CAPITOL COMPLEX MASTER PLAN

FINDINGS & RECOMMENDATIONS (F & R) NEEDS ASSESSMENT

GRAND JUNCTION STATE SERVICES BUILDING, 222 SOUTH 6TH STREET (GRAND JUNCTION)

NOVEMBER 2014

RNL

FINDINGS & RECOMMENDATIONS (F&R) NEEDS ASSESSMENT

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November 2014

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EXECUTIVE SUMMARY

The purpose of this report is to provide a Findings & Recommendations (F&R) Needs Assessment of the Grand Junction State Services Building at 222 South 6th Street in Grand Junction, Colorado. The report includes a description and evaluation of the existing conditions, recommendations, and cost estimates for the recommended work from the following focus areas: architecture (RNL), structural (Martin/Martin Consulting Engineers), civil (Martin/Martin Consulting Engineers), mechanical/electrical/plumbing (RMH Group), voice and data (Shen Milsom Wilke), security (Shen Milsom Wilke), and cost estimating (CBRE, Inc.). The project team, led by RNL, reviewed existing building documentation, drawings, and audit reports provided by the Owner, and conducted a site visit to identify and document the observable existing conditions of the building and its code and life safety issues.

In general the building is in fair condition. A fair condition rating refers to the fact that the Grand Junction State Services Building is usable but in serious need of repairs to address life safety and loss of use/reliability issues.

Although all recommendations presented in this report should be considered for implementation, the following are the top five priorities due to their impact on life safety (LS), loss of use/reliability (LOU), finishes (F), and overall energy efficiency:

1. Repair/replace parking lots/sidewalks. This recommendation encompasses life safety and loss of use/reliability issues and is due to the overall deterioration of the site pavement which is creating a potential tripping hazard.

   High Level Cost Estimate: $157,527

2. Replace roof. This recommendation encompasses loss of use/reliability issues and is due to the age and condition of the roof.

   High Level Cost Estimate: $220,378

3. Replace condensing unit. This recommendation encompasses loss of use/reliability issues and overall energy efficiency issues and is due to the age of the condensing unit.

   High Level Cost Estimate: $101,273

4. Upgrade lighting/add more controls. This recommendation encompasses loss of use/reliability issues and overall energy efficiency issues and is due to the age and condition of the T8 fluorescent fixtures and the building's current lighting control system which turns all lighting on at 5:30 a.m. and off at 9:30 p.m.

   High Level Cost Estimate: $996,129

5. Replace waterproof membrane along the foundation on the south side of the building. This recommendation encompasses loss of use/reliability issues and is due to the overall deterioration of the waterproof membrane.

   High Level Cost Estimate: $82,630

If all recommendations in this report are implemented as a single project, including the top 5 priorities, the high level cost estimate is:

$6,419,618

If all recommendations in this report are implemented system by system as multiple projects, including the top 5 priorities (systems), the high level cost estimate is:

$7,064,335

1.0 OVERVIEW

1.0-A ARCHITECTURE OVERVIEW

The Grand Junction State Services Building was constructed in 1983 and is located in Grand Junction, Colorado on the northeast corner of South 6th Street and Ute Avenue. The building currently serves as government office space for the State of Colorado's Department of Personnel & Administration, Department of Public Health & Environment, Department of Labor & Employment, Department of Local Affairs, Office of Administrative Courts, Department of Revenue, Department of Transportation, Department of Regulatory Agencies, and Department of Natural Resources. The Grand Junction State Services Building, consisting of a concrete and metal structure clad in brick, is a four-story building and grosses 52,000 square feet of space.

The architectural assessment of the Grand Junction State Services Building at 222 6th Street included reviews of the existing building documentation, drawings, and audit reports provided by the Owner, and a site visit to survey and document the existing conditions of the building and its code and life safety issues. During the site survey on November 13, 2013, building maintenance personnel provided building history and information on the layout, finishes, maintenance routines, systems, and the dates of repairs and upgrades. In general, the building is in fair condition. There are issues related to interior and exterior finish materials, building systems, code compliance, accessibility, and other items that require attention in the near term. One of the main concerns is related to the age and condition of the roof. Another concern is the overall deterioration of the waterproofing membrane along the foundation on the south side of the building. These concerns encompass loss of use/reliability issues. These findings, along with recommendations for repairs, are detailed in the body of this report.

1.0-B STRUCTURAL OVERVIEW

A building condition assessment was conducted on November 13, 2013 of the State Services Building located at 222 6th Street in Grand Junction, Colorado. The purpose of the condition assessment was to identify structural defects, damage and deterioration.

The four-story State Services Building was constructed in 1984. The structural framing consists of slab on metal deck supported by steel beams, steel girders and steel columns. The foundation system is unknown and construction drawings were not available.

The structural framing that was readily observable is in good condition. Minor cracking of the soffits and areas of deteriorated waterproofing were observed. Water that is allowed to penetrate to the structural walls and framing may cause additional deterioration if not repaired and maintained.

RF antennas were observed on the roof with no warning signs. Proper signage should be provided to avoid exposing people to harmful radiation.

Parapets along the roof edge were found to be of inadequate height. A fall protection system should be provided for access near exposed edges to meet current safety codes.

1.O-C CIVIL OVERVIEW

The Grand Junction State Services Building site is approximately 0.82 acres and is located at 222 South 6th Street in Grand Junction, Colorado. The existing site consists of the building, site landscaping, parking lot and street right-of-way including sidewalk and landscaping. The main building entrance is accessed from the parking lot on the north side. The condition of the site surrounding the building is consistent with an estimated age of 30+ years.

The site exterior is generally in poor condition. The main concern regarding the site is the condition of the asphalt in the parking lot. There are numerous locations around the building with broken and cracked asphalt in need of immediate repair or replacement. It is recommended that the entire site be re-paved to improve the surface drainage and maintain site posterity. There are also numerous locations on site of broken, cracked or heaved/settled concrete. Broken surfaces in ingress and egress paths are a tripping hazard and a high safety concern. While the existing building functions in its current state, improvements can be made to improve drainage, comply with regulations and enhance aesthetics.

1.0-D MECHANICAL, ELECTRICAL, AND PLUMBING OVERVIEW

The electrical and mechanical assessment of the Grand Junction State Services building included review of the existing building documentation, drawings, and audit reports provided by the Owner. A site survey for the facility was performed to observe the existing electrical and mechanical equipment installation and assess code and building energy efficiency issues. During the site survey, information about the building history and on the electrical and mechanical systems conditions, maintenance routines, and installation dates. The Grand Junction State Services building is a four story structure approximately 51,200 square feet constructed in 1983.

The main concern with this building is automatic lighting controls. Automatic lighting controls would ensure no energy is wasted by the lights being left on with the manual switches.

The main concern for mechanical systems is replacing the old central condensing unit; providing new ac units for telecom room and upgrading the fire pump room.

Energy Conservation

To conserve energy in this building a lighting control system that provides automatic daylight dimming and occupancy sensor shutoff will provide energy savings. Also, following the most up-to-date energy codes regarding how much light is used (watts per square feet) will reduce the number of fixtures required for each space. Supplemental task lighting can be used in each area to ensure occupants are able to perform their work effectively.

The new condensing unit will be more energy efficient thereby reducing the cooling energy costs. Providing premium efficiency motors for the fans will save fan energy costs. Investigating the possibility of providing exhaust energy recovery will help in saving heating and cooling energy costs.

1.0-E VOICE AND DATA OVERVIEW

The Voice and Data IT/Telecommunications Infrastructure assessment report provides recommendations for the design and construction of the IT/Telecommunications Infrastructure required to support Voice/Data and other technology systems within the Grand Junction State Services building for renovation projects. Much of the building's existing IT/Telecommunications infrastructure may not be consistent with current industry standards and best practice installation methods. The current IT infrastructure may not properly support many newer technology IP devices which are now considered to be standard in the industry such as VoIP phones and PoE type security cameras. Existing network cabling may have bandwidth limitations as compared to that of more robust, industry standard Cat6 or Cat6A cable plant specifications. It should be noted where referenced, that IT systems infrastructure not only includes the cabling, but the cabling pathways and the spaces (or rooms) that support the network cabling. Technology spaces requiring to be properly outfitted in the building may include the Main Distribution Facility (MDF) room, and distributed IDF rooms (minimum of one per floor). Backbone infrastructure shall include proper cabling pathways between MDF/IDF rooms, in order to support installation of both fiber and copper backbone cabling. Singlemode and laser optimized multimode fiber optic cables, along with Category 3 copper backbone cables should be installed from the MDF room to each IDF room to support the technology systems. Hardwired network connectivity should be provided for users, and distributed appropriately throughout all areas of the facility. Category 6, at minimum, UTP cable shall be installed from the telecom outlets and IP field devices to termination hardware in the IDF rooms using conduit and/or cable tray horizontal pathways A proper grounding and bonding system must be provided in MDF/IDF rooms. A proper grounding system will provide a uniform ground to facilitate a safe and reliable operation of the communications equipment and systems. These recommendations may be used for IT/Telecom Infrastructure program development, space planning, and budgeting of these systems at a conceptual design level. Industry standard and best practice design methodology shall be applied, including BICSI and TIA/EIA design and construction guidelines. For telecommunications infrastructure renovation projects within the facility, any applicable Governor's Office of Information Technology (OIT) design criteria documents should be complied with.

The following list prioritizes voice/data infrastructure upgrades required:

1. Necessary: Retrofit facility with proper MDF/IDF room distribution, which meets industry standard for telecommunication structured cabling system.

2. Necessary: Replace horizontal copper station cabling with Cat 6 network cabling.
3. Necessary: Replace vertical and network backbone cabling with appropriate copper and fiber optic cabling.
4. Necessary: Provide voice/data infrastructure to support wireless access points (WAPs), for wireless network coverage throughout facility.

1.0-F SECURITY SYSTEMS OVERVIEW

The security systems design guidelines outline electronic security systems infrastructure which will enhance security operations and provide a safe and secure environment for persons and assets within the State Services Building, Grand Junction. The security systems should be planned and designed to allow the security personnel the operational flexibility to provide various levels of security based on the threat level at a given time. Security systems should be designed such that they may be monitored remotely from centralized security monitoring locations. Best practice security design methodology should be applied, including crime prevention through environmental design (CPTED), layered security, integrated design, and concentric circles of protection. Additionally it is recommended that the following document be used a guideline for developing specific security design criteria for renovations: ASIS Facilities Physical Security Measures, IESNA G-1-03 Guideline for Security Lighting, Unified Facilities Criteria UFC 4-010-01.

For renovation projects, applicable State construction standards and design guidelines must be followed. Electronic security systems to be considered for implementation or upgrade include access control, intrusion detection, duress alarm, intercom, video surveillance, and emergency call system. The access control system (ACS) will be an expansion of the existing campus wide system currently installed throughout other State buildings. The ACS shall also serve as the primary security management system for monitoring intrusion alarms. The video surveillance system (VSS) should be comprised of IP digital cameras integrated with the existing VSS. The State's existing wireless duress alarm system infrastructure should be expanded where needed to support new locations of wireless duress buttons.

Existing security systems in State facilities are generally controlled and monitored centrally from Colorado State Patrol's Central Command Center (CCC), located in Denver CO.

Within the building, new head-end security control equipment is to be located in IDF or technology rooms, as coordinated with State IT technical staff. Equipment may include ACS control panels, power supplies, duress alarm panels, network video recorders, and UPS units.

All critical electronic security equipment should be backed-up with emergency power circuits or UPS units. State security personnel and other authorized staff may remotely monitor access control events, system alarms, and security video through network connected client workstations.

State Services Building, Grand Junction, renovation work requirements for security device additions/upgrades and specific security system functionality are to be coordinated with State security personnel during design and construction phases.

The following list prioritizes security system upgrades required:

1. Necessary: Replace/Repair existing Hirsch Access Control card readers.
2. Necessary: Replace analog security cameras with IP PoE minimum 1.2MP cameras.
3. Necessary: Replace existing coaxial CCTV cabling with CAT 6 network cabling, required to support item 1 & 2 above.
4. Necessary: Verify functionality of access control devices and perimeter door alarms, replace if defective. Provide door sensor alarm on all perimeter doors.
5. Necessary: Verify functionality of wireless duress alarms. Provide duress alarms for all public interface counters and cash handling areas.
6. Recommended: Install IP security camera within main entrance/lobby.
7. Recommended: Install intercom station at facility main entrance door exterior. Must be intercom-over-IP (IoIP) based PoE intercom stations. Install IP camera to view intercom.

Consideration should be given in regards to the Installation and mounting details for any security related renovations. Due to the uniqueness of the buildings under consideration, design plans must be cognizant of maintaining the historical attributes of the buildings.

2.0 OVERALL BUILDING ASSESSMENT FINDINGS AND RECOMMENDATIONS

2.1 ARCHITECTURE

2.1-A EXTERIOR BUILDING ENVELOPE/SITE

General

The Grand Junction State Services Building is a four-story tall building, supported by a concrete and metal structural frame. The facade is clad in brick and includes areas of glass storefront and a regular grid of individual windows along the north, east, and west sides of the building. The south side of the building has spans of ribbon windows along each story. The main building entrance is on the northwest corner of the building and is set back from the north and west faces of the building, creating a two-story covered triangular entryway space. The main entrance is paved in concrete and continues to the parking area on the north side of the building and to a concrete sidewalk extending along the west and south sides of the building. There is an employee entrance on the east end of the north side of the building and two entrances on the east side of the building. The roof contains a one-story elevator penthouse clad in brick and set back from the elevations of the building. The low parapet is covered with a waterproof membrane on the inside face and is capped with a metal coping.

The building envelope is in fair condition overall. Various elements are showing the effects of deferred maintenance, others are simply damaged or worn out.

Front/West Elevation of the Grand Junction State Services Building

Side/North Elevation of the Grand Junction State Services Building

Back/East Elevation of the Grand Junction State Services Building

South/Side Elevation of the Grand Junction State Services Building

Main Entrance at the Northwest corner of the Grand Junction State Services Building

Cladding

The brick cladding the building appears to be in good to fair condition overall. Soiling was observed in a few locations around the building, especially under the Colorado State Seal on the west side of the building and along control joints (see Fig. 2.1.A.1). A small portion of brick was observed to be crumbling and the sealant was noted to be deteriorating along the base of the building, potentially exposing the system to water penetration (see Fig. 2.1.A.2). The waterproofing along the base of the building on the south side was noted to be deteriorating and potentially exposing the building to water penetration as well (see Fig. 2.1.A.3). There is a metal header that is exposed and corroding above an air intake grille at the Penthouse (see Fig. 2.1.A.4). There are pipe penetrations through an area of the brick wall at the Penthouse that have not been sealed, leaving the building envelope vulnerable to water penetration (see Fig. 2.1.A.5).

The stucco soffits around the exterior of the building are in generally fair condition overall with soiling and spots of readily observable cracking noted during the site survey visit (see Fig. 2.1.A.6). The metal lintels, supporting the brick above, along the front edge of the soffits were observed to be corroding and to have deteriorating sealant along the edge of the stucco (see Fig. 2.1.A.7).

Fig. 2.1.A.1 Typical soiling of the brick observed around the perimeter of the building.

Fig. 2.1.A.2 Crumbling brick and deteriorating sealant observed along the base of the building.

Fig. 2.1.A.3 Deterioration of the waterproofing observed on the south side of the building.

Fig. 2.1.A.4 An exposed metal header with evidence of corrosion observed at an air intake grille at the Penthouse.

Fig. 2.1.A.5 Unsealed openings around pipe penetrations at a portion of the brick walls at the Penthouse are exposing the building envelope to water penetration.

Fig. 2.1.A.6 Typical instance of soiled and cracking stucco soffits noted during the site survey visit.

Fig. 2.1.A.7 Evidence of corrosion and deteriorating sealant observed at the metal headers along the front edge of the soffits.

Recommendations:

- Clean soiled/stained brick veneer around the exterior of the building.
- Repair or replace any deteriorating or otherwise damaged brick around the exterior of the building.
- Replace the deteriorating waterproofing along the base of the building on the south side with a new waterproofing system.
- Seal the openings around the pipe penetrations through the brick walls at the Penthouse to prevent water from penetrating the building envelope.
- Remove the corrosion from the metal lintels around the exterior of the building and provide a protective coating to prevent future corrosion.
- Clean the stucco soffits around the exterior of the building.
- Repair or replace any areas of deteriorating or otherwise damaged stucco at the soffits around the exterior of the building.
- Remove existing sealant where deteriorating around the exterior of the building, including at the Penthouse, and replace with new sealant. Sealant, backup materials, and preformed joint fillers should be nonstaining.

Glazing Systems and Doors

The windows are double pane and original to the building, and appear to be in fair condition overall. It was noted that the sealant is generally beginning

to deteriorate due to age around the building. Two of the windows have been removed on the north side of the building along the Fourth Floor due to the installation of two air conditioning window units. The window openings have been filled in with a sheet of engineered wood particle board and do not appear to have been properly waterproofed on the exterior side or insulated on the interior side (see Fig. 2.1.A.8 and Fig. 2.1.A.9).

Fig. 2.1.A.8 Two windows observed to have been removed on the north side of the building along the Fourth Floor.

Fig. 2.1.A.9 View of the windows removed from the north side along the Fourth Floor from the interior of the building.

The doors around the exterior of the building appear to be in fair condition overall with general wear-and-tear and areas of deteriorating weatherstripping allowing air leakage from the building noted (see Fig. 2.1.A.10 and Fig. 2.1.A.11). The door at the Penthouse was observed to have evidence of corrosion (see Fig. 2.1.A.12).

Fig. 2.1.A.10 General wear-and-tear and aging of the doors noted around the exterior of the building.

Fig. 2.1.A.11 Air gaps and deterioration of the weatherstripping noted at the doors around the exterior of the building.

Fig. 2.1.A.12 Penthouse door with damage and minor corrosion noted during the site survey visit.

Recommendations:

- Provide waterproofing and insulation at the two windows openings on the north side of the building along the Fourth Floor with engineered wood particle board and air conditioning units.
- Remove existing sealant where deteriorating and replace with new sealant. Sealant, backup materials, and preformed joint fillers should be nonstaining.
- Repair or replace the weatherstripping at the exterior doors around the building to prevent air leakage.
- Refurbish the doors and door frames around the exterior of the building.
- Repair or replace the corroding and damaged door at the Penthouse.

Roof

It was reported that the age of the roof of the Grand Junction State Services Building is unknown but is likely original to the building. It was reported that minor patching of the roof has taken place over the past few years and that leaking is known to occur and is dependent on the wind direction during wet weather conditions.

The roof appears to be in fair to poor condition overall. The roof is ballasted and the ballast is thin or missing in spots, exposing the roof membrane (see Fig. 2.1.A.13). The membrane along the inside face of the parapet is noted to be deteriorating and pulling away from the wall in areas (see Fig. 2.1.A.14). Some of the roof drain covers are in good condition and some are damaged and no longer functioning properly (see Fig. 2.1.A.13). The metal coping along the parapet is beginning to deteriorate with the seam covers noted to be coming loose in a few areas (see Fig. 2.1.A.15). Some of the concrete pavers around the roof are in good condition and some are in fair to poor condition with cracking and deterioration noted, creating a potential tripping hazard (see Fig. 2.1.A.16).

Fig. 2.1.A.13 Typical areas of thin ballast exposing the roof membrane, general deterioration of the membrane along the inside face of the parapet, and a damaged roof drain cover that is no longer functioning properly.

Fig. 2.1.A.14 Areas of the membrane noted to be pulling away from the inside face of the parapet.

Fig. 2.1.A.15 Seam covers noted to be coming loose along the metal coping around the parapet.

Fig. 2.1.A.16 A concrete paver in good condition and a concrete paver in poor condition observed during the site survey visit.

Recommendations:

- Replace the existing roof with a new roofing system, including, but not limited to, a new membrane, ballast, roof drains, flashing and parapet coping material.

2.1-B CODE ISSUES

Applicable Codes

The following approved building codes and standards adopted by State Buildings Programs (SBP) and other state agencies are identified as the minimum requirements to be applied to all state-owned buildings and physical facilities including capitol construction and controlled maintenance construction projects, as revised 7/2013.

The 2012 edition of the International Building Code (IBC)

(as adopted by the Colorado State Buildings Program as follows: Chapter 1 as amended, Chapters 2-35 and Appendices C and I)

The 2012 edition of the International Energy Conservation Code (IECC)

(as adopted by the Colorado State Buildings Program)

The National Fire Protection Association Standards (NFPA)

(as adopted by the Department of Public Safety/Division of Fire Safety as follows with editions shown in parentheses: NFPA-1 (2006), 11 (2005), 12 (2005), 12A (2004), 13 (2002), 13D (2002), 13R (2002), 14 (2003), 15 (2001), 16 (2003), 17 (2002), 17A (2002), 20 (2003), 22 (2003), 24 (2002), 25 (2002), 72 (2002), 409 (2004), 423 (2004), 750 (2003), and 2001 (2004))

The 2007 edition of ASME A17.1 Safety Code for Elevators and Escalators

(as adopted by the Department of Labor and Employment/Conveyance Section and as amended by ASME International)

The 2005 edition of ASME A17.3 Safety Code for Existing Elevators and Escalators

(as adopted by the Department of Labor and Employment/Conveyance Section and as amended by ASME International)

The 2003 edition of ICC/ANSI A117.1, Accessible and Usable Buildings and Facilities

(as adopted by the Colorado General Assembly as follows: CRS 9-5-101, as amended, for accessible housing)

Note: It is anticipated that compliance with the federal Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG) and Colorado Revised Statutes Section 9-5-101 will be met by compliance with the 2012 International Building Code and ICC/ANSI A117.1. However, each project may have unique aspects that may require individual attention to these legislated mandates.

Building Construction Type

The building is 4 stories tall and has a total floor area of 52,000 square feet. If this building was built today, it would be classified as Occupancy Group B (primary use as a Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts) according to IBC's Table 503 and the building would be classified

as Construction Type IB, which allows for 11 stories and 160 feet in height, and unlimited floor area. Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum height is increased by 20 feet and the maximum number of stories is increased by one.

Egress Issues

Alterations, repairs, additions, and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the current provisions for alterations, repairs, additions and changes of occupancy or relocation. As an existing building, the Grand Junction State Services Building is exempt from current code requirements for new construction as long as minimal renovation is done. If the building undergoes extensive renovation, the following issues may need to be addressed per current code requirements.

According to Table 1014.3 of the IBC (2012), the common path of egress travel for a building with an approved sprinkler system in a B-type occupancy is 100 feet with an occupant load greater than 30. The plans provided by the Owner appear to indicate that the common paths of egress travel throughout the building, as it currently exists, do not comply with this code requirement at the Second Floor. The length of the longest common path of egress travel on the Second Floor appears to be approximately 114 feet. The length of the longest common path of egress travel and the occupancy loads of each floor should be verified as part of any future renovation plan.

According to Table 1016.2 of the IBC (2012), the exit access travel distance in a B-type occupancy with a sprinkler system is 300 feet. The approximate greatest distance of travel that exists from the most remote point on any of the Grand Junction State Services Building's floor plans to an exit stairway is 171 feet according to the plans provided by the Owner, which is well within the 300 feet allowed. Depending on the fire-resistance ratings of the interior exit stairways, the distance of travel through the stairways to a public way may be included in the greatest distance of travel calculation. If this is the case, then the approximate greatest distance of travel that exists from the most remote point on the Fourth Floor to an exit discharge to a public way (traveling from the south end of the west side of the Fourth Floor down through the east stairway to the First Floor and out through the employee entrance doors on the east end of the north side of the building) is 330 feet. If the building undergoes extensive renovation, the fire rating of

the exit stairways could result in the travel distance through the stairways being included in the exit access travel distance. Assuming the interior exit stairways meet required fire-resistance ratings, the greatest distance of travel would only be measured to the exit stairway door instead of to the public way, which is well within the 300 feet allowed by code. The length of the greatest distance of travel and the occupancy loads of each floor should be verified as part of any future renovation plan.

The fire rating of the doors to the interior exit stairways is unknown. According to Section 1022.2 of the IBC (2012), enclosures for interior exit stairways and ramps shall be constructed as fire barriers in accordance with Section 707. The interior exit stairway and ramp enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the interior exit stairways or ramps shall include any basements, but not any mezzanines. Interior exit stairways and ramps shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours. The Grand Junction State Services Building has 4 stories and must therefore provide a fire-resistance rating of not less than 2 hours at the interior exit stairways. Further, according to Table 716.5 of the IBC (2012), where fire walls and fire barriers have a required fire-resistance rating of 2 hours, the minimum fire door and fire shutter assembly rating is 1-1/2 hours. We assume that the interior exit stairways meet the code requirements but were unable to confirm the fire-resistance ratings.

It was noted during the site survey visit that many of the exit signs are not adequately illuminated (see Fig. 2.1.B.1). According to Section 1011.6.3 of the IBC (2012), exit signs shall be illuminated at all times. All exit sign illumination should comply with Section 1011 of the IBC (2012) and with the National Fire Protection Association Standards (NFPA).

It was reported that emergency and life safety upgrades are on the Capitol Complex list of controlled maintenance projects that need to be addressed.

Fig. 2.1.B.1 Typical instance of an inadequately illuminated exit sign.

Recommendations:

- Verify the fire-resistance ratings of the existing interior exit stairways and doors and upgrade as necessary.
- Repair or replace the inadequately illuminated exit signs throughout in order to comply with code requirements.

Fire Suppression Systems

There is a fully automatic sprinkler system throughout the building.

Stairs and Ramps

In general, the exit stairs appear to comply with the code requirements for stairs, with the exception of the stairway railing system. The top of the railings are too low in height. The top of the handrail above the stair nosing is approximately 32 inches (see Fig. 2.1.B.2). According to Section 1012.2 of the IBC (2012) and Section 505.4 of ICC/ANSI A117.1 (2003), handrail height, measured above stair tread nosing, or finish surface of ramp slope, shall be uniform, not less than 34 inches and not more than 38 inches.

The top of the guardrails throughout the interior exit stairways are approximately 41-3/4 inches above the stair landing (see Fig. 2.1.B.3). According to Section 1013.3 of the IBC (2012), required guards located along the open-side of walking surfaces shall not be less than 42 inches high, measured vertically from the adjacent walking surfaces and from the line connecting the leading edges of the tread nosings on stairs.

The current railing system exceeds guardrail opening limitations, easily allowing passage of a sphere 4 inches in diameter (see Fig. 2.1.B.4). According to Section 1013.4 of the IBC (2012), required guardrails shall not have openings which allow passage of a sphere 4 inches in diameter.

Fig. 2.1.B.2 The height to the top of the handrail measured above the stair tread nosing.

Fig. 2.1.B.3 The height to the top of the guardrail within the interior exit stairways.

Fig. 2.1.B.4 The distance between the guardrail openings exceeds 4 inches in diameter.

Recommendations:

- Replace the existing stairway railing system with a new railing system that complies with the code requirements.

Doors

The majority of the interior doors throughout the building, including the doors to the interior exit stairways, are equipped with knob-style door handles (see Fig. 2.1.B.5). According to Section 309.4 of the 2003 edition of ICC/ANSI A117.1, the knob-style handles do not meet the requirement that: operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Section 309.4 further states that the force required to activate operable parts shall be 5.0 pounds (22.2 N) maximum. A few lever-style handles were noted during the site survey visit. A few automatic door openers were noted during the site survey visit (see Fig. 2.1.B.6). It was noted that the restroom doors are generally equipped with pull-style door handles with push plates on the interior side (see Fig. 2.1.B.7).

Fig. 2.1.B.5 Typical knob-style door handle found throughout the building.

Fig. 2.1.B.6 A few automatic door openers were observed during the site survey visit.

Fig. 2.1.B.7 Typical pull-style door handle noted at the restroom doors.

Recommendations:

- Replace all knob-style handles on the interior doors with lever-style handles.

Security

The main entrance on the northwest corner of the building can be accessed by the public during business hours and has no reception deck or check-in area. The door is equipped with a key code entry system for employee use outside of regular business hours (see Fig. 2.1.B.8). There is an employee entrance located on the east end of the north side of the building which is equipped with a key code entry system (see Fig. 2.1.B.9). There is an entrance on the north end of the east side of the building which can be accessed by the public during business hours. The door appears to be equipped with a card reader for access outside of regular business hours (see Fig. 2.1.B.10). The door on the south end of the east side of the building appears to be an emergency exit from the building.

There were a few areas noted throughout the building with "Do Not Enter" signs (see Fig. 2.1.B.11) and with key code entry systems (see Fig. 2.1.B.12 and Fig. 2.1.B.13). There were a few security cameras observed during the site survey visit (see Fig. 2.1.B.14).

Fig. 2.1.B.8 Key code entry system at the main entrance on the northwest corner of the building.

Fig. 2.1.B.9 Employee entrance on the east end of the north side of the building requires the use of the key code entry system at all times.

Fig. 2.1.B.10 Entrance located on the north end of the east side of the building is open during regular business hours.

Fig. 2.1.B.11 Typical instance of a “Do Not Enter” sign observed during the site survey visit.

Fig. 2.1.B.12 A door equipped with a key code entry system observed on the First Floor.

Fig. 2.1.B.13 A door equipped with a key code entry system observed on the Second Floor.

Fig. 2.1.B.14 Typical instance of a security camera observed during the site survey visit.

2.1-C GENERAL ACCESSIBILITY ISSUES

The layout of the restrooms appears to be the same on each floor throughout the building. Some of the restrooms throughout the building have signage indicating wheelchair accessibility and have an automatic door opener (see Fig. 2.1.C.1). However, the restrooms are generally not wheelchair accessible throughout. The restrooms throughout provide one ambulatory accessible toilet compartment per restroom and do not provide a wheelchair accessible toilet compartment (see Fig. 2.1.C.2). The maneuvering clearance of the approach to the pull side of the restroom doors appears to be approximately 40 inches wide (see Fig. 2.1.C.3). According to Section 404.2.3 and Figure 404.2.3.1(f) of ICC/ANSI A117.1-2003, the minimum maneuvering clearance for a latch-side approach to a manual swinging door on the pull side is 48 inches.

The approximate width of the clear floor space of the alcoves of the generally accessible urinals in the Men's Restrooms throughout is 28 inches and the depth of the partition on the right side appears to be less than 24 inches (see Fig. 2.1.C.4). According to Section 305.3 of ICC/ANSI A117.1-2003, the clear floor space shall be 48 inches minimum in length and 30 inches minimum in width. Of the two urinals generally provided in each of the men's restrooms, at least one urinal is required to be accessible according to Section 1109.2 of the IBC (2012).

There is at least one lavatory per restroom that appears to generally comply with accessibility requirements. It was noted that the otherwise accessible lavatories throughout have pipes that are not wrapped with insulation (see Fig. 2.1.C.5). According to Section 606.6 of ICC/ANSI A117.1-2003, water supply and drainpipes under accessible lavatories and sinks shall be insulated or otherwise configured to protect against contact.

It was noted that the electrical receptacles located within 6 feet of the outside edges of the sinks throughout the restrooms were generally grounded but appear to not be equipped with ground-fault circuit interrupters (GFCI) (see Fig. 2.1C.6). According to Section 210.8(B)(1) of the National Electrical Code (2011), GFCI protection is required in bathrooms. Further, according to Section 210.8(B)(5) of the National Electrical Code (2011), GFCI protection is required where receptacles are installed within 6 feet of the outside edge of a sink.

The floor mats outside of the entrance vestibule on the north end of the east side of the building were noted to be deteriorating and creating a potential tripping hazard (see Fig. 2.1.C.7). According to Section 302.2 of ICC/ANSI A117.1-2003, carpet or carpet tile shall be securely attached and shall have

a firm cushion, pad, or backing or no cushion or pad. Carpet or carpet tile shall have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. The pile shall be 1/2 inch maximum in height and exposed edges shall be fastened to the floor and shall have trim along the entire length of the exposed edge. The edge trim must comply with Section 303.3 which states that changes in level greater than 1/4 inch in height shall be beveled with a slope not steeper than 1:2.

Fig. 2.1.C.1 Signage indicating wheelchair accessibility observed outside of a restroom on the First Floor.

Fig. 2.1.C.2 Typical instance of an ambulatory toilet compartment observed during the site survey visit.

Fig. 2.1.C.3 The maneuvering clearances of the approach to the restroom doors is approximately 40 inches wide.

Fig. 2.1.C.4 The width of the urinal alcove is too narrow per accessibility standards.

Fig. 2.1.C.5 Typical instance of an otherwise accessible lavatory without insulation wrapped around the pipes.

Fig. 2.1.C.6 Typical instance of an electrical receptacle, located within 6 feet of the edge of a sink, that does not appear to be equipped with ground-fault circuit interrupter protection.

Fig. 2.1.C.7 Deteriorating floor mats creating a potential tripping hazard leading to the entrance vestibule on the north end of the east side of the building.

The drinking fountains throughout the building appear to comply with general accessibility requirements.

The sinks in the Break Rooms included in the site survey visit are typically non-accessible (see Fig. 2.1.C.8).

Fig. 2.1.C.8 Typical non-accessible sink found in the Break Rooms included in the site survey visit.

Recommendations:

- Reconfigure restrooms to provide wheelchair maneuvering clearances, including the exterior approach to the restroom doors, and a minimum of one wheelchair accessible toilet compartment per restroom where possible.
- Reconfigure urinal alcoves to provide the required minimum width per accessibility standards where not provided.
- Install insulation around accessible lavatory pipes where not provided.
- Install ground-fault circuit interrupter (GFCI) protection where not provided at any electrical receptacles required to be equipped with GFCI protection per the National Electrical Code (2011).
- Replace any deteriorating floor mats creating a potential tripping hazard with new floor mats in compliance with code requirements.
- Install accessible sinks in the Break Rooms throughout where possible.

2.1-D ELEVATORS

The age of the elevator cabs and equipment is unknown. It was reported that the elevators are likely original to the building. It was also reported that the modernization of the elevators is on the Capitol Complex list of controlled maintenance projects that need to be addressed.

Recommendations:

- Verify the age and condition of the elevator cabs, electrical, and mechanical equipment to determine if any warranty is still in effect and to develop a timeline for upgrading the system.

2.1-E ENVIRONMENTAL

It is our understanding that there are currently no known environmental issues with the Grand Junction State Services Building.

2.1-F PLANNED AND ON-GOING PROJECTS

There are no known planned and on-going architectural projects for the building currently.

2.2 STRUCTURAL

2.2-A EXTERIOR BUILDING ENVELOPE

The building's exterior is in good condition with a few exceptions. A deteriorated water proofing membrane was observed on the south side of the building at grade level (Fig. 2.2.A.1). The deteriorating concrete should be addressed soon to prevent additional deterioration.

Fig. 2.2.A.1

RF antennas were observed on the roof with no warning signs (Fig. 2.2.A.2). RF antennas can expose people to harmful radiation and cause serious damage. The owner of the antennas should provide signage and safe distance requirements prior to people stepping out on the roof.

Fig. 2.2.A.2

Recommendations:

- Remove and replace the waterproofing membrane along the exterior foundation. Notify structural engineer of concrete spalls and/or observed corrosion.
- Contact the owner of the RF antennas for safety requirements and post warning signs prior to accessing the roof.

Items noted above do not pose any structural loading issues based on the current use. Repairs are to maintain performance and reduce further deterioration.

2.2-B BUILDING INTERIOR

The overall condition of the structural framing that was readily observable was good. A crack was observed in the CMU wall in a stairwell (Fig. 2.2.B.1). The crack should be monitored for additional movement.

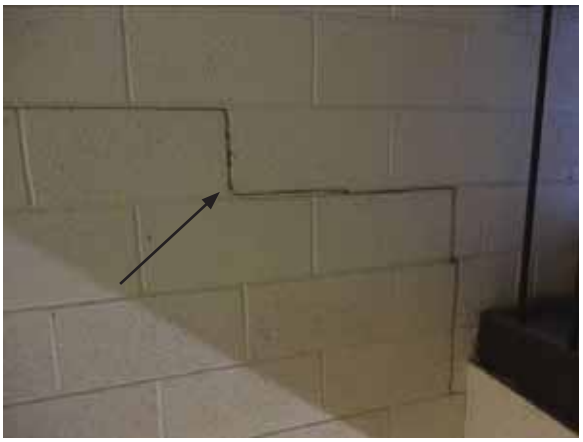

Fig. 2.2.B.1

Recommendations:

- Monitor the crack in the CMU wall for additional movement. Notify structural engineer if crack worsens.

Items noted above do not pose any structural loading issues based on the current use. Repairs are to maintain performance and reduce further deterioration.

2.2-C FALL PROTECTION

Inadequate parapet heights were observed at the roof level (Fig. 2.2.C.1). The maximum parapet height along the entire roof edge was measured to be approximately 30 inches tall. Parapets should be at least 42 inches tall or fall protection provided for access near the exposed edges to meet current safety codes. No tie-back anchors or horizontal lifelines were observed.

Fig. 2.2.C.1

Recommendations:

- Design and install fall protection systems for safe access near exposed edges.

2.2-D PLANNED AND ON-GOING PROJECTS

N/A

2.3 CIVIL

2.3-A EXTERIOR BUILDING ENVELOPE/SITE

General

The Grand Junction State Services Building is located at the southwest corner of South 6th Street and Ute Avenue with an address of 222 South 6th Street in Grand Junction, Colorado. The building site is bordered by Ute Avenue to the south, South 6th Street to the west, and parking lots to the north and east. The site is located in the downtown historic area of Grand Junction and is surrounded by government, retail and office buildings. The Grand Junction State Services Building site is approximately 0.82 acres. The existing site consists of the building, site landscaping, parking lot and street right-of-way including sidewalk and landscaping. The main building entrance is accessed from a parking lot on the north side (Fig. 2.3.A.1). The site surrounding the building is consistent with a building approximately 30+ years old.

NOTE: Descriptions of existing infrastructure contained herein are based on public utility information provided by the City of Grand Junction. Unless noted otherwise, no detailed survey information was reviewed as part of this site analysis. Estimates of drainage patterns, site grades, and slopes are based upon visual observation or information provided by others, i.e. Google Earth.

Figure 2.3.A.1 – North Entrance

Grading and Drainage

The site slopes generally from north to south. The high point of the site is located in the northwest corner of the north parking lot. Runoff flows overland southerly across the parking lot towards the building. There is a small swale located in the alley just north of the building which then directs runoff westerly to South 6th Street.

The main entrance to the building is located on the north side and is accessed via a concrete walkway (Fig. 2.3.A.2). There is a second entrance on the east side of the building which appears to be ADA accessible (Fig. 2.3.A.3). The perimeter of the building features paving and landscape including rock skirts, bushes and grass.

The foundation of the building appears to be stable. No obvious signs of settlement were observed.

Figure 2.3.A.2 – North Entrance Walkway

Figure 2.3.A.3 – East Entrance

Previous drainage studies are not available for this site at this time. It is assumed that drainage facilities and conveyances are designed for the 5-year and the 100-year rainfall events, per Urban Drainage Criteria. The site appears to ultimately discharge to the Colorado River.

The effective Flood Insurance Rate Map (FIRM Map Number 08077C0810G, effective date October 16, 2012) shows the property lies within Zone X, areas designated as outside of the 500-year floodplain. To our knowledge, there are no known existing flood control problems or major drainage issues.

Utility Services

The building utility demands are unknown at this time. The building service line appears to connect to an 8-inch water line to the west of the building located in South 6th Street. This water line runs southerly to Ute Avenue and then westerly towards South 5th Street. There is one fire hydrant located near the building on the southwest corner of the site. There are no known water pressure problems at this time.

The building is served by an 8 -inch sanitary sewer line located just north of the building in the access road. This line runs westerly towards South 5th Street at an estimated slope of 0.4%. There are no known sanitary sewer capacity problems at this time.

Existing storm sewer collects site runoff from a catch basin located in the southwest corner of the site. The catch basin routes runoff via an 8-inch storm sewer to a 24-inch storm sewer main located in South 6th Street. The storm sewer is routed southerly towards Pitkin Avenue.

Existing dry and regulated utilities (electric and telecommunications) are assumed to be located in South 6th Street.

Site Paving

The site concrete appears to be in fair condition. Locations of broken concrete, concrete settling and concrete cracking were observed. Repair or replace broken or cracked concrete.

Figure 2.3.A.4 – Site Concrete Crack, Recommended for Replacement

Figure 2.3.A.5 – Broken Site Concrete, Recommended for Replacement

Figure 2.3.A.6 – Settlement of Curb and Gutter in Landscaped Island

The site asphalt was noted to be in poor condition (Fig. 2.3.A.7 through Fig. 2.3.A.10). Numerous locations of depressions and cracking were observed especially in the parking lot to the east. It is recommended that the asphalt be repaired or the site be re-paved to improve the surface drainage and maintain the site posterity.

Figure 2.3.A.7 – Poor Site Asphalt Condition

Figure 2.3.A.8 – Asphalt Deterioration

Figure 2.3.A.9 – Poor Site Asphalt Condition

Figure 2.3.A.10 – Asphalt Cracking

Recommendations:

- Re-pave all site asphalt.
- Concrete cracks approximately 1/8 inch wide or smaller showing no differential movement can be sealed using an approved joint sealant. Cracks should be routed and cleaned per an approved industry method prior to sealing.
- Concrete panels showing numerous excessive cracking and/or differential movement should be replaced.
- Replacement of concrete shall be completed in full stone segments, i.e. to the nearest joint location. Repair the subgrade materials and place new curb & gutter or sidewalk. Replace backfill materials and repair/replace any landscaping/paving disturbed during repair operations.

2.3-B CODE ISSUES

The site exterior was analyzed for general conformance with ADA; however a complete accessibility audit is not included in the scope of services. The entrance on the east side appears to be ADA functional but may not meet standards for the width of the walk (Fig. 2.3.B.1). It is recommended that a handrail be installed along this pathway.

Site slopes were analyzed by visual inspection and topography was evaluated using Google Earth. Current geotechnical recommendations and

standard practice for slopes away from the building are 10:1 for 10 feet and 2% in hardscape areas. The building does appear to have these slopes. However, the parking lot to the north drains southerly towards the building. There is a small swale in the alley just north of the building which appears to collect runoff and re-direct it to the west, but overflow drainage has the potential to collect near the foundation of the building. This location should be monitored and re-graded if ponding occurs or settlement is observed.

Figure 2.3.B.1 –East Entrance ADA Accessible Ramp

Recommendations:

- If ponding or settlement occurs, re-grade the parking lot to the north to slope away from the building. Provide an overflow path for drainage away from the foundation.
- Install handrails in ADA paths where slopes exceed 5%.

2.3-C PLANNED AND ON-GOING PROJECTS

There are no known site planned and on-going projects at this time.

2.4 MECHANICAL, ELECTRICAL, AND PLUMBING

2.4-A OVERVIEW OF EXISTING SYSTEMS

ELECTRICAL SYSTEMS

The Grand Junction building is mostly office space for many different departments. The power for this building comes in through a 300kVA transformer provided by Xcel energy (see Fig. 2.4.A.1). This transformer feeds a 480V, 1200amp switchboard that feeds the rest of the building.

The main electrical room is located in the northeast corner of the building. It contains the 1200 amp main switchboard and other panelboards and transformers (see Fig. 2.4.A.2 and Fig. 2.4.A.3).

There are two generators serving this building (see Fig. 2.4.A.4 and Fig. 2.4.A.5). The diesel emergency generator is located on the northeast corner of the building. It provides emergency power to the lighting, fire alarm system, fire pump, and all other life safety loads. The other generator is a natural gas generator located on the roof and provides backup power to the server room on the fourth floor. To maintain power while the generator gets up to speed, there is an Uninterrupted Power Supply (UPS) system to power the servers for a few seconds and then the load is switched over to the generator.

Fig. 2.4.A.1 – Utility transformer

Fig. 2.4.A.2 – Main switchboard

Fig. 2.4.A.3 – Panels and transformers

Fig. 2.4.A.4 – Diesel generator

Fig. 2.4.A.5 – Natural gas generator

Lighting

The lighting system throughout the building consists of a combination of linear T8 fluorescent and recessed T8 fluorescent luminaires (see Fig. 2.4.A.6). They appear to be good working condition. No local controls were observed in the office, storage, and lobby spaces. The building has a time clock that turns the luminaries on at 5:30 a.m. and off at 9:30 p.m. The issue with this system is that all of the building's luminaries are on during this time, even in unoccupied spaces.

The parking lot and exterior luminaries are older metal halide (see Fig. 2.4.A.7). Some of the building luminaries have been upgraded to LED fixtures.

The exit signs appear to be in need of an update. Many of the exit signs are not completely lit. Emergency lighting is provided by the emergency generator.

Fig. 2.4.A.6 – Recessed luminaires

Fig. 2.4.A.7 – Site Luminaire

Recommendations:

- Local automatic controls are recommended throughout the building. This would conserve energy in the offices, storage, hallways, break, and conference rooms.

Fire Alarm

The fire alarm system is a Notifier system with full detection and pull stations that was installed within the last three years (see Fig. 2.4.A.8 and Fig. 2.4.A.9).

Fig. 2.4.A.8 – Fire alarm control panel

Fig. 2.4.A.9 – Notifier system

General Power

The building's receptacles appear to be in good working condition (see Fig. 2.4.A.10 and Fig. 2.4.A.11).

Fig. 2.4.A.10 – Server room receptacles

Fig. 2.4.A.11 – General purpose receptacle

MECHANICAL SYSTEMS

The HVAC and mechanical systems in the building are original. Few modifications to the systems have been completed over the years to suit the building needs and maintenance requirements. The building occupancy consists of typical office spaces, a telecommunication room, and a server room. The HVAC system consists of one Trane DX condensing unit (see Fig 2.4.A.12 and Fig 2.4.A.13) connected to central built-up Air Handling Unit (AHU) which serves the office areas on all four floors, two small Data Air DX units serving the CDOT server room on the third floor, one Trane DX rooftop unit (see Fig. 2.4.A.14) serving the microwave equipment room and one small Data Air DX unit (see Fig. 2.4.A.15) serving the telecom room on the fourth floor. The heating in the building is provided via four Munchkin gas fired boilers (see Fig. 2.4.A.17 and Fig. 2.4.A.18). The boilers are vented to the outside and combustion air is taken from the mechanical room. The mechanical room has high and low combustion air opening on the outside wall. The hot water distribution consists of primary boiler pumps and secondary distribution pumps. The secondary distribution pumps are on VFD and terminal units have two-way control valves. The hot water system has glycol for freeze protection. Baseboard heaters are provided under glass window. Some portion of baseboard supply air grille is blocked off with wood (see Fig. 2.4.A.31).

Window air conditioners (see Fig. 2.4.A.30) are provided for telecom server room since the ac unit serving telecom room is not working (see Fig. 2.4.A.16). The old non-functioning unit which serves the telecom server room should be replaced with new unit to condition the space. Redundant backup unit may be provided.

The main Trane DX condensing unit serving the built-up AHU appears to be at the end of its useful working life and needs replacement. It was indicated that replacing the unit is under discussion with the state officials. The condition of supply and return air fans appear to be satisfactory. The other DX units serving telecommunication and microwave server room are maintained by the building tenants.

The built-up AHU consists of supply and return air fans, a DX cooling coil and a HW heating coil (see Fig. 2.4.A.20). Both fans have Variable Frequency Drive (VFD) to vary airflow in the space as per load conditions. The unit has been modified over the years. The supply and return fan motors are not premium efficiency (Fig. 2.4.A.28). The evaporative cooling section which was part of original built-up AHU has been removed by the maintenance personnel since it was not performing as intended. The built-up AHU supply fan has inlet guide vanes (see Fig. 2.4.A.25) which are not in

service since fan is controlled via VFD. They should be removed as they add pressure drop to the supply air which increases fan energy consumption. The condensate drain pan for the cooling coil (see Fig. 2.4.A.26) is rusted and should be replace with new indoor air quality compliant drain pan. The insulation on hot water piping and refrigerant piping within the built-up unit is missing (see Fig. 2.4.A.27).

The building is fully sprinklered and fire pump is located on the first floor. Each stairwell is provided with stand pipe (see Fig. 2.4.A.22). Some of the sprinkler heads are located close to supply air grille which may affect the performance of the sprinkler (see Fig. 2.4.A.32 and Fig. 2.4.A.33). The building has 6" fire water entry and 3" cold water entry. The domestic hot water for the building is generated via one gas fired hot water heater located in the mechanical room on the roof (see Fig. 2.4.A.21). Hot water recirculation is via hot water circulation pump (see Fig. 2.4.A.19). The elevator hoist way is vented at the roof level.

The air distribution in the spaces is via Variable Volume Air (VAV) Boxes and ceiling mounted supply and return air grilles/diffusers. The original VAVs boxes have been removed and new VAV boxes were installed about six months ago. Each VAV is controlled by wall mounted digital temperature sensor (see Fig. 2.4.A.23). Balancing and commissioning of these VAVs is still on going. The VAVs have hot water heating coil for space reheating. The exterior walls are provided with baseboard heating which is connected to zone VAV box. The main entrance lobby is provided with ceiling mounted cabinet unit heater. The controls in the building are recently upgraded to Direct Digital Controls. The men's and women's rest rooms are exhausted via central in line exhaust fan located in the roof mechanical room (see Fig. 2.4.A.24). There is no exhaust energy recovery system.

The ventilation for electrical rooms is via central AHU system. The ventilation for the third floor electrical room is inadequate as room temperature appeared to be high (see Fig. 2.4.A.29). It is recommended to verify the electric room load and provide ventilation as per the load.

The main gas meter is installed close to the electrical panel which does not meet Excel energy meter clearance requirements (see Fig. 2.4.A.34 and Fig. 2.4.A.35).

Fig. 2.4.A.12 – Rooftop unit

Fig. 2.4.A.13 – Trane DX condensing Unit

Fig. 2.4.A.14 – Trane RTU serving microwave server room

Fig. 2.4.A.15 – Condensing unit serving telecom room

Fig. 2.4.A.16 – Data Air condensing units

Fig. 2.4.A.17 – Hot Water Boilers

Fig. 2.4.A.18 – Boiler room

Fig. 2.4.A.19 – Hot water distribution pumps

Fig. 2.4.A.20 – Built-up AHU hot water heating coil

Fig. 2.4.A.21 – Domestic hot water heater

Fig. 2.4.A.22 – Stairwell stand pipe

Fig. 2.4.A.23 – Digital space temperature sensor

Fig. 2.4.A.24 – In-line toilet exhaust fan

Fig. 2.4.A.25 – Fan inlet guide vanes and grease leakage

Fig. 2.4.A.26 – Rusted condensate drain pan

Fig. 2.4.A.27 – Portion of pipes not insulated

Fig. 2.4.A.28 – Supply fan motor name plate

Fig. 2.4.A.29 – Transformer in third floor electrical room

Fig. 2.4.A.30 – Window air-conditioners for telecom room

Fig. 2.4.A.31 – Baseboard outlet blocked with wood

Fig. 2.4.A.32 – Sprinkler head close to cabinet heater

Fig. 2.4.A.33 – Sprinkler head too close to cabinet heater

Fig. 2.4.A.34 – Electrical meter close to gas meter

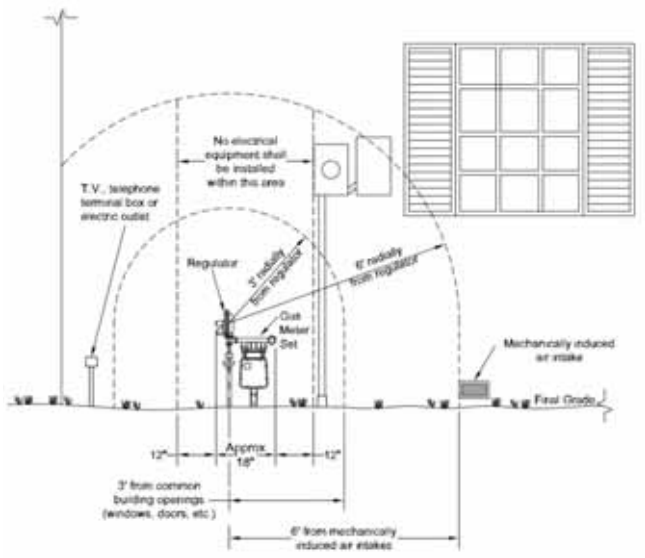

Fig. 2.4.A.35 – Xcel Energy gas meter clearance requirements

Recommendations:

- Replace Trane condensing unit with new, more efficient unit. It was noted that approval for replacement will be obtained from state.
- Clean and overhaul central supply and return fan. It appears there is some grease leakage which needs cleaning.
- Remove inlet guide vanes for supply and return fans. This will reduce air pressure drop and reduce fan energy consumption, which will result in energy cost savings.
- Replace the condensate drain pan with IAQ stainless steel drain pan. This will improve indoor air quality and also prevent bacterial growth on the stagnant water.
- Provide missing insulation on hot water and refrigerant pipes connected to central hot water and DX coils.
- Provide premium efficiency motors for main supply and return air fans. This will reduce fan energy consumption which will result in energy cost savings.
- Third floor electrical room has a transformer which generates heat. It appears enough cooling is not provided. Verify the heat generated by the transformer and provide cooling to meet the load.
- Window air conditioners are being provided for the telecom server room since the main ac unit is not working. Replace the old Data Air unit with new unit and if required provide redundant unit as backup to keep the room at design conditions.
- Portion of a baseboard heater supply grille is blocked by wood. Remove the wood and if required balance the water flow for the baseboard.
- The sprinkler head in the first floor lobby is too close to the ceiling mounted unit heater. If the hot air temperature is the same as the sprinkler activation temperature, the sprinkler may be activated. Per NFPA 13 Table 8.3.2.5.c sprinkler heads should be located minimum 36” from the supply grille. Consider relocating the sprinkler head.
- Consider providing energy recovery on toilet exhaust fan to pre-treat outside air for main built up air handling unit. This will save energy costs.
- Consider installing new efficient evaporative cooling section. This will save cooling energy and result in energy costs savings.

- Clearance around the main gas meter is not as per current Xcel Energy requirements. The electrical meter and box appear to be close to main gas supply meter.

2.4-B CODE ISSUES

ELECTRICAL CODE ISSUES

No electrical code issues were observed during the site survey.

MECHANICAL CODE ISSUES

It was noted that new VAVs and controls are not fully commissioned and work is ongoing. Ensure each zone is provided with code required minimum outside air.

The fire pump room layout does not meet current code requirements. Some of the deficiencies notices are: (1) Section 4.12.1.1.6 (1) clearance between components for installation and maintenance; (2) clearance between components and the wall for installation and maintenance; (2) Section 4.12.2 Equipment Access; (3) Jockey pump is installed directly on the floor without any housekeeping pad. The pipes connected to jockey pump are not supported from wall. Discuss these with AHJ and follow their directive.

Fig. 2.4.B.1 – Fire pump room

Fig. 2.4.B.2 – Fire pump room – no maintenance space

Fig. 2.4.B.3 – Fire pump room

Fig. 2.4.B.4 – Fire pump room – Jockey pump

2.4-C PLANNED AND ON-GOING PROJECTS

The building controls and VAV boxes are being upgraded and commissioning is in progress.

2.5 VOICE AND DATA

2.5-A OVERVIEW OF EXISTING SYSTEMS

Findings

Note SMW was not scoped for this task, for this building or the remaining building assessments. SMW provided voice/data survey and assessment scope for the Capitol Annex Building (1375 Sherman Street) and the Centennial Building (1313 Sherman Street) only.

Recommendations:

The recommendations and guidelines within this section shall establish the Basis of Design for the IT Infrastructure portion of the renovation of the Grand Junction State Services building.

The building should be provisioned with the following pathways, spaces, and cable media.

Telecommunications Rooms (i.e. Spaces)

1. Main Equipment Room (MDF) / Entrance Facility Room (EF)

- One consolidated Main Equipment Room (MDF) / Entrance Facility Room (EF) shall be installed within the building.
- This main MDF room will include both the Building Entrance Facility for supporting outside plant cabling and raceways and will be the main equipment room for installation of the low voltage and communications systems' (also referred to as the Technology systems) head end equipment.
- The MDF room shall be a minimum of 12' x 16' in size, capable of supporting the installation of one row of racks, with approximately six (6) equipment racks / cabinets.
- The MDF room shall be installed on the first floor of the building. Avoid the basement due to potential flooding.

2. Telecommunications Rooms (IDFs)

- A minimum of one (1) telecommunications room (i.e. IDF rooms) will need to be installed on each floor and should be vertically stacked, floor-to-floor. Buildings with larger floor plates may require a second IDF room on each floor, vertically stacked as a second riser within the building.
- The IDF rooms shall be a minimum of 10' x 12' in size, capable of supporting the installation of one row of four (4) equipment racks.

3. Telecommunications Room Locations

- The TIA Standards requires one IDF room per floor and it shall be located as close as possible to the center of the area being served, preferably in the core area.
- Additional IDF rooms are required per floor when the floor area served exceeds 10,000 square feet or the horizontal distribution distance to the field device or telecom outlet exceeds 295 feet (or 90 meters).
- Telecommunications rooms should not share a common wall with an electrical room due to potential electromagnetic interference (EMI) issues. If it is imperative due to constraints to place both of these rooms adjacent, then a double wall with a 1-foot internal separation should be considered or the layout of the electrical room should preclude mounting of equipment on the common wall.

Telecommunications Pathways (i.e. Conduit/Raceways)

1. Backbone Pathways

- Telecommunications pathways will need to be installed from the MDF room to each IDF room within the building.
- Provide a minimum of three (3) 4-inch conduits from the MDF room to each IDF riser within the building.
- Provide a minimum of three (3) 4-inch conduit sleeves vertically between stacked IDF rooms.
- Provide a telecommunications pathway up to the roof of the building to support future satellite antennas.

2. Horizontal Pathways

- Telecommunications pathways will need to be installed from telecom outlets and IP field devices to the IDF room serving the floor.

- Provide cable tray on each floor within the accessible ceiling spaces of the main corridors as the primary pathways from IDF rooms to telecommunications outlets and field devices.
- Cable tray shall be ladder type aluminum tray with 9" rung spacing and a width of 18 inches in main corridors and 12 inches in secondary cable tray segments. Cable trays shall be 4 inches in depth.
- For facilities designated as historic buildings, alternate cable routing may require the use of surface mounted conduit and wireways, to comply with historic preservation codes. In these cases, the cable installation design must be coordinated with the State prior to construction.
- At the telecom outlet locations, provide 4" square back boxes that are 2-1/8" deep with a 1" conduit installed within the wall to the nearest accessible ceiling space, for routing cabling to cable tray.
- If outlets need to be surface mounted then provide 1" surface mounted raceway from the back box to the main telecom distribution pathways.

Telecommunications Cabling

1. Telecommunications Backbone Cables

- Furnish and install a 24-strand singlemode fiber cable and a 24-strand multimode fiber cable from the MDF room to each IDF room in the building. The multimode fiber cable will be OM4 50 micron laser optimized optical fiber.
- Install fiber optic cable in a 1-1/4" innerduct end to end.
- Furnish and install a 50-pair or 100-pair copper backbone cable from the MDF room to each IDF room in the building.

2. Telecommunications Horizontal Cabling

- Furnish and install a Category 6 unshielded, twisted pair (UTP) horizontal cable from telecom outlets and IP field devices to termination hardware in the IDF rooms.

3. Cabling within Single Occupancy Offices

- Provide a minimum of two telecommunications outlets, located on opposite walls, each with two data jacks. Install two Category 6

horizontal cables to each outlet from the IDF room serving the area.

4. Wireless Access Points (WAPs)

- For ceiling mounted WAPs, install two Category 6 horizontal cables to each WAP from the IDF room serving the area.
- Provide WAPs at 20 to 45 foot spacing or on about 25 foot centers on each floor, mounted in accessible ceilings.

2.5-B CODE ISSUES

Findings

It is our understanding there are currently no code issues in the building related to the existing voice/data IT/Telecommunications Infrastructure.

Recommendations:

For new renovation work, codes which would be applicable would include buy may not be limited to:

- International Code Council (ICC)
- National Electrical Code (NEC)
- Telecommunications Industry Association (TIA)
- Electronic Industries Alliance (EIA)
- Institute of Electrical and Electronics Engineers (IEEE)
- American National Standards Institute (ANSI)
- Underwriters Laboratories (UL)
- State/Local Governing Authorities Having Jurisdiction

2.5-C PLANNED AND ON-GOING PROJECTS

It is our understanding there are no known planned and/or on-going IT/ Telecommunications Infrastructure projects for the Grand Junction State Services building currently.

2.6 SECURITY SYSTEMS

2.6-A OVERVIEW OF EXISTING SYSTEMS

Findings

Note: SMW not scoped for this task, did not provide survey work for Security.

It was reported that Hirsch access control card readers need to be upgraded.

For general security findings, see 2.1-B Code Issues: Security.

Recommendations:

The security systems design guidelines outline electronic security systems infrastructure which would enhance security operations and provide a safe and secure environment for persons and assets within the Grand Junction State Services building. The purpose of this recommendations report is to provide a description of electronic security system parameters which would provide a safe and secure environment for all those persons and assets within the facilities. It is intended to provide valuable information to both technical and non-technical readers for ongoing coordination with security program requirements.

The security systems should be planned and designed to allow the security personnel the operational flexibility to provide various levels of security based on the threat level at a given time. The systems must further provide capability to deliver the highest quality technology today and in the future for system expansion and change. Security system design shall employ various security technologies. Integrated security systems must be capable to function independently if required, as well as be monitored and controlled from a centralized location if required.

Recommended electronic security systems to be considered for implementation and/or upgrade include access control, intrusion detection, duress alarm, intercom, video surveillance, and emergency call system. These applications make it possible for security personnel to view activity both inside and outside the facilities from a central monitoring location or a network-connected security workstation at another location, so they can provide an appropriate response. Care shall be taken to ensure that interior and exterior common circulation areas accessible to both staff and

public will be properly monitored. Electronic security control and monitoring applications shall be implemented as appropriate to provide a safe and secure environment to the facility as a whole. This report is not designed as a specification, but rather as an outline to provide information on recommended security systems technology and design criteria.

The following security design methodologies, criteria and guidelines should be considered and used in development of the security program and physical/electronic security design for the building:

- Industry Standard / Best Practice Design
- Crime Prevention through Environmental Design (CPTED)
- Layered Security / Concentric Circles of Protection
- Integrated Design – Physical/Electronic/Operational
- ASIS Facilities Physical Security Measures
- IESNA G-1-03 Guideline for Security Lighting
- Unified Facilities Criteria UFC 4-010-01
- State of Colorado Design Standards, as applicable

The access control system (ACS) will be an expansion of the existing campus wide system currently installed throughout other State buildings, and utilize similar ACS door controllers and peripheral equipment. New proximity type card readers shall operate with the existing proximity card credentials. Door devices are to wire through a consolidation junction box above door, and be routed to nearest IDF room where door controllers and power supplies are located. ACS door controllers installed in telecommunications IDF rooms will connect to the buildings LAN for communication with the ACS server. New security equipment to be located within IDF rooms must be coordinated with State IT technical staff. Each access controlled door should be equipped with card reader, electrified lock, door position switch, and request to-exit-motion device (or hardware integral request-to-exit switch). All doors described as a card reader controlled access door will be outfitted with the standard equipment listed, unless specifically defined elsewhere to vary from this configuration. It is recommended that for new controlled doors, magnetic locks and electronic strikes not be used. Electrified lever sets and panic hardware should be equipped with request-to-exit switch in exit hardware. Specific door hardware requirements for each controlled door location are to be

coordinated with the State. The ACS shall also serve as the primary security management system for monitoring intrusion alarms. Intrusion alarms such as door status and motion detection alarms are to be integrated with and monitored through the access control security management system. Alarm device additions and modifications shall be coordinated with State during the design phase. Security personnel shall be able to monitor security system alarm notification devices through network connected client workstations, where authorized.

The video surveillance system (VSS) will implement IP digital HD type cameras integrated with the existing VSS. Where analog head-end equipment is located, IP camera digital signals are to be decoded to analog video signal. This will allow for future migration from any older analog equipment to an IP based network video solution. IP security video shall be managed by the existing server/recorders, and new network video recorders are to be installed where required to support the addition of new cameras. It is recommended for renovation work that older technology analog camera be replaced with IP digital security camera, connected to the VSS via building LAN. Security cameras may be made up of both fixed field of view and pan-tilt-zoom (PTZ) type, and should be IP, minimum HD quality, and be Power-over-Ethernet (PoE) devices. Camera network cabling shall pull to nearest IDF room, providing connectivity to the building LAN. IP camera network cabling shall terminate to building PoE network switches. Security personnel shall be able to monitor the security video surveillance system through network connected client workstations, where authorized.

Fixed point duress buttons may be located at designated points within the building, for staff use in emergency situations. Duress alarm buttons should be provided where appropriate, typically at public interface counters and other locations as designated. Duress alarm buttons may be interfaced to the security alarm management system, or intrusion alarm system, and report to a central monitoring station if required.

An Intercom Communication System (ICS) should be implemented to enhance security operations in the facility, for security personnel, staff and visitors. It is strongly recommended that an Intercom over IP (IoIP) Communications solution be used for this application. An IoIP system would provide superior audio quality utilizing the latest digital technology, and provide much greater flexibility for locating both master and sub-stations anywhere on the local area network via IP communications. Security personnel within the building or at a centralized control location could utilize two-way audio communications to any remote building IP intercom sub-station.

Within the building, new head-end security control equipment is to be located in IDF or technology rooms, as coordinated with State IT technical staff. Equipment may include ACS control panels, power supplies, duress alarm panels, network video recorders, and UPS units. All critical electronic security equipment must be backed-up with emergency power circuits or UPS units. State security personnel and other authorized staff may remotely monitor access control events, system alarms, and security video through network connected client workstations. For building renovation work, requirements for security device additions/upgrades and specific security system functionality are to be coordinated with State security personnel during design and construction phases.

The above listed security applications must be evaluated during renovation project schematic design phases to confirm applicability to the most current State electronic security systems standards. For any renovation work, security contractors should be pre-qualified prior to bidding, and will be required to work very closely with State security personnel during installation, commissioning and testing phases. All security installation work, construction standards, and operation requirements are to be closely coordinated with the State by the electronic security integrator.

Electronic security systems provided for the Grand Junction State Services building shall be an extension of existing State facility security system infrastructure, as described earlier in the report. It is generally recommended that the building be provided with electronic security applications and equipment as listed below:

Access controlled doors:

- Main entry
- Suite entries on each floor
- IDF rooms, recommended
- Sensitive spaces

Intrusion alarms:

- Access controlled doors
- Emergency egress only doors
- Perimeter doors

Intercom stations:

- Main entry, recommended
- Receiving dock door, recommended

Duress alarms:

- Public interface counters
- Cash handling locations
- Loading docks

Video surveillance cameras:

- Perimeter entry/exit doors
- Entry lobby/reception
- Elevator lobbies
- Emergency exit doors
- Loading docks
- Building exteriors

Security system cabling should generally share cable routes with that of the building structured network cabling system. The network cabling paths and riser locations generally provides the most direct route through a facility, and typically contain sufficient space for security cabling requirements. For facilities designated as historic buildings, alternate cable routing may require the use of surface mounted conduit and wireways, to comply with historic preservation codes. In these cases, the cable installation design must be coordinated with the State prior to construction. Data cabling required for IP security cameras should be provided and installed by the Telecommunications Contractor. This is the recommended design and construction method for provisioning of the IP camera network cabling to support the VSS cabling infrastructure. State IT construction standards for network and security cabling types and jacket color must be adhered to. Security cabling should never be exposed and should be contained in protective conduit wherever cable is accessible to vandalism, accidental damage, or where it traverses any unsecured space. Security cabling shall

be plenum rated where required by codes.

The security conduit pathway system should be coordinated with the electrical distribution system in order to maintain separation from motors or transformers, separation between parallel runs of telecommunications and electrical cabling, and separation from fluorescent lights.

Basic Security Conduit requirements:

- All security cabling located in in-accessible spaces shall be installed in conduit.
- All exposed security system cabling and shall be installed in conduit.
- All security system conduits shall be minimum ¾" unless otherwise required.
- All penetrations of rated walls shall be fire-stopped in an approved manner to prevent the passage of flame, smoke, and gas.

Head-end security control equipment shall generally be located in Intermediate Distribution Frame (IDF) rooms, or other technology rooms. Security equipment locations within IDF rooms must be coordinated with State IT technical staff during design phase. This equipment may include access control panels, duress equipment, power supplies, network video recorders, and UPS units. Specific requirements and locations within the rooms will be determined during the design phase. Security cabling within IDF rooms shall be piped to wire gutters and or security equipment panels. Within IDF rooms, it is anticipated a 4'x8' section of wall space shall be reserved for security equipment, and supplied with fire treated plywood backboard. All security equipment in the room should be located away from potential sources of electro-mechanical interference (EMI) and water infiltration. Rack mounted security equipment may share space in telecommunication equipment racks, where appropriate, and as coordinated State IT personnel. One dedicated 120VAC 20A power circuit shall generally be required at each security wall board location and at each security equipment rack. In the event of loss of building power, all mission critical electronic security equipment requiring continuous 120VAC power shall be provided with back-up UPS units. All UPS units shall be stand-alone units dedicated for security, and shall be sized accordingly based on required run time.

2.6-B CODE ISSUES

Findings

It is our understanding there are currently no code issues in the building related to existing electronic security systems.

Recommendations:

For new renovation work, codes which would be applicable would include but may not be limited to:

- International Code Council (ICC)
- Americans with Disabilities Act (ADA)
- National Fire Alarm and Signaling Code (NFPA 72)
- National Fire Protection Association Life Safety Code (NFPA 101)
- National Electrical Code (NEC)
- Telecommunications Industry Association (TIA)
- Electronic Industries Alliance (EIA)
- American National Standards Institute (ANSI)
- Underwriters Laboratories (UL)
- State/Local Governing Authorities Having Jurisdiction

2.6-C PLANNED AND ON-GOING PROJECTS

It is our understanding there are no known planned and/or on-going Security System projects for the Grand Junction State Services building currently.

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3.0 FLOOR-BY-FLOOR ASSESSMENT FINDINGS AND RECOMMENDATIONS

3.0-A CODE ISSUES

See 2.1-B Code Issues

3.0-B GENERAL ACCESSIBILITY ISSUES

See 2.1-C General Accessibility Issues

3.0-C ARCHITECTURAL FINISHES AND INTERIOR COMPONENTS

General Architecture Findings

It was reported that the spaces occupied by the Department of Revenue's Lottery Division were remodeled in the last two years or so.

Ceiling Finishes

The gypsum board ceilings in the main entrance lobby, First Floor corridors, and the restrooms appear to be in good to fair condition throughout.

The acoustic ceilings throughout the rest of the building appear to be in fair condition overall with general deterioration due to aging noted (see Fig. 3.0.C.1).

Fig. 3.0.C.1 General deterioration due to aging noted at the acoustic ceilings during the site survey visit.

Wall Finishes

The gypsum board walls throughout are in generally fair condition with areas of soiling and damage noted (see Fig. 3.0.C.2 and Fig. 3.0.C.3).

The wallcovering at areas of the walls and panels throughout is in fair condition with general deterioration due to aging and wear-and-tear noted (see Fig. 3.0.C.4 and Fig. 3.0.C.5).

The four-inch square wall tile in the restrooms throughout the building is in fair condition with general soiling noted in areas (see Fig. 3.0.C.6).

An area of the concrete block wall was observed to be cracked in a portion of an interior exit stairway included in the site survey visit (see Fig. 3.0.C.7). There is a pipe penetration through an area of the concrete block wall in the interior exit stairway which has not been sealed and is in violation of fire code regulations (see Fig. 3.0.C.8).

Fig. 3.0.C.2 Areas of soiled gypsum board walls observed during the site survey visit.

Fig. 3.0.C.3 General wear-and-tear at areas of the gypsum board walls noted on the Third Floor.

Fig. 3.0.C.4 Deteriorating and soiled wallcovering noted during the site survey visit.

Fig. 3.0.C.5 Deteriorating and damaged wallcovering noted during the site survey visit.

Fig. 3.0.C.6 An area of soiled four-inch square wall tiles observed in a restroom during the site survey visit.

Fig. 3.0.C.7 Cracking of the concrete block wall observed in a portion of an interior exit stairway included in the site survey visit.

Fig. 3.0.C.8 An unsealed opening observed at a pipe penetration through the concrete block wall in a portion of an interior exit stairway included in the site survey visit.

Floor Finishes

The tile flooring throughout the main entrance lobby and First Floor corridors appears to be in good condition overall. The four-inch square tile flooring at the Second through Fourth Floor elevator lobbies appears to be in good to fair condition overall. The two-inch square tile flooring throughout the restrooms appears to be in fair condition overall with general soiling noted (see Fig. 3.0.C.9). The vinyl, or linoleum, tile flooring in the break rooms and other areas included in the site survey visit appears to be in fair condition overall with general wear-and-tear noted throughout.

The carpet flooring throughout many of the offices, corridors, and other areas included in the site survey visit is in fair to poor condition overall with areas of deterioration due to age and soiling (see Fig. 3.0.C.10). Areas of the carpet flooring were noted to have loose seams that have been taped down, creating a tripping hazard (see Fig. 3.0.C.11)

Cracking of the concrete flooring was noted at an interior exit stairway landing included in the site survey visit (see Fig. 3.0.C.12). Worn paint was observed at the concrete flooring in the employee entrance and freight elevator lobby on the east end of the north side of the First Floor (see Fig. 3.0.C.13). A portion of the rubber flooring on the stairs was observed to have been taped down and is creating a potential tripping hazard (see Fig. 3.0.C.14).

Fig. 3.0.C.9 Generally soiled two-inch square tile flooring noted in the restrooms throughout.

Fig. 3.0.C.10 Areas of worn and soiled carpet observed during the site survey visit.

Fig. 3.0.C.11 Tape observed at an area of the carpet flooring and creating a potential tripping hazard.

Fig. 3.0.C.12 Cracking noted at the concrete flooring at an interior exit stairway landing included in the site survey visit.

Fig. 3.0.C.13 Worn paint noted at the concrete flooring in the employee entrance and freight elevator lobby on the east end of the north side of the First Floor.

Fig. 3.0.C.14 Tape observed at the rubber flooring on the stairs is creating a potential tripping hazard.

Other

The doors were observed to have areas of minor damage and general wear-and-tear throughout the building (see Fig. 3.0.C.15 and Fig. 3.0.C.16).

The wood cabinetry housing the mailboxes in the lobby of the main entrance was noted to have minor damage and general wear-and-tear, especially along the base (see Fig. 3.0.C.17).

The interior signage throughout the building was noted to be deteriorating and worn overall (see Fig. 3.0.C.18). There were also a number of signs printed on paper and posted throughout the building observed during the site survey visit (see Fig. 3.0.C.19).

Fig. 3.0.C.15 General wear-and-tear noted at the wood doors throughout the building.

Fig. 3.0.C.16 General wear-and-tear noted at the metal doors throughout the building.

Fig. 3.0.C.17 General wear-and-tear noted at the wood cabinetry housing the mailboxes in the lobby of the main entrance.

Fig. 3.0.C.18 General deterioration and wear-and-tear noted at the interior signage throughout.

Fig. 3.0.C.19 Printed paper signs noted throughout the building during the site survey visit.

Recommendations:

- Replace acoustic ceiling tiles throughout the building where deteriorating or soiled.
- Repair or replace any damaged gypsum board walls throughout and paint to match existing.
- Remove wallcovering throughout, repair any damaged areas of the gypsum board walls, and either paint, or replace with new wallcovering.
- Clean and refinish the four-inch square wall tile in the restrooms throughout.
- Repair or replace any cracked or otherwise damaged areas of the concrete block walls throughout the interior exit stairways. Determine the cause of the large crack noted above and repair as necessary.

- Seal any openings around pipe penetrations in the concrete block walls throughout the interior exit stairway per fire code regulations.
- Clean and refinish the two-inch square tile flooring in the restrooms throughout.
- Replace worn vinyl, or linoleum, flooring throughout with new flooring.
- Replace all soiled, damaged, and deteriorating carpet throughout.
- Repair or replace any damaged concrete flooring throughout, including at the interior exit stairway landings.
- Remove any paint wearing off of the concrete flooring throughout and repaint to match existing.
- Repair or replace any damaged and deteriorating rubber flooring on the surface of the stairs throughout the interior exit stairways.
- Refurbish all interior doors and door frames and replace all knob-style door handles with lever-style door handles.
- Refurbish the wood cabinetry housing the mailboxes in the lobby of the main entrance.
- Replace all interior signage throughout with new signage. All new signage should comply with current code requirements.

MARTIN / MARTIN
CONSULTING ENGINEERS

3.0-D STRUCTURAL

No structural concerns were noted on the First Floor through the Fourth Floor. See section 2.2 for structural observations and recommendations for all floors.

SM&W
SHEN MILSOM WILKE

3.0-E VOICE AND DATA

Refer to Section 2.5-A for IT/Telecom Infrastructure general recommendations, as applicable to each floor.

3.0-F SECURITY SYSTEMS

Refer to Section 2.6-A for Security System general recommendations, as applicable to each floor.

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4.0 LEVELS OF RENOVATION NEEDED

Building: Grand Junction State Services Building, 222 6th Street (Grand Junction)					
Priority	Main System	Sub System	Level of Renovation Needed		
			Minimal	Moderate	Extensive
1	Exterior Enclosure	Roof			√
1	Exterior Enclosure	Fall Protection (roof)			√
1	Infrastructure	Tele/Com			√
1	Interior	ADA-Restrooms			√
1	Interior	ADA-Door Levers			√
1	Interior	ADA-Sinks (Break Rooms)			√
1	Interior	Doors			√
1	Interior	Signage			√
1	Exterior Enclosure	Walls & Soffits		√	
1	Infrastructure	HVAC		√	
1	Infrastructure	Lighting		√	
1	Site	Pavement		√	
2	Code	Exit Stairways		√	
2	Exterior Enclosure	Penthouse		√	
2	Exterior Enclosure	Sealant / Grout		√	
2	Exterior Enclosure	Doors		√	
2	Infrastructure	Elevator(s)		√	
2	Infrastructure	Security Access/IDS		√	
2	Infrastructure	Security Video		√	
2	Interior	Finishes - Flooring		√	
2	Interior	Finishes Ceiling		√	
2	Interior	Finishes - Wall		√	
2	Site	Lighting		√	
3	Exterior Enclosure	Windows	√		
3	Exterior Enclosure	Waterproofing	√		
3	Infrastructure	Power	√		
3	Infrastructure	Structural Framing	√		
3	Site	Drainage	√		
3	Infrastructure	Fire Sprinkler	√ *		
	Infrastructure	Fire Alarm			
	Code	Exits			
	Code	Dead End Corridors			
	Exterior Enclosure	Signage			
	Interior	ADA-Drinking Fountains			
	Site	Utilities			

* Note: Destructive testing of the sprinkler piping is recommended to determine the internal condition of the system. Depending on the results, the level of renovation required could be greater.

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5.0 COST ESTIMATES

SUMMARY OF SUMMARIES

Item No.	Description	SF	Total	$/SF
1	222 South 6th Street - Grand Junction	52,000	5,666,568	108.97
2	Contingency on Above		w/ Above	
	Subtotals:	**52,000**	**5,666,568**	**109**
3A	IT \ Teledata (Relocate Exstg Only)	52,000	186,705	3.59
3B	Move Management		See Add Alternate	
3C	Flex Space		Excluded	
3D	Public Art	52,000	65,589	1.26
4	Contingency on Above		25,229	0.49
	Equipment \ Art Subtotal:		**277,523**	**5.34**
	Base Price \ Equipment \ Art Subtotal:		**5,944,091**	**114**
5	Escalation		Excluded	
6	Contingency on Above		Excluded	
	Escalation Subtotal:		**Excluded**	
	Base Price \ Equipment \ Art Subtotal:		**5,944,091**	**114**
7	Design Fees at 8% per State of CO Direction		475,527	9.14
8	Contingency on Above		Excluded	
	Design Fee Subtotal:		**475,527**	**9.14**
	Base Price \ Equipment \ Art \ Design Fee Subtotal:		**6,419,618**	**123**

PROJECTED COST OF CONSTRUCTION IN 2014 DOLLARS	**6,419,618**	**123**

ADD-ALTERNATE				
9	FF&E	38,050	951,250	25.00
10	Move Management	52,000	74,152	1.43
11	Escalation - 6.75% per year (to March 2017)		Excluded	
12	Contingency on Above		Excluded	
	Subtotals:		**1,025,402**	
	ADD-ALTERNATE SUBTOTAL:		**1,025,402**	**20**

SYSTEM BY SYSTEM SUMMARY

Item No.	Description	SF	Total	$/SF
1A	Replace Roof & Add Fall Protection	52,000	220,378	4.24
1B	Escalation to March 2017		Excluded	
	System 1 Roof Replacement Subtotal:		**220,378**	**4**
2A	Repair/Replace Parking Lots/Sidewalks	52,000	157,527	3.03
2B	Escalation to March 2018		Excluded	
	System 2 Site Paving Repairs Subtotal:		**157,527**	**3**
3A	Replace Condensing Unit	52,000	101,273	1.95
3B	Escalation to March 2019		Excluded	
	System 3 Replace Condensing Unit Subtotal:		**101,273**	**2**
4A	Upgrade Lighting & Add Controls	52,000	996,129	19.16
4B	Escalation to March 2020		Excluded	
	System 4 Lighting & Lighting Controls Subtotal:		**996,129**	**19**
5A	Replace Waterproof Membrane at Berm/Bldg	52,000	82,630	1.59
5B	Escalation to March 2021		Excluded	
	System 5 Waterproofing Subtotal:		**82,630**	**2**
6A	Balance of Project Scope	52,000	4,705,590	90.49
6B	Escalation to March 2022		Excluded	
	System 6 Balance of Scope Subtotal:		**4,705,590**	**90**
	System by System Total Project 2014 Dollars Subtotal:		**6,263,528**	**120**
7	IT \ Teledata (Relocate Exstg Only)		186,705	3.59
8	Flex Space		Excluded	
9	Public Art		65,589	1.26
10	Contingency on Above		25,229	0.49
	Equipment \ Art Subtotal:		**277,523**	**5**
	Systems \ Equipment \ Art Subtotal:		**6,541,051**	**126**
11	Design Fees at 8% per State of CO Direction		523,284	10.06
12	Contingency on Above		Excluded	
	Design Fee Subtotal:		**523,284**	**10**
	Base Price \ Equipment & Art \ Design Fee Subtotal:		**7,064,335**	**136**
	PROJECTED COST OF CONSTRUCTION IN 2014 DOLLARS		**7,064,335**	**136**

ADD ALTERNATE				
13	FF&E	38,050	951,250	25.00
14	Move Management	52,000	74,152	1.43
15	Escalation - 6.75% per year (to March 2017)		Excluded	
16	Contingency on Above		Excluded	
	Move Management Subtotal:		**1,025,402**	
	Add Alternate Subtotal:		**1,025,402**	**19.72**

DETAILED ESTIMATE - SUMMARY

				52,000
Item No.	**Description**	**$/SF**	**Total**	**Total w/Burdens**
DIV 2	EXISTING CONDITIONS	3.84	199,814	283,658
DIV 3	CONCRETE	1.58	82,368	116,931
DIV 4	STONE & MASONRY	2.74	142,234	201,917
DIV 5	METALS	1.86	96,920	137,589
DIV 6	WOODS & PLASTICS	2.45	127,400	180,858
DIV 7	THERMAL PROTECTION	8.73	454,148	644,714
DIV 8	OPENINGS, DOORS, WINDOWS	3.08	160,160	227,365
DIV 9	FINISHES	18.07	939,516	1,333,748
DIV 10	SPECIALITIES	0.69	36,040	51,163
DIV 11	EQUIPMENT		EXCLUDED	
DIV 12	FURNISHINGS		EXCLUDED	
DIV 13	SPECIAL CONSTRUCTION		EXCLUDED	
DIV 14	CONVEYING SYSTEMS	0.05	2,500	3,549
DIV 21	FIRE SUPPRESSION	1.20	62,291	88,429
DIV 22	PLUMBING	1.92	100,000	141,961
DIV 23	HVAC	14.00	728,000	1,033,477
DIV 26	ELECTRICAL	14.02	729,216	1,035,203
DIV 27	COMMUNICATIONS	0.28	14,352	20,374
DIV 31	EARTHWORK		EXCLUDED	
DIV 32	EXTERIOR IMPROVEMENTS	2.24	116,674	165,631
DIV 33	UTILITIES		EXCLUDED	
DIV 34	TRANSPORTATION		EXCLUDED	
	Subtotal Direct Construction Costs	**76.76**	**3,991,633**	**5,666,568**
	Allowance for Historical / Memorial Markers		Excluded	
	Direct Cost Subtotal with GFP	**76.76**	**3,991,633**	
	Material Testing	0.10%	3,992	
	Owner's Design & Preconstruction Contingency	10.00%	399,163	
	Owner's Construction Contingency (after NTP)	5.00%	199,582	
	Permits	1.90%	75,841	
	Total Direct Construction Costs	**89.81**	**4,670,211**	
	Standard General Conditions (GC's Onsite Overhead)		596,960	
	Subtotal NET Construction Cost	**101.29**	**5,267,172**	
	GC's Off-Site Overhead & Profit	3.60%	189,618	
	GC's General Liability Insurance	0.90%	47,405	
	Construction Cost w/o Bonds & Escalation	**105.85**	**5,504,194**	
	Builder's Risk Insurance	1.50%	82,563	
	Performance & Payment Bond	1.20%	66,050	
	Bid Bond	0.25%	13,760	
	Tap Fees		Excluded	
	Bidding Reserves		Excluded	
	Total Estimated Cost of Construction	**108.97**	**5,666,568**	

DETAILED ESTIMATE

Estimate By:	Kyle Hoiland
Date:	25-Apr-14
Reviewed By:	Chris Squadra
Date:	25-Apr-14

Building GSF: 52,000 **Total Cost:** $3,991,633

DIV 02	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	EXISTING CONDITIONS / BUILDING DEMOLITION				
	Asbestos Abatement (Allowance)				Excluded
	Demo Building Interior as needed	17,160	SF	2.00	34,320
	Demolition Disposal & Dumping Fees	3,178	CY	3.40	10,804
	High Pressure Wash @ Exterior Building	25,540	SF	1.40	35,756
	Remove Existing Caulking at Exterior Building Joints	7,249	LF	2.50	18,122
	Remove Dirt & Debris @ Roof (Allowance)				Excluded
	Scaffolding (erect & dismantle)	255	CSF	198.95	50,812
	Move Furniture for Egress (Allowance)	1	AL	50,000.00	50,000
	SUBTOTAL EXISTING CONDITIONS/DEMOLITION				**199,814**

DIV 03	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	CONCRETE / FOUNDATIONS				
	Repair Concrete Cracking & Spalling @ Interior Slabs / Concrete Walls / Ceilings (Allowance)	17,160	SF	4.80	82,368
	SUBTOTAL FOUNDATIONS				**82,368**

DIV 04	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	MASONRY				
	Exterior Brick Repair, where necessary	12,770	SF	8.30	105,991
	Recaulk Exterior Masonry	7,249	LF	5.00	36,244
	SUBTOTAL MASONRY				**142,234**

DIV 05	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	METALS				
	Replace Interior Stair & Patio Railing (code compliance)	600	LF	128.20	76,920
	Fall Protection Systems (Allowance)	1	AL	10,000.00	10,000
	Repair Miscellaneous Corroded Metals (Allowance)	1	AL	10,000.00	10,000
	SUBTOTAL METALS				**96,920**

DIV 06	Description	Quantity	Unit	TOTALS Cost/Unit	TOTALS Total Cost
	WOODS				
	Rough Carpentry Wood Materials	52,000	SF	0.75	39,000
	Rough Carpentry Labor	800	HRS	48.00	38,400
	**Time & materials for miscellaneous building shoring, safety railings/barricades, blocking, substrate repairs*				
	Reconfigure Restrooms for Accessibility (Allowance)	1	AL	50,000.00	50,000

	SUBTOTAL WOODS				**127,400**

DIV 07	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	THERMAL & MOISTURE PROTECTION				
	Stucco Patching/Repair @ Exterior Soffits	2,554	SF	9.50	24,263
	Remove & Replace Roof System	15,600	SF	14.90	232,440
	Waterproof Repair @ Water Damage Locations (Allowance)	2,500	SF	18.75	46,875
	Waterproof Repair @ South Side, base of the Bldg (Allowance)	912	SF	18.75	17,103
	Re-waterproof & Insulate Window Openings @ N. Side	2	EA	750.00	1,500
	Metal Fascia, Flashings, & Trims Repair (Allowance)	1	AL	35,000.00	35,000
	Roof Drain, Scuppers, Gutters & Downspouts Repairs (Allowance)	1	AL	25,000.00	25,000
	Insulation Repairs @ Impacted Areas	1	AL	10,000.00	10,000
	Miscellaneous Caulking & Sealants @ Interior	7,974	LF	5.00	39,868
	Miscellaneous Caulking & Sealants @ Exterior	4,420	LF	5.00	22,100
	SUBTOTAL THERMAL				**454,148**

DIV 08	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	OPENINGS				
	Door Repair & Replacement As Needed (Allowance)	69	EA	1,500.00	102,960
	Replace Knob-style Door Hardware w/ Lever Style	208	EA	275.00	57,200
	Windows Replacement As Needed (Allowance)				Excluded
	SUBTOTAL OPENINGS				**160,160**

DIV 09	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	INTERIOR FINISHES				
	Gyp Bd Wall Patching	57,200	SF	1.10	62,920
	Gyp Bd Ceiling Patching	17,160	SF	3.10	53,196
	ACT Ceiling Repair / Tile Replacement	39,000	SF	3.21	125,190
	Gyp Bd Detailing @ Int Soffits, Cols, etc.	1	LS	25,000.00	25,000
	Remove & Replace All Carpet	40,300	SF	3.88	156,364
	Clean/Repair Natural Stone/Tile Flooring	7,800	SF	20.00	156,000
	Repair/Replace VCT	3,900	SF	1.80	7,020
	Vinyl Base	22,575	LF	2.20	49,666
	Wall Coverings Repair / Replacement	18,876	SF	3.90	73,616
	Clean/Repair Natural Stone/Tile @ Walls	5,720	SF	12.40	70,928
	Paint Gyp Bd Walls & Ceilings w/2 Coats Latex	74,360	SF	0.60	44,616
	Miscellaneous Accent Painting Allowance	1	LS	25,000.00	25,000
	Refurbish Wood Finish at Lobby Mailboxes	1	LS	5,000.00	5,000
	Remove & Repaint Corrosion @ Metal (Allowance)	1	AL	10,000.00	10,000
	Upgrade Fire Resistance of Stairs & Doors (Allowance)	1	AL	75,000.00	75,000
	SUBTOTAL INTERIOR FINISHES				**939,516**

DIV 10	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SPECIALITIES				
	Movable Office Partitions System				Excluded
	New Bath Hardware				Excluded
	Fire Extinguishers (2 per floor)				Excluded

	Corner Guards				Excluded
	Code Required Signage	200	EA	55.20	11,040
	Wayfinding Signage	1	AL	25,000.00	25,000
	Access Ladders				Excluded
	SUBTOTAL SPECIALTIES				**36,040**

DIV 11	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	EQUIPMENT				
	Refrigerator				Excluded
	Gas Range				Excluded
	Dishwasher				Excluded
	Microwave				Excluded
	Food Disposal				Excluded
	Appliance Installation				Excluded
	Accordion Wall Partitions				Excluded
	Kitchen & Food Service Equipment				Excluded
	Other Office Equipment Not Listed				Excluded
	SUBTOTAL EQUIPMENT				**EXCLUDED**

DIV 12	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	FURNISHINGS				
	Entry Receptionist Desk Upgrade				Excluded
	Plastic Laminate Countertops Repairs				Excluded
	Solid Surface Countertops Repairs				Excluded
	Copy / Print / Mail Center Casework				Excluded
	Kitchen / Break Room Casework				Excluded
	Window Roller Blinds - no valances, installed				Excluded
	Display Cases				Excluded
	Marker Boards				Excluded
	Tackboards				Excluded
	Office Furnishings & Other Building FF & E				Excluded
	SUBTOTAL FURNISHINGS				**EXCLUDED**

DIV 13	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SPECIAL CONSTRUCTION				
	Alternative Energy Systems				Excluded
	Alternative Fuel Vehicle Fueling Stations				Excluded
	SUBTOTAL SPECIAL CONSTRUCTION				**EXCLUDED**

DIV 14	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	CONVEYING SYSTEMS				
	Elevator Service Call - Verify Current Condition & Maintenance Plan	1	LS	2,500.00	2,500
	SUBTOTAL CONVEYING SYSTEMS				**2,500**

DIV 21	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	FIRE SUPPRESSION				
	Fire Sprinklers - Relocation (Allowance)	17,160	SF	3.63	62,291
	Backflow Prevention				Excluded
	FDC				Excluded
	Booster Pump (Allowance)				Excluded
	SUBTOTAL FIRE SUPPRESSION				**62,291**

DIV 22	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	PLUMBING				
	Demo Existing Plumbing				Excluded
	Plumbing Systems - Full Replacement				Excluded
	Provide ADA Fixtures, where necessary (Allowance)	22	EA	2,500.00	55,000
	Insulation @ Lavatory & Mechanical Piping	1	AL	45,000.00	45,000
	SUBTOTAL PLUMBING				**100,000**

DIV 23	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	HVAC				
	HVAC - Replacement @ 50% of System	52,000	SF	14.00	728,000
	Upgrade HVAC Controls				In Progress
	SUBTOTAL HVAC				**728,000**

DIV 26	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	ELECTRICAL				
	Demo Existing Electrical Outlets & Replace	52,000	SF	1.00	52,000
	Replace Panels	52,000	SF	6.21	322,920
	New Electrical Wiring & Conduit @ New Lighting	5,200	SF	2.98	15,496
	Add Lighting @ Stairwells Only	5,200	SF	2.00	10,400
	Remove Light Fixtures throughout Building	52,000	SF	1.00	52,000
	Replace Light Fixtures w/ LED	52,000	SF	2.50	130,000
	Replace & Provide Lighted Exit Signs	24	EA	250.00	6,000
	Automated Lighting Controls/Sensors	52,000	SF	1.80	93,600
	Replace Emergency GenSet				Excluded
	UPS System				Excluded
	Solar Photovoltaic System				Excluded
	Wind Turbine System				Excluded
	Replace Lightning Protection System	52,000	SF	0.90	46,800
	SUBTOTAL ELECTRICAL				**729,216**

DIV 27	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	DATA / COMMUNICATIONS				
	Fire Alarm System - Minor Upgrades & Relocation from Impacted Areas	7,800	SF	0.92	7,176

	Data & Communications Conduit - Relocation at Impacted Areas	7,800	SF	0.92	7,176
	Data & Communications Equipment				Excluded
	A/V Equipment				Excluded
	SUBTOTAL COMMUNICATIONS				**14,352**

DIV 032	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SITE IMPROVEMENTS				
	Paving				
	Remove Soil & Backfill @ South Side of Bldg for Waterproofing	1	LS	25,000.00	25,000
	Remove & Replace Existing Asphalt Road around Bldg	17,039	SF	4.22	71,906
	Concrete Replacement at Sidewalks	2,272	SF	6.50	14,767
	Concrete Sidewalks - Seal Cracks	1	LS	5,000.00	5,000
	New 6" x 18" F.R. Concrete Curb & Gutter				Excluded
	New 4" Sidewalk				w/ Above
	Landscape				
	Fine Grade Topsoil				Excluded
	Sod Repair				Excluded
	Irrigation Repair				Excluded
	SUBTOTAL SITE IMPROVEMENTS				**116,674**

DIV 33	Description	Quantity	Unit	TOTALS	
				Cost/Unit	Total Cost
	SITE CIVIL/MECHANICAL UTILITIES				
	Secondary Utilities to Building				
	2" Copper Water Line (Incl. Valves, Connections, Trenching w/ Bedding)				Excluded
	6" Sewer Service				Excluded
	Gas Line Trenching				Excluded
	Electrical Service				Excluded
	Phone & Data Service Trenching				Excluded
	SUBTOTAL SITE CIVIL/MECHANICAL UTILITES				**EXCLUDED**

TOTAL COST -					**3,991,633**
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