlined should be considered preliminary and should be refined as the design needs become clearer and a deeper evaluation is preformed.

6.2 Electrical

The existing electrical system in the theatre has been modified and added to several times over the years. Much of the work is undocumented and appears to be difficult to evaluate (Figure 6.1). However, according to Cedar Electric, who had recently worked in the building, the following is a summary of the current condition:

- The Theater was built in the 1920's the electrical system is not much more modern.

- The electrical system has never had a major upgrade. The conductors are primarily rubber insulated with cloth covering. The conduits are painted black iron. Many are broken and not continuous. Some of the feeders are open spliced.
- There is no grounding electrode system. There is not a complete equipment grounding system.
- The little maintenance that has been performed appears to be piecemeal and of suspect quality. The same appears to be true for the occasional building alteration.
- The lighting is extremely difficult to maintain. Some areas require a 40 foot extension ladder to replace Edison base light bulbs. Most areas show signs of overheating and deterioration. Nearly all the lighting is extremely inefficient and, as mentioned, has high operational costs. It is also inadequate as to required light levels and theater visibility.
- Emergency Egress Lighting systems are minimal and inadequate. There is not any fire alarm or notification system. There is not any security system.

With the level of work being performed throughout the building and the potential fire danger of the existing system, it is our recommendation the primary electrical system is completely replaced during this phase of the project. The following is a summary of the recommended upgrades and improvements:

<u>Phase 1</u>

- Replace service with a new 1,000 Ampere Main Breaker, factory installed Surge Arrester, 120/208 VAC, 4-Wire, 3-Phase Service including:
  - o 200% Rated Neutral, Silver Plated Copper Bus Work, and copper Service Entrance Conductors.
  - o New Grounding Electrode System
  - o Six of a 3-pole 225 Ampere CB; One of a 250 Ampere CB; and Two-250 Ampere spaces
- New Feeder Distribution, 225 Ampere, 3-phase, composed of 4-4/0 AWG & 1-# 4 AWG Copper 5-wire feeders, which terminate in 42 Circuit Panelboards to the following locations:
  - o Projection Booth (including a factory installed surge arrester)

- Snack Bar
- Lobby Lights (including interior and exterior signage, receptacles, etc.)
- Auditorium Lighting
- Stage Lighting
- New HVAC up to 25 Tons

- General Devices and Small Appliances
  - General Use Receptacles throughout building
  - Snack Bar Appliances
- Emergency Backup Egress Lighting
  - Twenty-Four Dual Head with LED Exit Signs
- Life Safety and Communications
  - New Fire Alarm with Local and Remote Annunciation
  - New Security System
  - New HVAC Control System
  - New Lighting Control System
  - New Network and Communication System

Phase 2

- Projection Booth Equipment and Devices
- Stage Lighting
  - Power for motorized curtains
  - Stage Lighting from various locations composed of programmable LED (RGB)
- Auditorium Lighting
  - Work Lights and General Lighting
  - Theater Accent Lighting (LED [RGB] for the Cove, Pillars, etc.), and LED Aisle Lighting all (DMX) Programmable

This work has been included in the project budget and split into two phases. Depending on available grant funds such as the Energy Trust of Oregon, it may be feasible to include the auditorium and stage lights as described above in phase one. At the very least, it will be necessary to upgrade the aisle lighting for safe exiting.

6.3 Mechanical

It is our understanding the heating system in the building was recently upgraded from an oil furnace boiler system to a gas fired heating system. The remaining furnace and supporting structure will be removed during the reconstruction of the fly loft. The existing gas unit will need to be removed to allow room for the new construction of the fly loft, and put back in its original location. At this time no upgrade of the mechanical systems has been identified to complete this task and continue operations. The large diameter duct in the attic that feeds the rear of the theatre will be braced against seismic forces *(Figure 6.2)*. This work has been included in the project budget for this phase and should have a minimal impact.

6.4 Plumbing

It is our understanding the current fixture plumbing systems are fully operational and show no signs of deficiency. However, this phase of the project included the addition of two accessible unisex restrooms at the main floor level. The fixtures in each restroom will be plumbed into the existing system and evaluated at that time for any further repair as needed.

The building experiences an elevated ground water condition several times a year. A new sump pump has been recently installed under the stage area. It is recommended this pump is evaluated for capacity and possibly upgraded as needed during the reconstruction of the fly loft foundation work. In addition, a sump pump in the crawl space at the main front lobby area is recommended to reduce flooding during high ground water events reported every couple of years.

6.5 Fire Protection

Due to the high occupant load and financial investment, it has been determined that a fire protection system throughout the building is required to meet current code requirements for life safety and protect against property damage. A standard fire sprinkler system will be installed throughout the attic space, ceiling, mezzanine and lobby framing. The exterior walls will have a water curtain system to protect against a fire migrating from adjacent buildings. It may be necessary to provide a special waterless fire protection system to avoid water damage to the sensitive back drops in the fly loft. It may also be possible to coat the backdrops with a sealant to protect against water damage from a traditional sprinkler system. A fire line will need to be extended into the building from the main water line in Broadway with a fire department connection on the face of the building. A fire riser will be located inside the stairwell with the required double check valve for proper back flow prevention.

A fire detection system will be installed to alert the fire department and occupants within the building in the event of a fire. Egress lighting to all exists will be upgraded as needed to provide safe exiting of the building. In addition, the hallway behind the projection room will be walled in to be used as a closet to the projection room. This will reduce the potential for confusion when exiting the mezzanine level.

6.6 Accessibility

It is the intent of the project to provide a safe and efficient facility for both employees and patrons of the theatre. Due to the level of work performed and its historical status, it is not required to completely address all accessibility deficiencies *(Appendix B)*. We have recommended selected areas to be addressed in phase one based on priority and limited impact to the historical value of the building. However, these improvements will not make the facility fully compliant to current ADA requirements. As discussed above, two unisex accessible restrooms will be constructed on the main level accessible from the lobby *(Sheet A1.1)*. The front door will be replaced to provide proper hardware and thresholds. The rear exit doors will be upgraded with handrail on each side ramps and the ramps will be rebuilt to provide a uniform path of travel *(Figure 6.3)*. Refer to '*Rehabilitation*' plans for additional information.

6.7 Environmental

It is our understanding from Koos Environmental who performed the asbestos abetment work when the secondary projection rooms were removed, that a limited environmental survey had been performed on the building in December 2007 *(Appendix C)*. The survey was limited to asbestos. It is recommend by Koos that additional testing of the furnace for asbestos and the furnace fuel tank for leaks be done before removal. In addition, lead based paint may be present on the interior art work and requires testing prior to any sanding or demolition of the artwork itself. The artwork paint presents a higher cost because of the number of colors and each one may need to be tested depending on the work to be preformed. For the work that does not involve sanding or demolition it may be possible to clear coat and protect the material by encapsulating any possible hazards material. Further evaluation, testing and potential abetment has been included in the budget.

6.8 Historical

It is the goal of this project to preserve the historical fabric of the original theatre layout and décor. While the level of work described in this report appears to be very intrusive to the existing finishes, it must be understood that it is necessary to preserve this building for future generations. Without this work, it is possible the building will become so unsafe that it may need to be abandoned. We have reviewed the proposed work with a Restoration Specialist with the Oregon State Historic Preservation Office (SHPO). They have provided their input on important historical preservation aspects of the project *(Appendix D)*. We have attempted to limit the impacts on the building and allow the final restoration to resemble its original construction. In addition, the large columns that have been placed to each side of the stage had originally been located on the stage and were later moved to make more room for large format cinema *(Figure 6.4)*. This need is no longer valid, therefore moving the columns back to their original location on the stage will represent a more historical condition *(Sheet A1.1)*.

6.9 Finishes

The exterior finishes facing the street will only be impacted as need to access the foundation and installing the water line for the sprinkler system. The concrete and tile sidewalk will need to be cut and removed and then replaced to match *(Figure 6.4)*. The exterior finish at the rear fly loft wall will be all new smooth concrete finish similar to the original construction. The "EGYPTIAN THEATRE" mural on this wall will need to be repainted *(Figure 6.4)*. It is our understanding the custom paint will need to be deferred to the second phase as it is not necessary to continue operations.

The interior finishes throughout the building are in disrepair, dirty, and have been modified to fit changing needs of the theatre owners *(Figure 6.5)*. The proposed structural renovation work outlined above will further impact the finish of the original construction. Every possible step should be taken to preserve what is not necessary to remove to provide access for the renovation. The areas that must be removed will be replaced with gypsum sheathing, textured to match, and painted with a solid base paint most resembling the area impacted. Areas that have custom artwork will need to be deferred to the second phase as it not necessary to continue operations. Any decorative wood case work that is removed will need to be deferred as well. A complete interior finish restoration project should be completed all at once and will require a significant design and budget.

7.0 Conclusion

Given the current condition of the structure, the current code section on existing buildings does not mandate that upgrades are required unless the building is scheduled for repairs, alterations, additions, or change in occupancy. However, it is our understanding the goal of the City is to preserve and continue utilizing the existing building as a facility for community assembly, and the City wants the seismic structural system to be compliant with acceptable levels of safety per current code. To clarify, upgrades outlined in this report are strictly at the discretion of the City.

We have attempted to identify all areas requiring upgrades to achieve a scope of work for current code compliance, and associated estimated budget *(Appendix E)*. In addition to the evaluation report and supporting appendices, we have attached as-built drawings, with survey data, library of photos, proposed preliminary rehabilitation drawings, preliminary structural analysis, and material testing reports. Additional design will be required before construction can begin. Depending on the final scope of the first phase, the following is a summary of the remaining design that has been included in the budget:

Phase 1

- Finalized structural and accessibility design and drawings
- Complete electrical design and drawings
- Complete plumbing design and drawings
- Back drop rigging equipment design and drawings
- Additional hazardous material testing
- Test foundation pier to determine actual capacity

Phase 2

- Interior finishes and historical detailing restoration design
- Complete auditorium and theatrical stage lighting design and drawings
- Stage equipment upgrade (i.e. catwalks) design and drawing.
- Stage Curtains (i.e. main, skirt, legs, scrim) replacement design
- Projection equipment upgrade design and drawings
- Communication and sound equipment upgrade design and drawings
- Exterior Signage and Façade restoration design
- Exterior lighting and marquee upgrade design
- Full Organ instrument restoration design
- Concessions upgrade design and drawings

Please contact our office if you would like to discuss our findings. Please review the attached information and proposed restoration drawings that have been used to define a phase one scope and budget. This may give you enough information to make a decision on how to proceed and pursue funding opportunities.

kpff Consulting Engineers

August 10, 2012

Ms. Jennifer Wirsing
Engineering Services Coordinator
City of Coos Bay
500 Central Avenue
Coos Bay, OR 97420

RE: Egyptian Theatre Restoration Project - Phase 1

Dear Jennifer,

KPFF has been retained by the City of Coos Bay to assist with the Phase 1 rehabilitation of the Historic Egyptian Theatre in Coos Bay, Oregon. The Egyptian Theatre was designated as a dangerous building, per the City of Coos Bay Municipal Code Section 15.15, and closed in March of 2011, following a structural evaluation effort by ZCS Engineering, Inc. Our Phase 1 scope of work for the Egyptian Theatre rehabilitation included a site visit and assessment to determine the necessary structural upgrades to regain occupancy. This report summarizes our findings and recommendations for Phase 1 structural improvements.

DOCUMENT REVIEW

We have reviewed the following documents from previous studies:

- "Facilities Improvement Evaluation Report", by ZCS Engineering Inc., dated December 2010
- As-Built drawings by ZCS, undated, including A1.1, A1.2, A1.3, A2.1, A2.2, A3.1, A4.1, A4.2, S1.1, S1.2, S1.3, S2.1, S2.2, and SX.X.
- "Structural Study of the Building", by Pinnacle Western Inc., dated September 22, 2008
- "Geotechnical Study-Rehabilitation of the Egyptian Theatre" by Pinnacle Western Inc., undated

We have also reviewed correspondence between the City of Coos Bay, The Egyptian Theatre Preservation Association, and ZCS related to previous assessments and the closure of the Theatre.

SITE AND BUILDING DESCRIPTION

The Egyptian Theatre is a multi story structure with an approximately 10,500 square foot footprint, located at 229 South Broadway in Coos Bay, Oregon. Built around 1922, it originally served as a highway garage, until it was remodeled as a silent motion picture theatre in 1925. Significant structural renovations during the theatre conversion included the addition of the fly loft, stage, mezzanine, balcony seating, and projector booth. In 2010, it was listed on the National Register of Historic Places.

111 SW Fifth Avenue, Suite 2500 Portland, OR 97204-3628 (503) 227-3251 Fax (503) 227-7980
Seattle Tacoma Portland Eugene San Francisco Sacramento Los Angeles Irvine San Diego Phœnix St. Louis New York

The Egyptian Theatre is a wood framed structure with concrete exterior bearing walls and frames. The theatre is approximately 125 feet in the north/south direction and 73 feet in the east/west direction, and is located between two smaller buildings. It is not known whether the exterior walls along the north and south sides are common walls. The theatre ticket booth, lobby, and concessions stand is located on the east end of the theatre, on Broadway Street. The Stage is located on the west end, on 2nd Street. Additional information regarding the floor plan and structural framing configuration of the theatre can be found in the ZCS report.

The foundation type for the structure is unknown, but is assumed to be timber piles. Timber piles have historically performed poorly in marine environments, due to tidal fluctuations and deterioration.

SITE OBSERVATIONS

On July 18, 2012, KPFF performed a site visit to observe the framing conditions and extent of structural distress as noted in the ZCS report. At this time, we observed the settlement and cracking to help determine elements that could be unstable in the current condition. We also verified the size and configuration of roof framing members to perform "spot check" calculations of framing elements believed to be overstressed. It should be noted that our observations on site were limited to primary structural elements exposed to view. Many structural elements, such as the foundations and mezzanine floor framing, were not visible and thus could not be observed. Our site investigation was focused on deficient elements and conditions as identified in previous reports. Observations include the following:

- The stage floors slopes down toward the west exterior wall several inches.
- The west exterior wall appears to have settled and is leaning out of plumb to the west.
- There are several large cracks through the concrete and infill wall on the north and south sides. The cracks vary between 1/2" and 2" and appear to run the full height of the original exterior walls. The majority of cracking occurs between the west wall and the front of the stage. There does not appear to be any vertical displacement across cracks on the north and south walls. The north and south exterior concrete walls between the east exterior wall and front of the stage were not exposed to view, as they are still covered by the original plaster finish. Some cracking in the plaster was observed, but was not extensive enough to indicate significant wall distress east of the fly loft. Reinforcement of the pilasters is unknown, however, small ties were observed at one location where a pilaster was spalled.
- The first truss east of the fly loft is out of plumb, with the top chord leaning to the west. The roof beams east of the fly loft have remained with the main roof and have pulled off the west most main roof truss bearing points. Roof beams adjacent to this truss cantilever approximately 8 feet from vertical braces at mid-span.
- The roof truss immediately south of the fly loft was moved from its original concrete pilaster support location at the time the fly loft was built. It is now rests on a timber post placed in the in filled windows that bears on the concrete wall, over another section of infill. The concrete and infill has cracked full height. At the south end of this truss, there is a gap between the concrete bearing surface and the truss. At the east end of the building, the roof truss adjacent to the projection booth was moved and re-supported in a similar fashion. The supporting concrete structure at this truss was covered by the plaster finish, and we were unable to determine if there had been structural damage.
- The continuous timber beams at the edges of the stage mezzanines where once supported on three posts, one of which is rigidly attached to the west exterior wall. As the west wall has moved, these beams have pulled away from the post supports.

- There is water staining on the ceiling of the north corridor to the main theatre seating and on the north wall on the west side of the restroom mezzanine. It no longer appears to be leaking and it is unclear if there is related structural damage.

Based on our observations we believe the majority of structural distress at the Egyptian Theatre has been caused by the addition of the heavy fly loft walls, and the subsequent settlement of the foundation system and the resulting separation of the main roof and fly loft roof. We did not observe any evidence of recent settlement (last 10 years). The remaining deficiencies can be attributed to roof and floor framing that is inadequate to support current code loading and the relocation of the roof trusses.

BUILDING DEFICIENCIES

We have reviewed the "Facilities Improvement Evaluation Report" by ZCS, dated December, 2011. This comprehensive report identified structural deficiencies, as they relate to the dangerous building designation in the City of Coos Bay Municipal Code. The following deficient elements where listed in the ZCS report:

Gravity Framing Deficiencies

- Mezzanine lobby joists
- Truss top chord bracing
- Roof beams and joists (Joist stresses are less than 150% of allowable)
- Fly loft beams and joists (Joist stresses are less than 150% of allowable)
- Supports at relocated main roof trusses (adjacent to fly loft and projector booth)
- West exterior wall
- Mechanical mezzanine slab at north side of stage

Seismic Deficiencies

- Roof and floor sheathing for diaphragm loads
- Connection of roof trusses to walls to brace walls for out of plane loads
- Out of plane capacity of concrete pilasters
- In plane shear capacity of wall at west and east exterior walls
- Anchorage of canopy and sign
- Vertical irregularity at east wall of fly loft separating the main roof and fly loft attic
- Foundation system

Based on our site observations, we generally agree with the findings in the ZCS report.

The seismic deficiencies noted above are typical of a building of this vintage and type of construction. Since the period of construction, there have been significant advances in our understanding of seismic risk and building performance. Seismic upgrade work is typically only required by the Oregon Structural Specialty Code (OSSC) and municipal codes if a change in occupancy or an increase in structural demand occurs due to an alteration. Based on this information, the theatre would not require a mandatory seismic upgrade as part of the currently recommended modifications.

DANGEROUS BUILDING DESIGNATION

Per Chapter 15.15 of the City of Coos Bay Municipal Code, the following structural deficiencies define a dangerous building:

- Whenever stress from any load on any material, member or portion thereof is more than one and one-half times the working stress or stresses allowed under the building code for new buildings of similar structure, purpose, or location. (We believe this applies to gravity loads only.)
- Whenever any portion or member of a structure, or appurtenance thereof, is likely to fail, become detached or dislodged, or collapse and thereby injure persons or damage property.
- Whenever any portion of a building, or any member, appurtenance or ornamentation on the exterior thereof, is not of sufficient strength or stability, or is not so anchored, attached or fastened in place so as to be capable of resisting wind pressure of one-half that specified under the building code for new buildings of similar structure, purpose, or location without exceeding the working stresses permitted under the building code for such buildings.
- Whenever any portion of a building has cracked, warped, buckled, or settled to such and extent that walls or other structural portions have materially less resistance to wind or earthquake than is required for similar new construction.
- Whenever partial or total collapse of a building or structure, or any portion thereof, is likely because of dilapidation, deterioration, decay, faulty construction, or the removal, movement, or instability of any portion of the ground necessary for support of such building, or deterioration, decay or inadequacy of the foundation, or any other cause.
- Whenever, for any reason, a building or structure, or any portion thereof, is manifestly unsafe for the purpose to which it is being used.
- Whenever the exterior walls or other vertical structural members of a building list, lean, or buckle to such and extent that a plumb line passing through the center of gravity does not fall inside the middle one-third of the base.
- Whenever a building or structure, exclusive of the foundation, shows damage or deterioration to 33 percent of its supporting members, or damage or deterioration to 50 percent of its no-supporting members, enclosing outside walls and coverings.

RECOMMENDATIONS

Based on our limited structural evaluation, we generally agree with the structural deficiencies identified in the ZCS report, though we do not believe a full seismic upgrade is required to obtain occupancy per the OSSC. The majority of damage and movement appears to be isolated at the west end of the building and is likely due to the addition of the fly loft concrete walls and subsequent settlement. The other significant deficiencies include roof and floor framing members that are undersized for current code loading and the relocation of the two trusses. We recommend the following structural repairs:

- Add micro piles, pin piles, or helical piles along the west wall to prevent additional settlement. (Alternate stabilization schemes will also be studied.)
- Add vertical steel strong backs and braces to the west wall to stabilize the wall and anchor it to the fly loft roof diaphragm.
- Provide new plywood sheathing and blocking at the fly loft roof diaphragm to resist wall bracing loads of the west wall.

- Reinforce the fly loft roof beams with additional wood framing.
- Add structural steel brackets and plates to enhance support of the relocated trusses. (A post option will also be reviewed.)
- Add a wood ledger and new hanger supports at the roof beams where they have pulled away from the truss immediately south of the fly loft.
- Add (4) new roof beams to reduce loads on existing main roof wood beams. New beams will extend the length of the main roof.
- Add a steel beam and two posts below the mezzanine lobby to shorten the span of the existing mezzanine floor joists. (An alternate framing scheme will also be reviewed to avoid addition of posts.)
- Add continuous solid blocking between roof beams (existing and new) and the existing sheathing to improve truss top chord bracing.
- Remove the mechanical unit, CMU enclosure, and mechanical mezzanine slab at the north end of the stage. It is our understanding the unit is no longer in use. (This item may be deferred to a later phase of work.)

The proposed foundation improvements, steel framing at the west wall, and re-sheathing of the fly loft roof diaphragm not only stabilize the fly loft under gravity loads, but also mitigate several significant seismic deficiencies. Other voluntary seismic improvements can be implemented as part of Phase 1, as budget allows. These items include the augmenting the truss connections at concrete walls and re-sheathing the main roof diaphragm.

Although we do not believe a full seismic upgrade is required to obtain occupancy, we understand the City of Coos Bay has an interest in seismically strengthening the Egyptian Theatre on a voluntary basis to ensure occupant life safety and collapse prevention. Many jurisdictions allow for a phased approach with a predetermined time limit to complete voluntary seismic upgrade work. We believe a 5 to 7 year time frame to complete the seismic upgrade improvements is appropriate. We recommend that the City of Coos Bay take a similar approach by allowing a phased seismic upgrade of the Egyptian Theatre so the theatre be opened to provide a funding source for seismic improvements.

If you have any questions concerning the content of this assessment, please contact us.

Sincerely,

Rob Van Dyke, P.E.

Josh Richards, P.E., S.E.
Associate

RVD:kw
212024/Phase One Summary 08-10-12.docx

From: Rich Foster <rich@cascadiapartnership.com>
Sent: Wednesday, June 20, 2012 2:42 PM
To: Jennifer Wirsing
Cc: Joyce Jansen; Jim Hossley; rogerst@rosenet.net; Mike Smith
Subject: RE: Grant Money

Jennifer:

The capital campaign plan for Phase I is relying heavily on private foundations who, generally will not have concerns about the level of seismic upgrades beyond that it reflects a safe environment that will allow the ETPA to obtain an occupancy permit. There are some government grants that I have written in the past that have higher levels of seismic upgrade requirements but they have generally been for projects that house emergency response and/or involved public safety concerns. I do not anticipate us approaching these funding sources for this project. A more likely scenario is that we will approach some governmental funders who focus on historic preservation and will have requirements centered around maintaining the structural and architectural integrity of the building. So in summary, I believe if we use a standard that will allow the City to issue an occupancy permit to the ETPA and maintain the historic character of the building, I think we will be fine with the grant-makers we are approaching.

Please let me know if you need any additional information on this subject.

Best wishes,

Rich

-----Original Message-----
From: Jennifer Wirsing [mailto:jwirsing@coosbay.org]
Sent: Wednesday, June 20, 2012 1:46 PM
To: rich@cascadiapartnership.com
Cc: Joyce Jansen; Jim Hossley; Tom Rogers (rogerst@rosenet.net); Mike Smith
Subject: Grant Money

Hello Rich,
My name is Jennifer and I am working with Joyce on the Egyptian Theatre Restoration Project. We have hired KPFF to review the existing ZCS report and provide recommendations to complete the Phase 1 portion of the restoration. We have also hired Tom Rogers to assist with the structural review and aid the City during this process. Tom has brought up an item that we wanted to discuss with you since I am told you are the one to talk to where funding is concerned. As stated previously, KPFF is reviewing the ZCS report to work with the City to determine what upgrades need to occur for Phase 1. It is the general consensus that since we are not changing occupancy then we do not need to do a full scale seismic upgrade per the ZCS report. However, it has been Tom's experience that if we are going for Grant money and the money is state or federal funded, then we may be subject to a higher design criteria or that the grant dollars may dictate the level of upgrade. Do you have any thoughts on this issue. The City has, in the past, fell subject to this with Grant money on other projects and we

thought that Tom's concern was valid. Any information that you could provide us on this issue would be greatly appreciated.
Regards,
Jennifer

Jennifer Wirsing – Engineering Service Coordinator
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