SEISMIC EVALUATION

March 25, 2021

San Luis Obispo Police Department

1042 Walnut Street

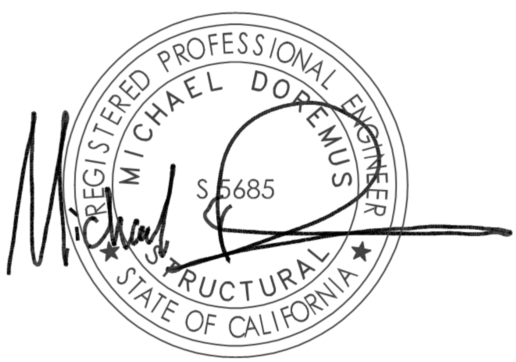
San Luis Obispo, CA 93401

Prepared for: **San Luis Obispo Police Department**

Prepared by: Jessica Meadows, SE

Under Responsible Charge Of: Michael Doremus, SE

RRM Project #0596-02-CI18



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1. Scope and Intent

1.1. Introduction

Per request of the San Luis Obispo Police Department in an email dated March 9th, 2021, RRM Design Group has performed a Seismic Evaluation Report of the San Luis Obispo Police Department located at 1042 Walnut Street, San Luis Obispo, CA 93401.

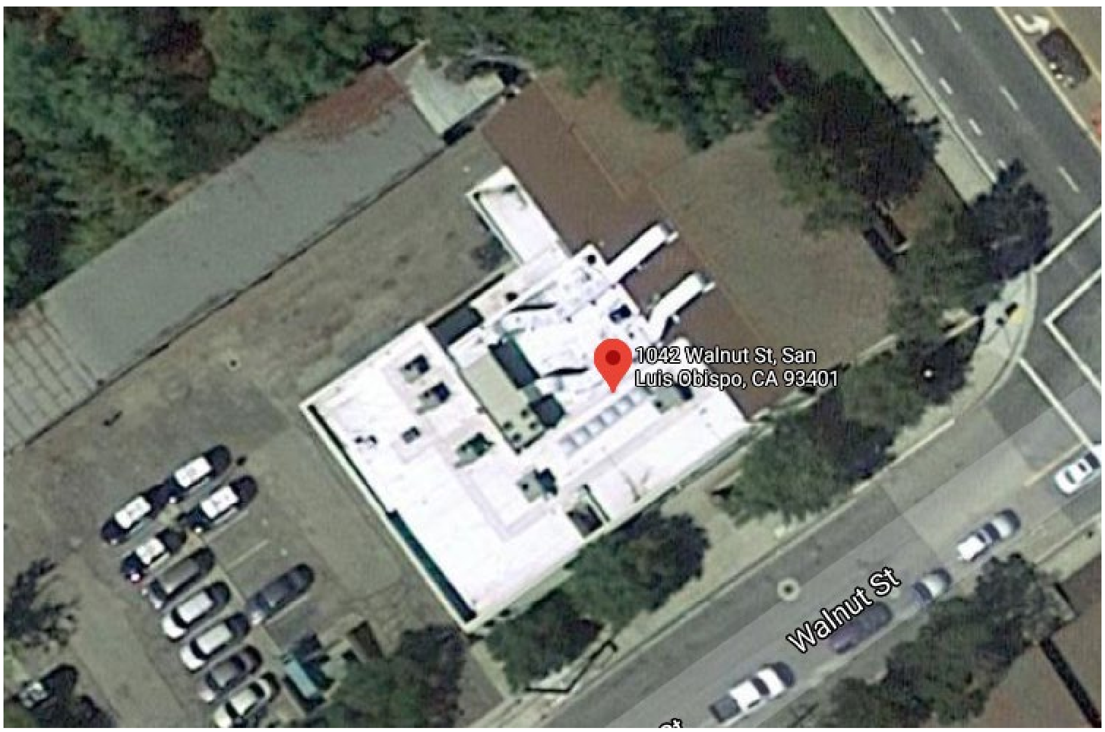


Figure 1: Google Maps View of Property

1.2. Purpose

The purpose of this report is to provide a seismic evaluation of the existing structure and ascertain compliance with a selected Performance Objective (for a summary of Performance Objectives see section 2.6. This report applies to the overall structural system(s) of a building, as well as its non-structural components, including ceilings and partitions.

The purpose of this report is NOT to determine compliance with or provide recommendations for compliance with the current building code. Codes for new construction are primarily intended to regulate the design and construction of new buildings; as such, they include many provisions that encourage or require the development of designs with features important for good seismic performance, including regular configuration, structural continuity, ductile detailing, and materials of appropriate quality. Many existing buildings were designed and constructed without these features and contain characteristics, such as unfavorable configuration and poor detailing, that preclude application of regulatory or building code provisions for their seismic evaluation or retrofit.

1.3. Scope

The broad scope of this report is a Tier I Screening evaluation in accordance with the 2017 publication by the American Society of Civil Engineers - *Seismic Evaluation and Retrofit of Existing Buildings* (ASCE 41-17). ASCE 41-17 is a standard intended to serve as a nationally applicable tool for design professionals undertaking the seismic evaluation or retrofit of existing buildings. Involved in a Tier I Screening are the following tasks:

- Selection of a Performance Objective
- Define Building Performance Levels
- Obtain As-Built Information
- Perform a visual observation of the structure
- Preparation of a Tier I Evaluation Report identifying seismic deficiencies

Per the Alquist Priolo Special Studies Zone Act, buildings constructed prior to 1972 may remain as originally constructed, unless they undergo a major building remodel where more than 50% of the building changes. In that case, the building would have to be structurally retrofit to meet the current building code.

2. Site and Building Data

2.1. General Building Description

The subject property is located at 1042 Walnut Street in San Luis Obispo, CA 93401. The Police Station was originally constructed in 1968 and had two additions constructed in 1983 and 2002. There was also a metal building added in 1980 in the area of the existing parking lot. The original facility was a two-story building, with 4,702 sf first level and 5,194 sf second floor for a total of 9,896 sf. The 1983 addition added 2,093 sf at the first level and 3,290 sf at the second level for a total additional square footage equal to 5,373. The 2002 addition for women's locker room added

350 sf to the second level. The current total square facility square footage is 15,619 sf.

As referenced by the ASCE 41-17 and defined by the 2019 California Building Code, the Risk Category for this building is defined as IV. This includes buildings designated as Essential Facilities. Per the 1986 Essential Services Building Seismic Safety Act, police stations are required to be functional after a disaster.

2.2. Structural System Description

The original building was constructed with 8" and 10" thick reinforced concrete walls at the lower levels, and 8" fully grouted and reinforced masonry walls at the upper levels. The roof is framed with timber purlins, structural sheathing over 2x6 T&G decking, and steel support beams. The floor is a 5½" thick reinforced concrete flat plate.

The 1983 addition was constructed with 8" fully grouted and reinforced masonry walls at the lower level, 2x6 exterior wood stud walls at upper level and 2x4 interior wood stud bearing walls. Both the roof and floor framing are comprised of timber open web joists with steel webs, and small areas framed with dimensional lumber. Where the addition is not supported by the original construction, ½" plywood sheathed shear walls are the lateral system. The 2002 addition was constructed with timber roof framing, and wood stud walls. Neither of these additions were built with a seismic gap to the original structure.

The foundation for each of the building phases are shallow foundations, The 1983 addition does have annotations that the pad footings must be embedded 6" minimum into the bedrock. The original construction, and the 1983 addition have basement retaining walls along Walnut Street and Santa Rosa Street (plan South and plan East). Each phase of the project calls for a 4" thick concrete slab on grade for the lower levels.

2.3. Existing Building Drawings

Existing drawings were available and are as follows:

- Police Facility City of San Luis Obispo dated June 28, 1968
  - Architectural Drawings by John R. Ross & Associates, Inc.
  - Structural Drawings by Robert E. Jones
  - MEP drawings by Richard M. Gurries & Jack D. Todd
- San Luis Obispo Police Department Facility approved January 11, 1983
  - Architectural Drawings by MDW Associates

  - Structural Drawings by Howard Stup & Associates
  - Mechanical Drawings by Al Nibecker & Associates
  - Electrical Drawings by Corneilious Engineering

- San Luis Obispo Police Department Woman's Locker Room Addition dated November 7, 2002
  - Architectural Drawings by RRM Design Group
  - Structural Drawings by C.M. Hanif Engineering
  - Mechanical Drawings by Al Nibecker & Associates
  - Electrical Drawings by Gregg E. Miller & Associates

2.4. On Site Investigation and Condition Assessment

A Tier I screening requires an on-site investigation to be conducted to verify general conformance of existing conditions to those described in available documents, to identify significant alterations or deviations from available documents, to supplement incomplete documents, to confirm the general quality of construction and maintenance, and otherwise as needed to complete the applicable Tier I checklist.

RRM performed an on-site investigation of the site on March 18, 2021. The walk-through was performed by Jessica Meadows, SE (RRM Design Group).

At the project site, a majority of the structural elements were covered with architectural finishes and were not visible. Portions of the 1968 timber framed roof were exposed in the offices. The framing was observed to be in accordance with the record drawings noted above.

2.5. Building Type(s)

ASCE 41-17 requires that the building be classified as on or more Common Building Type listed in Table 3-1 based on the seismic force resisting system and diaphragm type. Separate building types may be used for buildings with different seismic force resisting systems in different directions.

- W2: Wood Frames, Commercial and Industrial
- C2: Concrete Shear Walls with Stiff Diaphragms
- RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms

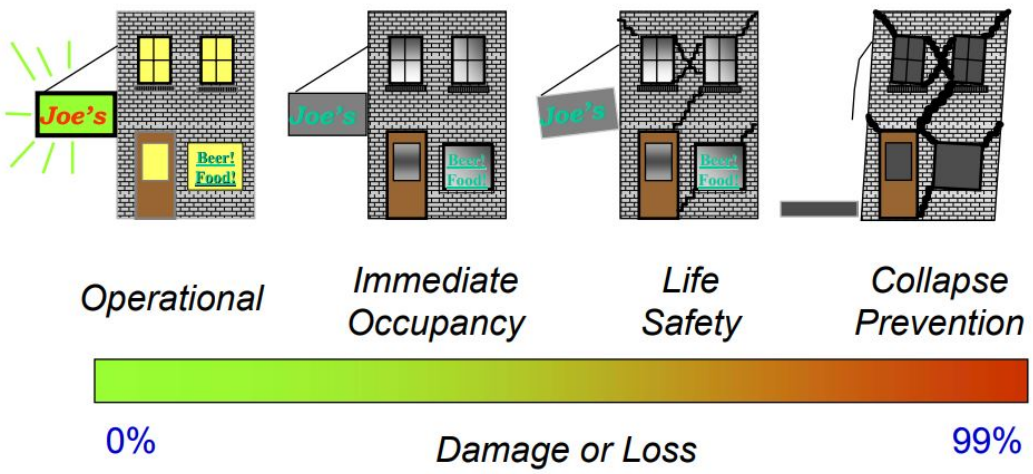
It should be noted that the building has multiple types of lateral force resisting systems, with no seismic separation. These systems will have different behaviors during a seismic event, and there is risk of pounding between buildings. This pounding has the potential to damage the buildings and architectural finishes.

2.6. Performance Objective

ASCE 41-17 defines four building performance levels. These target building performance levels are (in order from highest to lowest performance):

- Operational (1-A)
- Immediate Occupancy (1-B)
- Life Safety (3-C)
- Collapse Prevention (5-D)

These performance levels are best visualized through the following figure:



These performance levels are directly related to the extent of damage that would be sustained by the building and its systems in the seismic event. Building Performance can qualitatively be described in terms of:

- The safety afforded to building occupants during and after the event
- The cost and feasibility of restoring the building to its pre-earthquake condition
- The length of time the building is removed from service to effect repairs
- Economic, architectural, and historic effects on the larger community.

Because this is intended to function as an Essential Services Facility, a Basic Performance Objective of Immediate Occupancy has been chosen. Note that this is the target Performance Level, not the Performance expected in the buildings current state. This selection is tied to the building Risk Category in ASCE 41-17, Table 2-1 and Table 2-2. A level of Operational Building Performance Level performs to the level of Immediate Occupancy Structural Performance level and the nonstructural components shall meet a level of Operations. These nonstructural components include existing architectural, mechanical, and electrical components and systems that are permanently installed in the building. Per Chapter 13 of ASCE 41-17, a level of Operational for these elements must conform to the current ASCE 7, Chapter 13. Given the age of construction, and traditional methods of anchoring those systems, these items would not meet the current code. However, after a disaster, these systems are not required in order for the Police Department to assist and serve the public. Any architectural, mechanical, and electrical elements that must function after a disaster should be upgraded to meet the Operational threshold.

Buildings that meet the target performance level of Immediate Occupancy are expected to sustain minimal or no damage to their structural elements and only minor damage to their non-structural components. Although it would be safe to reoccupy a building meeting this target performance level immediately after a major earthquake, nonstructural systems might not function because of lack of electrical power or internal damage to equipment. Therefore, although immediate re-occupancy of the building is possible, it might be necessary to perform some cleanup and repair and await the restoration of the utility service before the building can function in normal mode.

In order to achieve a performance level of immediate occupancy for a Risk Category IV building the seismic hazard level shall be BSE-1E as defined in Table 2-2 of ASCE 41-17. BSE-1E is a seismic hazard with a 20% probability of exceedance in 50 years (20%/50-year) multiplied by a risk coefficient. The resulting MCE_R ground motion, which can be larger or smaller than the 20%/50-year values, is such that new buildings designed by the IBC/CBC for that ground motion have a 1% probability of collapse in ten years.

2.7. Level of Seismicity

The level of seismicity of a building is the degree or expected seismic hazard. In accordance with ASCE 41-17, levels are categorized as very low, low, moderate, or high based on mapped acceleration values and site amplification factors.

Table 2-5. Level of Seismicity Definitions

Level of Seismicity[a]	S_{DS}	S_{D1}
Very low	<0.167 g	<0.067 g
Low	≥0.167 g <0.33 g	≥0.067 g <0.133 g
Moderate	≥0.33 g <0.50 g	≥0.133 g <0.20 g
High	≥ 0.50 g	≥0.20 g

[a]The higher level of seismicity defined by S_{DS} or S_{D1} shall govern.

Figure 2:ASCE 41-17 Table 2-5

The mapped value of S_{DS} = 0.762 and S_{D1}=0.499, therefore the project is located in a site with high seismicity. This is to be expected given the projects location on the Central Coast of California.

3. Deficiencies

3.1. General Deficiencies

3.1.1. Second Floor Concrete Slab

The floor slab is a 5½" thick concrete slab, spanning in a single direction. The slab has reinforcement noted top and bottom, which is unusual for such a thin slab section. In areas this slab has spans on the order of 14'-0". This is a major structural concern for the occupancy live loading of 100 psf in the lobby and corridor areas.

3.1.2. Exterior timber framing

The timber framing that extends to the exterior of the building is showing signs of damage from exposure. This damage extends into the main span of the framing, which would compromise the strength of the member.

3.2. Noted Tier 1 Checklist Deficiencies

The following is a list of lateral resisting element deficiencies based on a review of the existing drawings and visual observation at the site of the existing structural elements. These deficiencies were noted in accordance with the checklists of ASCE 41-17. A full summary of the checklists can be found in the Appendix. Note that this checklist is limited to items that could be visually observed at the site or shown in the existing documentation and drawings available.

3.2.1. Basic Configuration Deficiencies

The following items pertain to the basic configuration of the building.

3.2.1.1. Load Path

The existing drawings for the 1983 timber addition do not have proper connections of the stud walls to the diaphragms. The depicted configuration shows that the only restraint at the floor is the sheathing, acting in tension. The roof connection does not reflect how the 4x10 ledger is attached to the stud wall, and there is minimal restraint for out of plane wind loading. In addition, there are no out of plane tie connection between the heavy masonry walls and the floor open web trusses.

3.2.1.2. Adjacent Building

Neither of the additions to the original building were built with a seismic gap. This will cause pounding between the different structural lateral force resisting systems, as the structural behavior of each system will differ dramatically.

3.2.1.3. Mezzanines

There is a mechanical mezzanine at the 1968 building, without a lateral system to support it. The mezzanine falls in the middle of the building, and is constructed as concrete filled metal deck, support by steel wide flanges and pipe columns.

3.2.1.4. Vertical Irregularities

At the 1968 building, the second level masonry walls do not stack over walls below on Line C. As the masonry walls are the lateral force resisting system, this constitutes a vertical irregularity.

3.2.1.5. Torsion

The building footprint is highly irregular, and it is likely the center of rigidity and the center of mass are offset more than 20%.

3.2.1.6. Overturning

The smallest shear wall pier at the foundation level is approximately 4'-0", with a height of 11'-0" (top of slab). This ratio exceeds 0.6 x S_a for the project site.

3.2.2. Building Type W2 Deficiencies

The following items pertain to the Wood frame building type.

3.2.2.1. *Redundancy*

The 1983 addition drawings show only a single shear wall on Line D, approximately 4'-0" long.

3.2.2.2. *Narrow Wood Shear Walls*

The height to width ratio of the 4'-0" long shear wall on Line D is 3.125. This exceeds the threshold limit of 2.

3.2.2.3. *Openings*

The existing drawings show a 3'-6" by 4'-6" opening at the roof diaphragm, with no additional bracing of the adjacent stud wall. There are no positive ties between the stud wall and the framing on either side of the opening. The wall that bounds the diaphragm opening is not a shear wall, and the shear wall that is in line with this element has a height-to-width ratio of over 3.

3.2.3. *Building Type C2 Deficiencies*

The following items pertain to the Concrete Shear Walls with Stiff Diaphragm type.

3.2.3.1. *Wall Anchorage at Flexible Diaphragm*

The 1968 building masonry walls are braced by a flexible diaphragm. The current connection at those walls is a single Simpson Strong-Tie A35 clip at 4'-0" to a 4x12 strut. That strut is not developed into the diaphragm beyond the first purlin bay. This connection is wholly inadequate for the forces induced by this configuration.

3.2.3.2. *Deflection Compatibility*

The column-bar splice is only $32d_b$ and has ties that exceed the $8d_b$ limit. The beam stirrups spacing exceeds d/2 in many instances.

3.2.3.3. *Flat slabs*

The bottom bars of the flat slabs splice at the beam/column intersections. The lap length is only 12".

3.2.3.4. *Confinement Reinforcing*

While there are no shear walls with height to width ratios that exceed 2-to-1, it should be noted that the is no confinement of boundary reinforcement at any of the shear walls.

3.2.3.5. *Diaphragm Continuity*

The diaphragm is not continuous at the roof level.

3.2.3.6. *Plan Irregularities*

The plan is highly irregular in layout. At some of the reentrant corners, two #6 bars are provided in the slab. But the application is not consistent across the entire diaphragm.

3.2.3.7. *Cross Ties*

The plan is highly irregular in layout. Chord bars are not provided at each lateral force resisting line, or each reentrant corner.

3.2.4. *Building Type RM1 Deficiencies*

The following items pertain to Reinforced Masonry Bearing Walls building type.

3.2.4.1. *Wall Anchorage*

The 1968 building masonry walls are braced by a flexible diaphragm. The current connection at those walls is a single Simpson Strong-Tie A35 clip at 4'-0" to a 4x12 strut. That strut is not developed into the diaphragm beyond the first purlin bay. This connection is wholly inadequate for the forces induced by this configuration. The 1983 building addition have no out of plane connection from the masonry walls to the flexible floor diaphragm.

3.2.4.2. *Wood Ledgers*

The only connection between the masonry walls and the flexible diaphragm is the plywood sheathing of the floor diaphragm. That would induce cross grain bending on the blocking and ledger at the top of the masonry wall.

3.2.4.3. *Transfer to Shear Walls*

The Simpson Strong-Tie A-35N connection between the floor diaphragm and the masonry shear walls is less than the strength of the diaphragm.

3.2.4.4. *Plan Irregularities*

There are no diaphragm reinforcements at locations of plan irregularities (i.e. openings in the diaphragm, or reentrant corners).

3.2.4.5. *Cross Ties*

Continuous ties between diaphragm chords are not present, except at the roof level. At the floor level, it would be assumed that the continuous chord tie is the double top plate of the wood wall framing. However, there is no indication what that minimum connection would have been.

3.2.4.6. *Stiffness of Wall Anchors*

The connection between the top of CMU exterior walls and the diaphragm is not indicated on the existing drawings and would require additional anchors from CMU wall to diaphragms for support of the CMU wall.

3.2.5. *Nonstructural*

3.2.5.1. *Equipment*

All equipment over 20 lbs and mounted to the wall or ceiling shall be positively anchored and braced, and all equipment 400 lbs or more mounted to the ground shall be anchored. Any ground mounted storage racks/cabinets over 4 feet tall shall be properly attached or braced.

3.2.5.2. *Piping*

Bracing of any overhead piping and any gas suspended more than 12" from the structure and over 2" in diameter, or less than 2" if carrying hazardous material, or if essential to the operation, shall be braced.

4. *Summary of Findings*

4.1. *Required Structural Retrofit Program*

If the existing building is to be modernized, or expanded with another addition, this assessment shall be advanced to a Tier 3 analysis. The Tier 3 analysis will provide the exact guidelines for the required retrofit tasks in order to meet the Immediate Occupancy performance level for this Risk Category IV building. However, the deficiency list above gives a general idea of what will need to be addressed during a retrofit. The required retrofit tasks will be very costly given the wide range of items that need to be addressed. The solutions would require opening up the diaphragms to add hardware, potentially applying fiber reinforced polymers (FRP) to the concrete and masonry walls to supplement the existing reinforcement and thickening the concrete slab to adequately support the current or proposed loading.

4.2. *Alternate Options for New Programming*

The building code assumes each building is designed for a 50-year lifespan (as referenced in ASCE 41-17 Commentary Section C2.2.1). This is directly tied to the risk of a building experiencing a code-level seismic hazard. The original facility has exceeded that 50-year timeframe. In addition, the field of earthquake engineering has drastically improved building design and detailing over that same period. As a result, this facility will require extensive retrofit to ensure that the building meets the requirements for Essential Services Buildings Seismic Safety Act of 1986 and is able to serve the public of San Luis Obispo and the greater area after a disaster. Coupled with any programing challenges from an architectural standpoint, it may be more reasonable to demolish this building and construct a new facility that meets the current code performance criteria.

Appendix

A.1.(Table 17-3) IMMEDIATE OCCPANCY BASIC CONFIGURATION CHECKLIST

Very Low Seismicity				
Building System				
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 0.5% of the height of the shorter building in low seismicity, 1.0% in moderate seismicity, and 3.0% in high seismicity. (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 shall not be less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. 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 shall not be 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)
Low Seismicity: Complete the Following Items in Addition to the Items for Very 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 do 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 located away from potential earthquake-induced slope failures or rockfalls so that it is 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)

Moderate and High Seismicity: Complete the Following Items in Addition to the Items for Low 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 0.6 Sa. (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)
C = Compliant, NC = Non-compliant, N/A = Not Applicable, U = Unknown				

A.2. (Table 17-6) IMMEDIATE OCCPANCY STRUCTURAL CHECKLIST FOR BUILDING TYPE W2: WOOD FRAMES, COMMERCIAL AND INDUSTRIAL

Very Low Seismicity				
Seismic-Force Resisting System				
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)
C	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than the following values (Commentary: Sec. A.3.2.7.1. Tier 2: Sec. 5.5.3.1.1): Structural panel sheathing 1,000 lb/ft Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft All other conditions 100 lb/ft
C	NC	N/A	U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)
C	NC	N/A	U	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used as shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building. (Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)
C	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)
C	NC	N/A	U	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor. (Commentary: Sec. A.3.2.7.5. Tier 2: Sec. 5.5.3.6.2)

C	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)
C	NC	N/A	U	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec. A.3.2.7.7. Tier 2: Sec. 5.5.3.6.4)
C	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)
Connections				
C	NC	N/A	U	WOOD POSTS: There is a positive connection of wood posts to the foundation. (Commentary: Sec. A.5.3.3. Tier 2: Sec. 5.7.3.3)
C	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)
C	NC	N/A	U	GIRDER/COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)

High Seismicity (Complete the Following Items in Addition to the Items for Low and Moderate Seismicity)				
C	NC	N/A	U	WOOD SILL Bolts: Sill bolts are spaced at 6 ft or less with acceptable edge and end distance provided for wood and concrete. (Commentary: Sec. A.5.3.7. Tier 2: Sec. 5.7.3.3)
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)
C	NC	N/A	U	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)
C	NC	N/A	U	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)
C	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)
C = Compliant, NC = Non-compliant, N/A = Not Applicable, U = Unknown				

A.3. (Table 17-25) IMMEDIATE OCCPANCY STRUCTURAL CHECKLIST FOR BUILDING TYPE C2: CONCRETE SHEAR WALLS WITH STIFF DIAPHRAGMS and C2a: CONCRETE SHEAR WALLS WITH FLEXIBLE DIAPHRAGMS

Very Low Seismicity				
Seismic-Force Resisting System				
C	NC	**N/A**	U	COMPLETE FRAMES: Steel or concrete frames classified as secondary components form a complete vertical-load-carrying system. (Commentary: Sec. A.3.1.6.1. Tier 2: Sec. 5.5.2.5.1)
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)
C	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less that the greater of 100 psi or $2\sqrt{f'c}$ (Commentary: Sec. A.3.2.2.1. Tier 2: Sec. 5.5.3.1.1)
C	NC	N/A	U	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area is not less than 0.0012 in the vertical direction and 0.0020 in the horizontal direction. The spacing of reinforcing steel is equal to or less than 18 in. (Commentary: Sec. A.3.2.2.2, Tier 2: Sec. 5.5.3.1.3)
Connections				
C	**NC**	N/A	U	WALL ANCHORAGE AT FLEXIBLE DIAPHRAGMS: Exterior concrete or masonry walls that are dependent on flexible diaphragms for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections have strength to resist the connection force calculated in the Quick Check procedures of Section 4.4.3.7. (Commentary: Sec. A.5.1.1, Tier 2: Sec. 5.7.1.1)
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of loads to the shear walls, and the connections are able to develop the lessor of the shear strength of the walls or diaphragms. (Commentary: Sec. A.5.2.1, Tier 2: Sec. 5.7.2)
C	NC	N/A	U	FOUNDATION DOWELS: Wall reinforcement is dowels into the foundation, and the dowels are able to develop the lesser of the strength of the walls or the uplift capacity of the foundation. (Commentary: A.5.3.5, Tier 2: Sec. 5.7.3.4)
Foundation System				
C	NC	N/A	U	DEEP FOUNDATIONS: Piles and piers are capable of transferring the lateral forces between the structure and the soil. (Commentary: Sec. A.6.2.3)
C	NC	**N/A**	U	SLOPING SITES: The difference in foundation embedment depth from one side of the building to another does not exceed one story. (Commentary: Sec. A.6.2.4)
Low Seismicity: Complete the Following Items in Addition to the Items for Very Low Seismicity.				
Seismic-Force Resisting System				
C	**NC**	N/A	U	DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components and are compliant with the following items in Table 17-23: COLUMN-BAR SPLICES, BEAM-BAR SPLICES, COLUMN-TIE SPACING, STIRRUP SPACING, and STIRRUP AND TIE HOOKS. (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)
C	NC	N/A	U	COUPLING BEAMS: The ends of both walls to which the coupling beam is attached are supported at each end to resist vertical loads caused by overturning. Coupling beams have the capacity in shear to develop the uplift capacity of the adjacent wall. (Commentary: Sec. A.3.2.2.3. Tier 2: Sec. 5.5.3.2.1)
C	NC	N/A	U	OVERTURNING: All shear walls have aspect ratios less than 4-to-1. Wall piers need not be considered. (Commentary: Sec. A.3.2.2.4, Tier 2: Sec. 5.5.3.1.4)
C	NC	N/A	U	CONFINEMENT REINFORCING: For shear walls with aspect ratios greater than 2-to-1, the boundary elements are confined with spirals or ties with spacing less than 8db. (Commentary: Sec. A.3.2.2.5. Tier 2: Sec. 5.5.3.2.2)
C	NC	N/A	U	WALL REINFORCEMENT AT OPENINGS: There is added trim reinforcement around all wall openings with a dimension greater than three times the thickness of the wall. (Commentary: Sec. A.3.2.2.6. Tier 2: Sec. 5.5.3.1.5)
C	NC	N/A	U	WALL THICKNESS: Thicknesses of bearing walls are not less than 1/25 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.2.7. Tier 2: Sec. 5.5.3.1.2)
Diaphragms (Stiff or Flexible)				
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)
C	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 15% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)
C	NC	N/A	U	PLAN IRREGULARITIES: There is tensile capacity to develop the strength of the diaphragm at reentrant corners or other locations of plan irregularities. (Commentary: Sec. A.4.1.7. Tier 2: Sec. 5.6.1.4)
C	NC	N/A	U	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)
Flexible Diaphragms				
C	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)
C	NC	N/A	U	STRAIGHT SHEATHING: All straight-sheathed diaphragms have aspect ratios less than 1-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 12 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHGRAMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 30 ft and aspect ratios less than or equal to 3-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	NONCONRETE FILLED DIAPHRAGMS: Untopped metal deck diaphragms or metal deck diaphragms with fill other than concrete consist of horizontal spans of less than 40 ft and have aspect ratios less than 4-to-1. (Commentary: Sec. A.4.3.1. Tier 2: Sec. 5.6.3)
C	NC	N/A	U	OTHER DIAPHRAGMS: Diaphragms do not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)

Connections				
C	NC	N/A	U	UPLIFT AT PILE CAP: Pile caps have top reinforcement, and piles are anchored to the pile caps; the pile cap reinforcement and pile anchorage are able to develop the tensile capacity of the piles. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)
C = Compliant, NC = Non-compliant, N/A = Not Applicable, U = Unknown				

A.4. (Table 17-35) IMMEDIATE OCCPANCY STRUCTURAL CHECKLIST FOR BUILDING TYPES RM1: REINFORCED MASONRY BEARING WALLS WITH FLEXIBLE DIAPHRAGMS AND RM2: REINFORCED MASONRY BEARING WALLS WITH STIFF DIAPHRAGMS

Very Low Seismicity				
Seismic-Force Resisting System				
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)
C	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than 70 lb/in. 2. (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)
C	NC	N/A	U	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)
Connections				
C	NC	N/A	U	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections have strength to resist the connection force calculated in the Quick Check procedure of Section 4.4.3.7. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls, and the connections are able to develop the lesser of the shear strength of the walls or diaphragms. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)
C	NC	N/A	U	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation, and the dowels are able to develop the lesser of the strength of the walls or the uplift capacity of the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)
C	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)
Foundation System				
C	NC	N/A	U	DEEP FOUNDATIONS: Piles and piers are capable of transferring the lateral forces between the structure and the soil. (Commentary: Sec. A.6.2.3)

C	NC	N/A	U	SLOPING SITES: The difference in foundation embedment depth from one side of the building to another shall not exceed one story high. (Commentary: Sec. A.6.2.4)
Low, Moderate and High Seismicity: Complete the Following Items in Addition to the Items for Very Low Seismicity.				
Seismic-Force Resisting System				
C	NC	N/A	U	REINFORCING AT WALL OPENINGS: All wall openings that interrupt rebar have trim reinforcing on all sides. (Commentary: Sec. A.3.2.4.3. Tier 2: Sec. 5.5.3.1.5)
C	NC	N/A	U	PROPORTIONS: The height-to-thickness ratio of the shear walls at each story is less than 30. (Commentary: Sec. A.3.2.4.4. Tier 2: Sec. 5.5.3.1.2)
Diaphragms (Stiff or Flexible)				
C	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 15% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)
C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 4 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)
C	NC	N/A	U	PLAN IRREGULARITIES: There is tensile capacity to develop the strength of the diaphragm at reentrant corners or other locations of plan irregularities. (Commentary: Sec. A.4.1.7. Tier 2: Sec. 5.6.1.4)
C	NC	N/A	U	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)
Flexible Diaphragms				
C	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)
C	NC	N/A	U	STRAIGHT SHEATHING: All straight-sheathed diaphragms have aspect ratios less than 1-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 12 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 30 ft and aspect ratios less than or equal to 3-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)
C	NC	N/A	U	NONCONCRETE FILLED DIAPHRAGMS: Untopped metal deck diaphragms or metal deck diaphragms with fill other than concrete consist of horizontal spans of less than 40 ft and have aspect ratios less than 4-to-1. (Commentary: Sec. A.4.3.1. Tier 2: Sec. 5.6.3)
C	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)

Connections				
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)
C = Compliant, NC = Non-compliant, N/A = Not Applicable, U = Unknown				

References

1.1. Referenced Standards

The following Design and Reference Standards were used in the creation of this report

- ASCE 41-17, "Seismic Evaluation and Retrofit of Existing Buildings" by the American Society of Civil Engineers

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Police Headquarters Replacement

Conceptual Project Budget

Renovation of Existing

A. Building - Existing Renovation

Building Total Renovation **(Not Full Code Level for New)**:	15,619	sf			*ASCE 41 Level*
Building Square Footage Total:	**15,619**	**sf**	**$500**	**$7,809,500**	Budget
Second Floor Concrete Slab			Deflection Compatibility		
Exterior Timber Framing			Flat Slabs - Not enough Lap		
Seismic Separation			Confinement Reinforcing		
Load Path -Seismic Restraint			Diaphram Continuity		
Adjacent Building Wood and Concrete side by side			Plan Irregulariies		
Mezzanine Attachment			Cross Ties		
Vertical Irregularities - Stacking issues			Wall Anchorage		
Torsion			Wood Legers		
Narrow Wood Shear Walls			Transfer to Shear Walls		
Redundancy			Stiffness of Wall Anchors		
Narrow Wood Shear Walls			Equipment		
Opening - Roof Diaphram			Piping		
Wall Anchorage at Flexible Diaphram					
Increase in Electrical and Mechanical for new Code			Accessibility Upgrades		
			Elevator		

New Building Area Needed - Not Included

New Building Total (If Added):	23,071	sf			
Building Square Footage Total:	**23,071**	**sf**	**$700**	*$16,149,700*	Not Included

cost per square foot: *$700*

Based on recent public safety bids and budgets

B. Equipment and Furnishings

	QUANT	UNIT	COST	TOTAL	SOURCE
Building and Site Equipment	1	LS	$950,000	$475,000	
Building and Site Furnishings	1	LS	$665,000	$332,500	
FF&E Design Contingency (10% of budget)	10%	%	$807,500	$80,750	
			Equipment and Furnishings Subtotal:	**$888,250**	

C. On-Site Improvements

	QUANT	UNIT	COST	TOTAL	SOURCE
Fuel Tank	1	LS	$35,000	$35,000	
Emergency Generator	1	LS	$150,000	$150,000	
Site Improvements - Underground Storm water Storage	1	LS	$50,000	$50,000	Allowance
Covered Outdoor Storage - Evidence	0	SF	$140	$0	
Evidence Garage	0	SF	$400	$0	
Motorcycle Garage - In Parking Structure	0	SF	$350	$0	
APV Storage	0	SF	$350	$0	
Outdoor Explosive Storage	0	SF	$350	$0	
Covered Bike Rack Cage - in parking strucutre	0	SF	$140	$0	
K-9 Kennel	0	SF	$140	$0	
Site Improvements Including:	40,000	SF	$45	$1,800,000	
Site Final Grading and Pad Preparation				$0	
Site Drainage				$0	
Concrete Aprons				$0	
Asphaltic Paving				$0	
Curbs				$0	
Utilities and Lighting				$0	
Specialty Paving				$0	
Landscape and Irrigation				$0	
Perimeter Site Walls-Masonry/Decorative Fencing				$0	
Site Gate				$0	
Trash Enclosure				$0	
Site Retaining Walls	200	LF	$950	$190,000	Half Original Design
On-Site Design Contingency (10% of budget)	10%	%	$2,035,000	$203,500	

City of San Luis Obispo — *April 14, 2021*

Police Headquarters Replacement

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$655			*On-Site Improvements Subtotal:*	**$2,428,500**	

C.1. Parking Structure

	QUANT	UNIT	COST	TOTAL	SOURCE
Concrete Parking Structure	120	Spaces	$35,000	$4,200,000	
Building Area Concrete Podium Over Parking	0	Spaces	$35,000	$0	
Excavation for Underground Parking	1	LS	$150,000	$150,000	
Entry Gate	2	LS	$18,000	$36,000	
Parking Structure Contingency (10% of budget)	10%	%	$186,000	$18,600	
$805			*Parking Structure Subtotal:*	**$0**	Not Included

D. Off-Site Improvements - Site Specific

	QUANT	UNIT	COST	TOTAL	SOURCE
Driveway Cuts	450	SF	$50	$22,500	
Street Frontage Improvements	0.50	LS	$200,000	$200,000	
Off-Site Contingency (10% of budget)	10%	%	$222,500	$22,250	
			Off-site Improvements Subtotal:	**$244,750**	

E. Fees

	QUANT	UNIT	COST	TOTAL	SOURCE
Arch/Engineering (Phase 2)	12%	%	$10,482,750	$1,257,930	Budget
Arch/Engineering (Phase 3)	0	LS	$1,041,467	$0	Budget
Arch/Engineering (Phase 4)	0	LS	$254,265	$0	Budget
Arch/Engineering (Phase 5)	0	LS	$129,950	$0	Budget
LEED™ Design, Certification	1	LS	$50,000	$50,000	Budget
Geotechnical Investigation	1	LS	$60,000	$60,000	Budget
Utility Hook-up Fees	0	LS	$25,000	$0	Budget
Materials Testing and Special Inspection	1	LS	$100,000	$50,000	Budget
Construction Management (Items A, C, D)	5%	%	$10,482,750	$524,138	Budget
Fee Contingency (10%)	10%	%	$1,942,068	$194,207	Budget
			Fees Subtotal:	**$2,136,274**	

F. Owner Systems, Administration and Contingency

	QUANT	UNIT	COST	TOTAL	SOURCE
City Administration Cost	1	LS	$200,000	$200,000	Budget
Police Administration Cost	1	LS	$200,000	$120,000	Budget
Planning Dept.- CUP, Design Review, CEQA*	0.5%	%	$10,238,000	$51,190	City
Building Dept.-Permit Fees*	1.0%	%	$10,238,000	$102,380	City
School Impact Fees-(Commercial)	0.5%	%	$10,238,000	$51,190	City
Site Acquisition Costs	0	LS	$0	$0	City
Moving Costs	1	LS	$10,000	$10,000	Budget
Communications					
Radio Tower	0.7	LS	$150,000	$105,000	Budget
Phone System	0.7	LS	$200,000	$140,000	City
Radio System	0.7	LS	$250,000	$175,000	City
Data Systems	0.7	LS	$350,000	$245,000	City
Security System/Cameras	0.7	LS	$90,000	$63,000	City
Demolition of Exiting Buildings	1	LS	$200,000	$140,000	Budget
Relocation of Blue House	1	LS	$35,000	$35,000	Budget
Project Phasing - Temporary parking facilities	0	LS	$100,000	$0	Budget
Project Phasing - general conditions cost, extended	4%	%	$0	$0	Budget
Owner System Contingency (10% of budget)	10%	%	$1,437,760	$143,776	Budget
Construction Contingency (10% of A, C, D)	10%	%	$10,482,750	$1,048,275	Budget
			Owner Systems, Administration and Contingency Subtotal:	**$2,629,811**	

City of San Luis Obispo *April 14, 2021*

Police Headquarters Replacement

Conceptual Project Budget

Contract Division Totals:

A. Building:	$7,809,500
B. Equipment and Furnishings	$888,250
C. On-Site Improvements	$2,428,500
C.1 Parking Structure	$0
D. Off-site Improvements	$244,750
E. Fees	$2,136,274
F. Owner Systems, Administration and Contingency	$2,629,811
Contract Division Subtotal:	**$16,137,085**
G. Market Escalation (6.5% per year) to mid-point of Construction - 2 Year Est.	$2,097,821
Conceptual Project Budget:	**$18,234,906**

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