KODIAK CITY COUNCIL
WORK SESSION AGENDA

Tuesday, February 23, 2016
Kodiak Public Library Multi-Purpose Room
7:30 p.m.

Work sessions are informal meetings of the City Council where Councilmembers review the upcoming regular meeting agenda packet and seek or receive information from staff. Although additional items not listed on the work session agenda are sometimes discussed when introduced by the Mayor, Council, or staff, no formal action is taken at work sessions and items that require formal Council action are placed on a regular Council meeting agenda. Public comments at work sessions are NOT considered part of the official record. Public comments intended for the "official record" should be made at a regular City Council meeting.

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LIBRARY CONDITION ASSESSMENT REPORT

Kodiak Fire Station

Prepared for:
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September 4, 2015

Sign-off Sheet

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(signature)

Ray Amsden, AIA

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Executive Summary

This City of Kodiak facility, commonly referred to as the "old library", was originally constructed around 1968 with small additions completed around 1976 and 1981. The facility does not appear to have had any major system replacement outside of required maintenance, new exterior paint, and recent re-roof.

Stantec Architecture Inc., is currently under contract to begin the concept design for upgrading the fire station on a lot adjacent to this existing building. This adjacency would affect the future layout of the fire station site; therefore, before beginning the design effort, it has been requested that a study of the old library building be completed to assess the cost to upgrade for another City use; potentially offices or storage. The cost to upgrade the facility to meet the minimum current code requirements for reuse of an existing building will partially determine the future of the building. This condition assessment report is based on an approximately six-hour investigation and walk through effort by Stantec staff. This included architectural, mechanical, and electrical staff. The structural effort consisted of a review of photographs and historical drawings and discussions with the onsite team.

Our team has had initial discussions with the local building official in Kodiak and determined that major systems upgrades would be required for seismic, heating, ventilation, waste, vent, and electrical wiring and service entrance systems. Because no new use for the facility has been definitively determined the assumption has been to convert the building into office space. Any use is expected to be different than a library or assembly occupancy and we have confirmed that the local authority having jurisdiction would interpret the code as a change in occupancy requiring nearly complete code upgrades for major building systems.

Considering the code upgrade requirements, the abatement work required, the age of the equipment and finishes, the project would require that all nearly all building systems be replaced or extensively upgraded. The only elements of the building to remain would be the foundation, structural floor, and wall and roof framing and sheathing.

1.0 STRUCTURAL ASSESSMENT

Stantec Architecture Inc. (Stantec) consulted with the City of Kodiak Building Department staff to discuss required structural upgrades for a change of occupancy. The building official's response is that seismic upgrades would be required even if the building is reclassified into a lower occupancy category. Per that direction, a limited structural review was conducted of the record drawings, including both the original construction and the subsequent two additions; photographs; and discussions with staff that had conducted the onsite investigation. The review focused on seismic and structural deficiencies that would have significant cost implications to address.

1.1 ORIGINAL BUILDING

The building was designed and constructed in the late 1960s. The structure is a one-story, hybrid heavy timber building with concrete masonry unit (CMU) bearing end walls. There is a full crawlspace, and the first floor is framed with dimensional lumber spanning from exterior walls to interior heavy timber beams. The heavy timber beams do not appear to be connected to the interior foundation pads; there is only a drift pin dowel called out. The pin is embedded into the footing but only extends into a hole cut out of the beams with no other physical connection.

The roof is supported with glulam beams and topped with 3x decking. The glulam beams run parallel with the end CMU walls and span across the building, and are supported on either end by a glulam column. The decking extends over the interior glulam beams to the exterior CMU walls. The foundation consists of a shallow continuous exterior footing and wall.

1.1.1 Seismic Deficiencies

This building was designed and constructed shortly after the 1964 Good Friday Earthquake, but has significant deficiencies that elevate the seismic risk compared to buildings designed and constructed to current code requirements.

- There is a major seismic deficiency with no clear lateral force resisting system on the north and south sides. The end walls on the east and west sides form a CMU shear wall system in that principal direction, but the only mechanism for lateral force resistance in the other direction is bending in timber columns and connection rigidity for the glulam beam to timber column joint. This is not a reliable connection for seismic resistance and limited seismic force could be transferred across this connection.

  Recommended retrofit would be elimination of at least two (2) banks of windows on the north or south walls and the addition of steel bracing or a new wood framed shear wall element. Lateral ties and drag struts would need to be attached along the edge of the roof to transfer lateral load into the new bracing system. A wood shear wall framed with

dimensional lumber, sheathed on both sides with 1-inch sheathing and hold-downs and anchor bolts on each end could be used as a retrofit.

- The end CMU walls are not well connected to the diaphragm. There is an inherent incompatibility between flexible wood diaphragms and framing and CMU or concrete walls. Modern building codes require a strong connection between concrete walls and wood roofs due to observed failures of this connection in past earthquakes. The roof to wall connection appears insufficient to provide appropriate out of plane bracing to the concrete walls.

  A retrofit would be the addition of positive anchorage to the CMU walls with steel straps that can be developed into the decking to form positive tension ties to the CMU walls. Epoxy anchors could be added at 16 inches o.c. with 12 gage steel straps lapped back 4 feet into the roof diaphragm.

- Another major deficiency is the roof diaphragm. The roof diaphragm consists of 3x timber decking. There is no sheathing or other tie to hold the decking together to act as a unit. Decking is usually connected with side nails but at a large spacing and the deck planks can slide relative to each other under high loads, not developing needed diaphragm action.

  Recommended retrofit would be to add a 1/2-inch layer of sheathing on top of the decking to form a competent structural diaphragm.

- The interior floor glulam beams and exterior glulam columns are not positively attached to the foundation. The only connections are the use of "drift pins"; basically dowels. These dowels can prevent lateral movement by bearing against the dowels but cannot prevent vertical movement.

  Recommend straps or additional anchorage at the affected beams and columns to positively secure the framing to the foundation. The straps can be anchored with steel anchors, wood bolts into the columns, and epoxy anchors into the concrete footing below.

1.2 FIRST ADDITION

The first addition added some space to the north side of the building in the mid-1970s. The addition is a light framed wood structure. The roof framing consists of wood chord/metal web joists attached to a glulam ledger bolted to the face of original building roof glulam beams. The roof diaphragm consists of 1-1/8-inch tongue and groove plywood. The addition's other three (3) sides are framed with stud bearing walls. There does not appear to be a designed lateral force resisting system but the exterior walls are sheathed, forming light framed shear walls. No hold downs or additional anchorage is noted except for anchor bolts along the sill plate of the walls. The foundation is a shallow concrete foundation system and the first floor is a slab on grade.

1.2.1 Seismic Deficiencies

- There are no positive hold downs or other anchorage to foundation for the "effective" shear walls.

  Recommended retrofit would be to epoxy in a bolt and attach hold down to studs at ends of what can be considered shear walls; a total of six (6) locations.

- There does not appear to be blocking between joist top chords where the new roof connects with the existing. Seismic load needs to transfer from the addition to the existing building along the interface between the two. The only mechanism for shear transfer is through bending of the joist top chord and the joist clips. This can induce cross-grain tension in the chords and is not an effective means of shear transfer.

  A recommended retrofit would be to add a continuous bent plate and fastening between addition roof diaphragm edge and the original building for a more positive shear connection.

- There is no collector or drag strut over the long array of windows to the "effective" shear wall. Since the windows offer no lateral resistance, the long extent of these windows requires a significant concentrated force transfer to the short section of effective shear wall on the north side.

- A possible retrofit would be addition of steel straps and blocking continuous along the roof edge on the north side to transfer the accumulated shear force to the wall that can provide resistance.

1.3 SECOND ADDITION

This addition was designed and constructed in the early 1980s. The addition is located on the southeast side of the original building and only connects to the original building, not the first addition. This addition is a light framed wood structure with a dimensional lumber framed roof and wood I-joist floor framing over a crawlspace. The roof joists are supported in the interior by glulam beams and steel tube columns with bearing walls along the exterior. The bearing walls also serve as wood shear walls for the lateral force resisting system. The first floor is framed with a crawlspace and supported internally by pony walls. The roof is connected to the original structure along the west side.

1.3.1 Seismic Deficiencies

- The floor framing at the opening between the addition and the original building was attached to the original CMU with expansion anchors. Expansion anchors of that era are not reliable for seismic application. Additionally, the ledger can be loaded in cross-grain tension.

There are no sub diaphragms or out of plane seismic ties between walls across the floor diaphragm.

A possible retrofit would be the addition of blocking in the floor diaphragm and a strap or positive anchorage to the top of the CMU wall at the opening. New epoxy anchors and steel straps can be added at 16 inches o.c. to better attach the floor.

- The roof connection between the addition and the existing building has similar deficiencies as the floor, including the use of unreliable expansion anchors to connect a ledger and no out of plane anchorage or strapping.

  A possible retrofit would have similar recommendation as the floor above. Recommend the addition of epoxy anchors, blocking, and steel straps at 16 inches o.c. spacing along the CMU wall interface.

- There are many reentrant corners in the roof diaphragm. Drag struts are provided at some of these locations but not all. Additionally, the drag struts that connect back into the original building do not appear to be well connected to the existing CMU walls. It is not clear how force transfer can occur between the addition and the original building in this direction.

  A possible retrofit recommendation is to add lines of blocking and strapping along reentrant corners back to intersecting shear walls.

1.4 NON-STRUCTURAL SEISMIC DEFICIENCIES OF ENTIRE BUILDING

Non-structural deficiencies are not directly related to the structural system, but can cause damage or hazards to occupants during an extreme seismic event.

- The suspended ceiling system appears dated. Suspended ceiling systems greater than 10 years old usually are not braced sufficiently to meet current code requirements. Unbraced ceilings can sway and pound against the enclosing walls with a risk of falling onto occupants below.

  The recommended retrofit would be to add additional cable bracing for the ceiling. If the system is very aged, a full suspended ceiling replacement might be a better option.

- Large mechanical and electrical equipment do not appear to be well anchored. Large equipment can move during an earthquake and pose a hazard.

  The recommended retrofit would be to brace and anchor all equipment rigidly to the structure.

- Large piping and the sprinkler system may not be well braced. In older systems, bracing was minimal or omitted. Moving pipes can collide with framing and against walls and become dislodged.

Recommended retrofit is to add pipe bracing at 10-foot intervals.

2.0 ARCHITECTURAL ASSESSMENT

2.1 CODE UPGRADES

The repair and alteration of an existing building within the city of Kodiak is governed by Chapter 34 (Existing Structures) of the International Building Code (IBC). The local building official has jurisdiction on the interpretation of what upgrades are required to meet current codes. Typically a change in occupancy is a trigger for major code upgrades because of the potential for a more hazardous use. The Library occupancy (A-3) would have originally been listed as an assembly occupancy and considered more hazardous than an assumed office (B Business) or storage (Moderate Hazard S-1).

2.1.1 Fire Protection- Sprinklers

Code current code allows a Type V-B building to be a maximum of 9,000 sf. Type V construction is of any material allowed by code and the B is without fire protection, i.e., sprinklers. This building is approximately 9,466 sf, with frontage increases allowable by code we estimate a building of approximately 14,130 sf would be allowed; therefore, it is assumed sprinklers would not be required for this project and the cost is not included.

2.1.2 Americans with Disabilities Act (ADA)

The existing structure is one level with exits at grade. It is assumed only minor site modifications from slope and surface would be needed to allow exiting to a safe area to meet the requirements of ADA. Door threshold and hardware are assumed to be replaced and would meet all current requirements. None of the existing restrooms meet ADA turning clearance requirements and it is assumed all restroom facilities would be upgraded and, by default, meet the current requirements for turning clearances, fixture heights, and plumbing protections.

2.1.3 Exiting

The existing number of exterior exits and arrangement appears to meet the requirements of a Type B occupancy (Business for offices). Using all the square footage in the facility, code would allow 95 occupants and require only two exits; three are existing. It is safely assumed that no new exits would be required if the building were used as a typical office.

2.2 EXTERIOR ENVELOPE

2.2.1 Roof

The seismic upgrades for the roof diaphragm and possibly removal of select roof asbestos containing material (ACM) would require that the entire roof be replaced. For purposes of this

report we are assuming the insulation values would be increased to match similar values in Southcentral Alaska. We recommend an average value of R-38 when calculated between roof drains and roof parapets.

2.2.2 Exterior Wall Assembly

According to the *Hazardous Material Report* (USKH, 2015) a partial copy of which is included as Appendix A, approximately 173 lineal feet of the original building's exterior paint tested positive for lead-based paint. We are proposing the removal of all lead-based paint, and the repainting and repair of the remainder of all of the exterior walls. Interior demolition required for seismic, electrical, and mechanical upgrades will require extensive removal of the interior sheetrock and vapor retarder. Considering the extensive repairs required within the exterior walls, we are proposing that all exterior walls receive new insulation and vapor retarder.

2.2.3 Exterior Window and Doors

All doors and windows in the facility have reached the end of their service life and need to be replaced. Replacement will ensure the correct waterproofing and air tightness. New hardware required to meet ADA and current code requirements for safety glazing will be satisfied with unit replacement. Insulated glazing in exterior windows and doors will also reduce energy use.

2.3 INTERIOR FINISHES

All interior finishes in the facility have reached the end of their useful service life. Considering the upgrades required for the major plumbing, mechanical, electrical, and seismic systems, it is assumed that all interior finishes will be replaced.

2.3.1 Floors

Stantec recommends that all flooring material be removed, existing subfloors be confirmed structurally sound, and new underlayment be installed for the final flooring of carpet tile, walk-off mat, and sheet vinyl. Self-coved sheet vinyl is to be used at restrooms, break rooms and potentially wet areas; walk-off at the entries; and carpet tile in the majority of the office area.

2.3.2 Interior Walls

It is assumed most walls would be removed and offices reincorporated into the design. Without knowing how the space would be used, the cost assumes replacement of sheetrock and paint at all existing walls and new framing for all upgraded ADA restrooms. Wall finishes would be standard texture and paint for office spaces and a 4-inch tile wainscot at restrooms.

2.3.3 Ceilings

Considering the asbestos test results, seismic requirements, and lighting upgrades, the ceilings will need to be completely replaced. For purposes of the cost estimate we are assuming a typically 2x4 grid meeting current seismic requirements throughout the occupied spaces of the facility.

2.3.4 Doors and Interior Relites

For purposes of the estimate it is assumed all interior relites (windows) are to remain. Interior doors have all reached the end of their service life and would be replaced and include current code required hardware and fire ratings.

2.4 HAZARDOUS MATERIALS

2.4.1 Report

No new hazardous material investigation was part of this report. Appendix A includes only a summary of the *Hazardous Material Report* (USKH, 2005) which was an assessment of multiple public facilities in . The report identifies hazardous materials that would need to be removed during any renovation or demolition effort.

2.4.2 Mold and Mildew

There is evidence of moisture infiltration into the crawlspace area of the facility, increased relative humidity and mold or mildew growth. Mold testing was positive in the 2005 *Hazardous Materials Report* (USKH, 2005) for the crawlspace and above the ceilings; the smell is very strong when entering the building but no additional testing was done. Anecdotal evidence is that during some storm or snow melt events water may enter the building through the northwest-facing rear door. It is assumed that moisture infiltration, combined with the ventilation systems being disconnected, has increased the potential for mold and mildew growth. We strongly recommend this be resolved by remediation per the U.S. Environmental Protection Agency guidelines prior to any type of use or occupancy.

3.0 MECHANICAL ASSESSMENT

The existing library building was constructed in three phases and much of the mechanical systems and equipment appears to be original. The mechanical systems are 30-50 years old and are approaching the end of their service life.

Changing the occupancy classification of the building can require all aspects to be brought up to current code. The Authority Having Jurisdiction has some latitude in determining what requirements will be enforced.

3.1 PLUMBING

The building is served by a public water and sewer utility. Water enters the building via a 1-1/4-inch copper pipe in the boiler room. The exposed water lines have been extensively remodeled. Water piping is copper with soldered joints. Waste piping is a mix of cast iron and copper. The plumbing fixtures appear to be original. The electric water heater is leaking and needs to be replaced.

Numerous cross-connection potentials exist. The most glaring are the lack of vacuum breakers on the hose bibbs, and the female threaded exterior hose bibb near the boiler room, which could allow the entire building to be back fed from the fire station next door leading to potential contamination of the water system.

Plumbing requirements have changed over the years, most notably ADA requirement were legislated after the most recent addition was completed. None of the existing bathrooms meet the space requirements and extensive renovations are needed to meet access requirements.

Currently the building has four bathrooms with a total of five water closets and lavatories. Clearance of 24 inches minimum is required in front of standard water closets, access; the bathroom in the second addition does not meet this minimum. ADA water closets require greater clearances.

Assuming a 50/50 mix of male and female users, the current Plumbing Code requires a total of eleven water closets, three urinals, and four lavatory sinks. Final architectural layout and the mix of office, cubicles, conference, and storage spaces will affect the final requirements. They are presented here to demonstrate the level of modifications anticipated.

3.2 FIRE PROTECTION

The original drawings from 1967 show a fire sprinkler system. This was never installed, and though a fire sprinkler system is not required for the new occupancy, the City may wish to consider one for asset protection as well as insurance purposes.

The existing 1-1/4-inch water service is too small to serve a sprinkler system; a 4-inch service would be required. The interior of the building can be protected by a wet-pipe sprinkler system. Where exterior soffits, canopies, and overhangs are 3 feet or greater in width, exterior sprinkler protection is required. However, all these features are small enough to allow the use of dry sidewall or pendant heads. No exterior piping is anticipated, so the complexities of a dry-pipe or anti-freeze system would be avoided.

3.3 FUEL SYSTEM

Two single wall above ground fuel tanks serve the facility. Both are supported on wood bases and the tanks are not secured to them. The National Fire Protection Association (NFPA) requires the bases to resist damage from earthquakes. Bases should be upgraded and the tank/base assemblies anchored to the ground to prevent overturn.

Single walled fuel pipe is routed underground. While this is legal for a heating system, it is not the best practice because fuel leaks can go undetected. The owner is still liable for contaminated soil.

The new fuel fired equipment discussed under heating and ventilation will require modifications to the fuel piping. Upgrading the heating equipment provides an excellent opportunity to correct deficiencies in the piping.

3.4 HEATING

Hot water baseboard provides heat for the original and first addition. The second addition utilizes an oil fired furnace that doubles as the ventilation system.

The existing boiler is a Weil McLain 488 and was manufactured on 9/30/1986. It has a 690,000 btu/hr capacity. The burner was manufactured in 2011. Makeup water is provided directly from the potable water supply and equipment for chemical treatment was not present. The boiler is nearly 30 years old and the cast iron sections have likely reached the end of their service life based on the lack of water treatment. The boiler stack is single walled and significant leakage was observed at the roof penetration. Also there is no barometric draft damper, and exhaust spills into the room when the boiler fires. The stack and roof penetration should be replaced before the building is reoccupied as this is a life-safety issue.

Numerous old leaks were noted on the piping in the boiler room.

The furnace in the second addition is at least 27 years old. American Standard began printing the date of manufacture on all nameplates in 1987, and the serial number does not conform with the any of the formats dating back to 1980. While the unit appears to be well maintained, it has reached the end of their service life and should be replaced.

3.5 VENTILATION

The core building never had a mechanical ventilation system. The construction documents called for unit ventilators to provide outdoor air to the building through ductwork routed above the ceiling. Instead, vertical unit heaters were installed above the ceiling to recirculate heated air. This explains the musty odor noted in the building. A mechanical ventilation system is required to convert the building to office space. The preferred system would include a roof mounted ventilation unit if the structural analysis permits it. Alternate locations for the equipment include both an exterior pad or inside the "storage room" next to the boiler room.

In the first addition, the ductwork appears to match the plans; however, the roof mounted ventilation unit was removed at some point and the roof deck patched at the penetrations. Again, if structurally permissible, replacement equipment would be located on the roof. The ductwork is typical galvanized steel construction.

An oil fired furnace heats and ventilates the second addition. Supply ductwork is routed in the crawlspace, and return duct routed above the hard ceiling. The ducts have poor to no access. Outdoor air and relief louvers with motorized dampers connect to the duct to provide fresh air.

The bathrooms are exhausted through two roof mounted fans. One is very noisy. Both should be replaced considering their age. Reconfiguration of the bathrooms to meet current standards will also prompt their replacement.

3.6 RENOVATED VENTILATION, HEATING, AND COOLING

Kodiak's climate is moderated by its proximity to the ocean and mild by Alaska Standards. The winter design temperature is positive 7 deg F. The average January low temperature is positive 26 deg F, and coldest recorded temperature is negative 6 deg F. Summer design temperature is positive 68 deg F. The average August high is positive 60 deg F, and highest recorded temperature is positive 80 deg F. These conditions put it on the borderline for requiring mechanical cooling.

3.6.1 Cooling

Summer temperatures are borderline for requiring air conditioning (A/C). Occupants are expecting ever greater thermal comfort; however, local convention can be followed.

The mild winter temperatures, and reasonable electric rates in Kodiak, may make the use of a heat pump practical. The economics of this option should be considered if providing A/C is contemplated.

3.6.2 Ventilation

- Use a boiler for perimeter baseboard/space heating as above. Install unitary roof top units with heat pump for ventilation. A/C is integral to this type of unit. This system provides similar comfort to Option 2 and may have a lower lifecycle cost than Option 2 depending on the relative costs of electricity vs. oil.

4.0 ELECTRICAL ASSESSMENT

Most of the electrical systems in each portion are original, with the exception of the data and CCTV systems, which were added later. While most of the systems may be operational, they are reaching the end of their service life. The recommendations in this report are based on the building being used for another 20 to 30 years.

4.1 ELECTRICAL DISTRIBUTION

The building is served at 208/120-volt, single-phase, 3-wire from a Kodiak Electric Association 25kVA pad-mount transformer adjacent to the building. The service entrance includes a 400-amp current transformer (CT) cabinet with a meter on the exterior of the building serving a 200-amp and a 100-amp disconnect located in the mechanical room. There is no exterior disconnect and the exterior door to the mechanical room is not currently usable. The 200-amp disconnect serves a main panelboard in the mechanical room (Panel B) added in 1975, which subfeeds the original panel in the mechanical room (Panel M), which subfeeds the original panel in the administrative area (Panel A). The 100-amp disconnect serves the panel in the east addition mechanical room (also named Panel A).

All of the panelboards and disconnects should be replaced. The original and 1975 panelboards have reached the end of their service life and may become unreliable and difficult to find replacement parts for. The panelboard in the second addition, while not as old, is still reaching the end of its useful life and shows some signs of water entry at some point in the past (rust in some conduits and rusty metal shavings in the bottom of the panel). A main disconnect should be installed on the exterior of the building to allow the fire department to turn off power without entering the building. While less critical as they have no moving parts, if the remainder of the system is replaced, the CT cabinet and meter socket may be replaced also, as they have been exposed to the elements on the outside of the building for over 30 years.

There are no ground wires in any of the feeder or branch circuit conduits and the conduit is relied upon to make the grounding connection. While this is allowed by code, it is no longer common practice due to the potential for conduits to come apart or have poor connections, which result in an unreliable ground connection.

Most of the receptacles are through-wired without the use of pigtails. This means that both the circuit entering the box and the circuit leaving the box to the next device are connected separately to the receptacle. This is generally not common practice as it relies on the device and the connections to it for continuity to the downstream devices. It is also not allowed by code for the neutral of multi-wire branch circuits, which some of the receptacle circuits appear to be. Many of the receptacle connections are also made by "backstabbing" where the wire is inserted into a spring connection on the back of the receptacle rather than connecting to the

screws on the side. These connections can often be a less reliable connection than the screws and may loosen over time.

Additional code violations include some open junction boxes above the lay-in ceilings, many conduits that are not properly supported above the ceilings, a few conduit entries into boxes and disconnects that do not have proper fittings, and circuit breakers serving multi-wire branch circuits not having a common trip mechanism.

While most of the wiring appears in fairly good condition for its age, it is 30 to 50 years old. If the building is to be remodeled for long term use, it is recommended that all of the wiring be replaced to provide a reliable system for the new life of the building. This would allow the addition of separate ground wires, as mentioned previously, and make reconfiguration and addition of circuits for new floorplan layouts easier. The existing conduits and boxes could be reused where in good condition and located/routed appropriately. Due to their layout and use, libraries traditionally have a very low receptacle demand; therefore, if the space is converted to offices, additional receptacles and receptacle circuits will likely be required.

4.2 LIGHTING

The lighting in the original section and north addition consists primarily of 4-lamp 2x4 lensed fluorescent fixtures installed in a lay-in grid ceiling. The lights in the original section are switched in alternating rows by two switches in the administrative area through the use of lighting contactors located next to the panel. The lights in the north addition are dual-level switched with inboard and outboard lamps controlled separately by local switches. The lighting in the east addition consists primarily of 6-lamp 4x4 parabolic fixtures surface mounted to gypsum wallboard ceilings. There are also some downlights in this area that have had the incandescent lamps replaced with compact fluorescents. The lights in the east addition are controlled by local switches.

The lighting is in fairly good condition, despite its age. All of the fluorescent fixtures have been converted to T8 lamps with electronic ballasts. However, there are a number of issues that would require attention for the building to be reused. The existing wiring serving the fixtures is old and there are no ground wires, as discussed previously. The light fixtures do not include dedicated seismic support wires above the lay-in ceilings. In the first addition, batt insulation has been installed over the lay-in ceiling and the light fixtures. These fixtures are generally not rated for installation under insulation and this may be a fire hazard and shorten the life of ballasts and lamps due to heat buildup.

If the building is intended to be remodeled for long term use, it is recommended that the lighting be replaced, despite its relatively good condition. Reconfiguration and addition of walls would require rewiring of some of the lighting circuits, and correction of the issues listed above would require extensive additional work. Replacing the lighting system in its entirety would likely be a more cost effective option than putting that level of upgrades into a 30- to 50-year old system. In addition, new light-emitting diode (LED) lights and control systems can provide energy savings, even over the current T8 system, as well as providing decreased maintenance requirements.

Exterior lighting consists of high pressure sodium wall packs and one residential style motion/flood light. A photocell is located on the roof. The exterior lighting should be replaced with LED lighting, which provides longer life and more useful light output due to better color rendering.

Emergency lighting consists of ceiling mounted remote heads throughout the original section and north addition served from a single battery unit in the janitor's room. Emergency lighting in the east addition consists of a single self-contained emergency light above the exterior door. There is no exterior emergency lighting.

At a minimum to meet code requirements, the existing battery units would need to be replaced due to their age and decreased performance, and emergency lighting would need to be added in areas of egress pathways that are not currently covered. Exterior emergency lighting would also need to be added at building exits. Replacing the entire interior and exterior lighting systems, as indicated above, would allow the emergency lighting to be incorporated into the normal fixtures, rather than needing to install dedicated emergency fixtures and wiring.

Exit signs include self-luminous exit signs and one non-illuminated sign installed over the top of a non-operational illuminated sign. All of the exit signs should be replaced with powered exit signs with integral batteries.

4.3 FIRE ALARM

A fire alarm panel is located in the east addition mechanical room. It is a conventional zoned panel with all devices located on a single zone. Smoke detectors are located throughout the east addition, but no detectors are located in the original section or north addition. Pull stations are located by each exit door. Notification devices consist of one horn strobe in the east addition, one horn strobe in the original section, and one exterior horn on the far east end of the building.

The fire alarm system should be replaced with an intelligent addressable system with the fire alarm panel or a remote annunciator located at the main entry to provide the fire department responders with additional information on the location of a fire. Pull stations should be located by each exit and strobes and horn strobes should be installed throughout the building to provide ADA notification coverage. An exterior horn strobe should be installed on the front of the building to notify people that may be preparing to enter the building.

Detector layout requirements will depend on the final use of the building and extent of sprinkler system coverage, if any. At a minimum, smoke detectors should be installed at the fire alarm panel and in the path of egress, and heat detectors should be installed in the mechanical rooms.

4.4 TELEPHONE AND DATA

The building has copper and fiber optic service entrances for telephone and data. The original telephone distribution panel is located in the mechanical room and a data rack is located in the storage room adjacent to the mechanical room, although all equipment has been removed from the rack. Original telephone wiring was very minimal. Much of the telephone and data wiring added later was routed in surface raceway, some of which has been damaged.

Due to the outdated nature and damaged condition of much of the telephone and data wiring, and the need to reconfigure outlet quantities and locations for a new building layout, the entire system of telephone and data wiring should be replaced. All devices, wiring, and surface raceways should be removed back to the service entrance locations. New Category 6 wiring should be routed in the crawlspace or above the ceilings to new telephone and data devices as required for the new building use and layout.

4.5 CLOSED-CIRCUIT TELEVISION (CCTV)

A CCTV system was installed sometime after the original construction, including cameras at various locations throughout the facility and a digital recorder located in the administrative area. While the system appears relatively new, the cameras are a mix of models and types and the wiring is exposed in many areas. In addition, many of the camera locations may not be compatible or required depending on the new building use and layout.

The current CCTV system should be removed and should be replaced, if deemed necessary for the new building use, with an IP-based system with a digital recorder and ceiling-mounted dome-type cameras.

Appendix A HAZARDOUS MATERAL REPORT (USKH, 2005)

EXECUTIVE SUMMARY

During May 9 through May 14, 2005, USKH conducted a destructive survey of interior and exterior hazardous materials associated with the Fire Station, Police Station and Library for the City of Kodiak. The Fire Station, Police Station and Library are scheduled for demolition and will be replaced with new. The purpose of this survey was to provide a reasonable and prudent effort to identify the hazardous materials for the prospective bidders for the demolition of the buildings. This report is the result of this survey.

As an extra service USKH conducted an asbestos containing material survey in the Public Works building. Those findings are also located in this report.

Asbestos Containing Materials (ACM):

Fire Station: Very little ACM was found associated with the Fire Station. The ACM is limited to the black mastic under the carpet in the occupied areas and the silver exterior finish on the roof. All the ACM is non-friable but will require being removed as a response action.

Library: The ACM found are:

- Vinyl Asbestos Tile (VAT)
- Sheet Vinyl
- Mastic under the stainless steel sinks
- Roof Asphalt and Mastic on the Old Roof only
- Hard Pipe Fittings, Quantity 50 Each
- Suspended Ceiling Tile

Police Station: The ACM found are:

- Roof Mastic, not the roof but the black mastic sealing the roof joint between the covered storage area and the Police Station.
- Pipe Insulation
- Vinyl Asbestos Tile (VAT)
- Sheet Vinyl
- Stainless Sink Mastic

The materials at the Library and Police Station are in good condition and do not pose a health risk to the occupants. These materials will be disturbed during the demolition. The disturbance should be conducted as ACM response action. The response action will require project design, certified workers and air monitoring.

The total estimate to remove all the ACM from the three buildings is $25,000.00.

Lead Based Paint And Lead Containing Products:

Fire Station: Lead was found in the following materials:

- Yellow striping on the bay floors.
- Bay 1 Maintenance Shop – Paint storage cabinet.
- On Door in Bay One.
- On Phone Box Bay One.
- Brown Paint on exterior door in Reception Office.
- Grey/Yellow Painted Stairs in Bay One.
- On all lead solder sweat joints.

Library:

- Only the gray exterior paint tested positive for lead based paint. Not all the exterior paint was positive for lead based paint. See sketch in Appendix C for the location of the positive areas.
- All lead solder sweat joints.
- One janitor's sink tested positive for lead.

Police Station:

- In the jail itself, only one door painted white was positive for lead.
- All lead solder sweat joints.

The amount of material and the health risk due to this type of lead based paint and solder joints is not significant.

See the report for an economical and inexpensive recommendation to dispose of the lead based paint and lead materials.

The only item that would require removal under containment conditions would be the paint that is flaking off on the CMU wall. The estimate cost for this removal and disposal as a hazardous waste is $13,000.00.

Mold:

Air and bulk samples and pert-dish samples for mold were conducted. The Fire and Police Stations were not found to require action regarding mold growth.

Mold growth was found in the Library's crawl space and above the suspended ceiling of the original Library. No mold growth was found in the occupied areas of the Library. The sampling results indicate that the mold in the crawl space and above the suspended ceiling is not migrating into the occupied areas.

See the report for an economical and inexpensive recommendation to dispose of the mold. The estimated cost to remediate found mold is $2,500.00

Polychlorinated Biphenyls (PCB's):

Found PCB's are limited to the ballasts located in the light fixtures. Not all these ballasts contain PCB. See the report for the recommendation to have the ballast removed and disposed of as a "Unit Price". Estimated cost for removal and disposal of 25% of the total ballasts is $5,000.00.

Mercury:

Mercury is located in the fluorescent lamps and the thermostats. The estimated cost for the disposal of these items for all three buildings is $6,884.00.

Diesel Range Organics (DRO):

The soil around the Library was affected by a diesel oil spill from an adjacent building located uphill from the site. The preliminary inspection of the suspected soil was limited to a depth of seven inches. Only one sample out of ten tested positive for DRO and the degree of contamination was low. It does not appear that there are any long-term effects from the oil spill. It is recommended that, prior to the demolition of the building, two bore hole samples be acquired in the area of the positive sample to a depth of six to eight feet for analysis of DRO. Unless further analysis calls for contaminated soil removal, this item does not require any action or costs.

Oil Water Separator:

Fire Station - The seven-foot long by three-foot wide by four-foot deep oil water separator will require any liquid inside the basin be removed and disposed of as hazardous waste. Before the separator itself can be disposed of, it must be cleaned. Estimated cost for cleaning and removal is $1,500.00.

The estimated cost for removal of the hazardous material in all three buildings is outlined below.

Hazardous Material	Estimate for Removal
Asbestos Containing Material	25,000.00
Lead Based Paint	13,000.00
Mold	2,500.00
Polychlorinated Biphenyls	5,000.00
Mercury	6,884.00
Oil Water Separator	1,500.00
Total Estimated Cost	$53,884.00

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2 LIBRARY

2.1 Asbestos Survey

2.1.1 Introduction

On May 12, 2005, USKH, Inc. inspected the Library for the presence, extent, and condition of ACM. The survey was performed by AHERA certified asbestos inspectors. This survey information will be used in an evaluation of the facility to help formulate a plan for demolition of the facility.

USKH collected:

- Twenty-nine (29) samples of suspected asbestos-containing materials from the interior and exterior of the Library for analysis by Polarized Light Microscopy (PLM).
- One (1) Quality Control (QC) bulk samples (every tenth sample) for analysis by Polarized Light Microscopy (PLM) at a different accredited laboratory.
- Five (5) background air samples. The samples were analyzed by Phase Contrast Microscopy (PCM).

The twenty-nine bulk samples and the three air samples were analyzed for asbestos content by:

EMSL Analytical, Inc.
382 South Abbott Avenue
Milpitas, CA 95035

The one bulk Q.C. sample was analyzed by:

Pacific Rim Environmental, Inc.
2400 College Road
Fairbanks, Alaska 99709

Both laboratories are members of the National Voluntary Laboratory Accreditation Program (NVLAP) laboratories. This accreditation is for satisfactory compliance with criteria was established in Title 15, Part 285 Code of Federal Regulations.

Only materials containing 1% total asbestos or greater (all types) were classified as “asbestos-containing” and is based on Environmental Protection Agency (EPA) criteria. The following tables list the results of samples obtained. The laboratory reports for asbestos samples are included at Appendix A.

2.1.2 Term Definitions

The following common asbestos-related terms are defined in order to avoid any possible confusion:

PLM: An optical microscopic technique used to distinguish between different types of fibers by their shape and unique optical properties. PLM samples are examined at a magnification of 100x to 400x. At this magnification PLM counts those fibers longer than 5 micrometers and wider than about 0.25 micrometers. This can include fibers that are not asbestos, such as fiberglass and cloth fibers.

PCM: A technique using a light microscope that is equipped to provide an enhanced contrast between the fibers collected and the background filter material. The filter is examined under a positive phase contrast microscopy at a magnification of approximately 400x. Fibers are sized and counted using a calibrated reticle fitting which fits into the microscope eyepiece.

Chrysotile Asbestos: White in bulk; long, curly, flexible fibers. Absorbs water easily. It is the most common type of asbestos found in building materials.

Fiber: A structure greater than 0.5 *u*m in length with an aspect ratio (length to width) of 5:1 or greater and having substantially parallel sides.

Friable: Asbestos material that contains more than 1 percent asbestos by weight and which can be crumbled, pulverized, or caused to release fibers by hand pressure when dry.

Nonfriable: Asbestos material in which the asbestos fibers have been locked in by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not release fibers during any appropriate disturbance, i.e., handling, storage, transportation, or processing.

2.1.3 Material Sampling

The following table identifies location and bulk materials that were analyzed by PLM. Positive samples are in **bold font**. QC samples are *italic*.

Table 7 – Library Asbestos Material Sampling Results

SAMPLE #	Material	Location	Asbestos
818900-ACM-065	**Tan VAT and Mastic**	**Staff Area**	**2% Chrysotile**
818900-ACM-066	Joint Compound	Library	Less than 1% Chrysotile
818900-ACM-067	Ceiling Tile	Conference Room	None Detected
818900-ACM-068	Sink Mastic	Janitor's Closet	None Detected
818900-ACM-069	Cove Base Mastic	Janitor's Closet	Less than 1% Chrysotile
818900-ACM-071	**Black Mastic Under Stainless Sink**	**Break Room**	**3% Chrysotile**
818900-ACM-072	Joint Compound	Break Room	None Detected
818900-ACM-073	Sink Mastic	Arts Room	Less than 1% Chrysotile
818900-ACM-074	Joint Compound	Arts Room	None Detected
818900-ACM-075	**Brown Sheet Vinyl**	**Arts Room**	**25% Chrysotile**
818900-ACM-076	**Mastic**	**Crawl Space**	**8% Chrysotile**
818900-ACM-077	Joint Compound	Children's Boiler Room	None Detected
818900-ACM-078	Building Felt	Exterior	Less than 1% Chrysotile
818900-ACM-079	Room Divider	Main Area	None Detected
818900-ACM-080	Joint Compound	Main Area	None Detected
818900-ACM-080	*Joint Compound*	*Main Area*	*None Detected*
818900-ACM-081	**Asphalt and Mastic**	**Old Roof**	**15% Chrysotile**
818900-ACM-082	Asphalt and Mastic	New Roof	None Detected
818900-ACM-083	Flue Insulation	Old Boiler	None Detected
818900-ACM-084	Flue Insulation	New Boiler	None Detected
818900-ACM-085	Swipe Above Suspended Ceiling	Main area	None Detected
818900-ACM-086	Debris	Crawl Space	None Detected
818900-ACM-087	Building	Crawl Space – Under Each Column	None Detected
818900-ACM-104	**Hard Fitting**	**Above suspended Ceiling – Main Area**	**3% Chrysotile**
818900-ACM-105	Swipe	Above suspended Ceiling – Main Area	None Detected
818900-ACM-106	**Hard Fitting**	**Above suspended Ceiling – Main Area**	**2% Chrysotile**

SAMPLE #	Material	Location	Asbestos
818900-ACM-107	**Ceiling Tile**	**Above suspended Ceiling – Main Area**	**2% Amosite**
818900-ACM-108	Debris	Boiler Rom	None Detected
818900-ACM-109	Panel Board Mastic	Boiler Room	None Detected
818900-ACM-110	**Hard Fitting**	**Boiler Room**	**3% Chrysotile**

The following table identifies location and air sample that was analyzed by PCM

Table 8 – Library Asbestos Air Sampling Results

SAMPLE #	**Material**	**Location**	**Asbestos (f/CC)**
818900-AIR-005	Background	Arts Room	0.015
818900-AIR-006	Background	Crawl Space	0.003
818900-AIR-007	Background	Staff Break Room	0.009
818900-AIR-008	Background	Above Ceiling Staff Break Room	0.007
818900-AIR-009	Background	Arts Room	0.019

2.1.4 Results

Vinyl Asbestos Tile (VAT) and Sheet Vinyl

Samples of the VAT and sheet vinyl tested 2-25% positive for Chrysotile ACM. The VAT is in good condition and would generally be considered nonfriable. However, it is recognized that when nonfriable ACM is subjected to certain forces such as mechanical forces, weather or aging, it can be weakened to the point where it becomes friable and thereby may release asbestos fibers.

The use of certain mechanical techniques on VAT and mastic such as sanding, grinding, chipping, drilling, cutting, and abrading create a high probability that ACM will be damaged or weakened to such an extent that it would be rendered friable. Based on the expectation that the materials will be rendered friable if any of the above methods are employed in the removal of the materials, the activity would be considered to be a response action. AHERA defines a response action as "a method that protects human health and the environment from friable ACM."

Stainless Sink mastic

The stainless steel sink located in the staff Break Area tested 3% positive for Chrysotile. This material, which is not readily accessible to the building occupants, will become friable only when disturbed. Left as is, it will not pose a health risk.

Roof Asphalt and Mastic Old Roof

Roof asphalt and mastic on the old roof tested positive for ACM. This material will be required to be removed and disposed of as ACM.

Hard Pipe Fittings

The hard pipe fittings above the suspended ceiling and boiler room (a total of 50 each) tested positive for ACM. This insulation will become friable if disturbed. This material should be removed under containment conditions.

Suspended Ceiling Tile

The suspended ceiling tile throughout the facility tested positive for ACM. This material should be removed under containment conditions.

2.1.5 Summary

In the event any of these materials or areas are disturbed, the disturbance should be conducted as ACM response action. The response action will require project design, certified workers, air monitoring and TEM Air Clearances. Asbestos abatement contract documents will be required to accommodate the scope of work.

2.2 Lead Based Paint By XL Analysis, Bulk Samples And Swabs

2.2.1 Introduction

On May 10, 2005, an XL lead inspection was conducted at the Library.

2.2.2 Lead Based Paint Inspection

The XL Analysis for lead was executed by using the Nicon 703A - XL Spectrum Analyzer. All painted, varnished and stained building components were tested.

A hundred and sixty four (164) tests were conducted at the Library. The specific tests are located in the below table. A complete table of all three hundred and sixty two test results for the: Fire Station, Police Station and Library is located in Appendix A.

Five (5) Quality Control (QC) bulk samples were analyzed by AAS at an accredited laboratory.

Swab samples were also used as quality control (QC). The swab consists of two glasses of nontoxic testing chemicals. When the chemicals are mixed, the liquid can detect lead at or above two percent. The EPA limit is 0.5% therefore, if the swab test does not detect lead, a bulk sample should be acquired to analyze between the 0.5% and 2% range.

The bulk samples were analyzed at:

EMSL Analytical, Inc.
382 South Abbott Avenue
Milpitas, CA 95035

2.2.3 Definitions

Common lead-related terms are defined below in order to avoid possible confusion.

AAS: Atomic Absorption Spectrophotometer Flame. This method is applicable to elemental lead, including Pb fumes and other aerosols containing lead. Atomic absorption spectroscopy is a liquid sample is aspirated and mixed as an aerosol with combustible gasses (acetylene and air or acetylene and nitrous oxide.) The mixture is ignited in a flame of temperature ranging from 2100 to 2800 degrees C (depending on the fuel gas used.) During combustion, atoms of the element of interest in the sample are reduced to the atomic state. A light beam from a lamp whose cathode is made of the element being determined is passed through the flame into a monochronometer and detector. Free, unexcited ground state atoms of the element absorb light at characteristic wavelengths; this reduction of the light energy at the analytical wavelength is a measure of the amount of the element in the sample.

Solid samples must be in liquid form to be aspirated by the instrument. Therefore, solid material must be liquified by means of some form of extract or digest protocol. Procedures have been devised that make the total amount of an element in the sample available for assay.

Action Level: The air lead concentration at which Occupational Safety and Health Administration (OSHA) (29CFR Part 1926) regulations go into effect. Currently this level is 30 *u*g/m^3.

Encapsulation: A process involving the sealing of a materials surface with a more durable material to prevent and control chalking and flaking of lead-containing substances.

BDL: Below Detectable Limit

Lead (Pb): Metallic element of atomic number 82, Group IV A of the Periodic table. Any material or substance that contains lead greater than 0.5 percent by weight is considered “positive.”

Micrograms (*u*g): A microgram is 1 millionth of 1 gram. A microgram is equal to about 35 billionths of 1 ounce.

PEL: Permissible Exposure Limit - The maximum level of lead in air permitted by OSHA standards (50 *u*g/m^3) averaged over an 8-hour period.

TCLP: Toxic Characteristic Leaching Procedure - A test for determining if debris is classified as hazardous based on an analysis of the leachate by either atomic absorption spectroscopy or inductively coupled plasma atomic emission spectroscopy (flame).

2.2.4 Material Sampling

Lead Based Paint Samples

XRF samples were appropriated from the materials listed below. The maximum allowable limit for the lead is 1.0 mg/cm^2.

Samples that equal or exceed the limit established by the Environmental Protection Agency (EPA) are **bold.**

Based on our inspection, XL analysis found lead in the following areas:

- **Paint:** Only the gray exterior paint tested positive for lead based paint. Not all the exterior paint was positive for lead based paint. See sketch in Appendix C for the location of the positive areas.
- Swipe Samples: Swipe samples on all lead solder sweat joints exceeded the allowable limit of 100 *u*g/sq.ft.
- One janitor's sink tested positive for lead.

Table 9 – Library Lead Base Paint Results

No	Location	Color	Material	Result	Pb mg/cm^2	Pb Error
195	**Exterior**	**Grey**	**Wall Paint**	**POS**	**3.04**	**1.28**
196	Exterior	White	Exposed Wall Paint	NEG	0.22	0.15
197	Exterior	Brown	Exposed Wall Paint	NEG	0.19	0.21
198	**Exterior**	**Grey**	**Wall Paint Chip**	**POS**	**2.91**	**0.89**
199	**Exterior**	**Grey**	**Wall Paint**	**POS**	**2.74**	**1.20**
200	Exterior	Grey	Wall Paint on Column	NEG	0.55	0.26
201	**Exterior**	**Grey**	**Wall Paint on Column**	**POS**	**1.13**	**0.23**
202	Exterior	Grey	Wall Paint	NEG	0.00	0.01
203	Exterior	Grey	Wall Paint	NEG	0.00	0.02
204	Exterior	Grey	Wall Paint	NEG	0.00	0.02
205	**Exterior**	**Grey**	**Wall Paint on Column**	**POS**	**1.82**	**0.43**
206	**Exterior**	**Grey**	**Wall Paint**	**POS**	**2.35**	**0.85**
207	Exterior	Grey	Wall Paint	NEG	0.01	0.04
208	Exterior	Grey	Wall Paint	NEG	0.00	0.00
209	Exterior	Grey	Wall Paint	NEG	0.00	0.10
210	Exterior	Grey	Wall Paint	NEG	0.00	0.01
211	Exterior	Grey	Wall Paint	NEG	0.00	0.11
212	**Exterior**	**Grey**	**Wall Paint**	**POS**	**2.70**	**0.92**
213	Exterior	Grey	Wall Paint	NEG	0.00	0.10
214	Exterior	Grey	Wall Paint	NEG	0.00	0.02
215	Exterior	Grey	Wall Paint	NEG	0.00	0.12

No	Location	Color	Material	Result	Pb mg/cm^2	Pb Error
216	Exterior	Grey	Wall Paint	NEG	0.00	0.11
217	Exterior	Grey	Wall Paint	NEG	0.00	0.10
218	Exterior	Grey	Wall Paint	NEG	0.00	0.02
219	Exterior	Grey	Wall Paint	NEG	0.01	0.20
220	Exterior	Grey	Concrete Wall Paint	NEG	0.03	0.07
221	**Exterior**	**Grey**	**Wall Paint**	**POS**	**1.89**	**0.67**
222	Exterior	Grey	Wall Paint	NEG	0.00	0.02
223	**Exterior**	**Grey**	**Wall Paint**	**POS**	**1.95**	**0.74**
224	Exterior	Grey	Column	NEG	0.26	0.23
225	**Exterior**	**Grey**	**Wall Paint**	**POS**	**3.72**	**1.54**
226	**Exterior**	**Grey**	**Wall Paint**	**POS**	**1.20**	**0.34**
227	Exterior	Grey	Wall Paint	NEG	0.00	0.01
228	Exterior	Grey	Wall Paint	NEG	0.10	0.25
229	Exterior	Grey	Wall Paint	NEG	0.04	0.17
230	**Exterior**	**Grey**	**Wall Paint**	**POS**	**2.23**	**0.92**
231	Exterior	Grey	Wall Paint	NEG	0.00	0.13
232	Exterior	Grey	Wall Paint	NEG	0.00	0.01
233	Exterior	Grey	Wall Paint	NEG	0.00	0.02
234	Exterior	Grey	Wall Paint	NEG	0.04	0.10
235	Exterior	Grey	Wall Paint	NEG	0.00	0.01
236	Exterior	Grey	Wall Paint	NEG	0.00	0.13
237	Exterior	Grey	Wall Paint	NEG	0.00	0.12
238	Exterior	Grey	Wall Paint	NEG	0.00	0.02
239	Exterior	Grey	Wall Paint	NEG	0.00	0.17
240	Exterior	Grey	Wall Paint	NEG	0.00	0.10
241	Exterior	Grey	Wall Paint	NEG	0.00	0.13
242	Exterior	Grey	Wall Paint	NEG	0.01	0.21
243	Exterior	Grey	Wall Paint	NEG	0.00	0.11
244	**Exterior**	**Grey**	**Wall Paint**	**POS**	**1.20**	**0.27**
245	Exterior	Grey	Electrical Box	NEG	0.07	0.29
246	**Exterior**	**Grey**	**Wall Paint**	**POS**	**2.08**	**0.62**
247	Exterior	Grey	Wall Paint	NEG	0.00	0.09
248	Exterior	Grey	Wall Paint	NEG	0.00	0.11
249	Exterior	Black	Tank	NEG	0.00	0.06
250	Exterior	Dark Blue	Door Paint	NEG	0.00	0.10
251	Exterior	Brown	Window Trim	NEG	0.19	0.90
252	Exterior	Grey	Wall Paint	NEG	0.00	0.11
253	Exterior	Grey	Wall Paint	NEG	0.00	0.09
254	Exterior	Grey	Wall Paint	NEG	0.00	0.12
255	Exterior	Grey	Wall Paint	NEG	0.00	0.11
256	Exterior	Grey	Wall Paint	NEG	0.00	0.07
257	Exterior	Grey	Wall Paint	NEG	0.00	0.12
258	Exterior	Grey	Wall Paint	NEG	0.00	0.19
259	**Exterior**	**Grey**	**Wall Paint**	**POS**	**2.64**	**1.16**
260	Exterior	Grey	Wall Paint			
265	**Exterior**	**Grey**	**Wall Paint**	**POS**	**3.14**	**1.15**

No	Location	Color	Material	Result	Pb mg/cm^2	Pb Error
266	Exterior	Grey	Concrete	NEG	0.01	0.06
267	**Exterior**	**Grey**	**Wall Paint**	**POS**	**1.75**	**0.47**
268	Exterior	Grey	Concrete Foundation Paint	NEG	0.00	0.02
269	Exterior	Grey	Wall Paint	NEG	0.02	0.03
270	Exterior	Grey	Concrete Foundation Paint	NEG	0.00	0.07
271	Exterior	Grey	Wall Paint	NEG	0.16	0.41
272	Exterior	Red Prime	Tank	NEG	0.03	0.23
273	Exterior	Grey	Wall Paint	NEG	0.00	0.12
274	Exterior	Grey	Wall Paint	NEG	0.00	0.13
275	Exterior	Grey	Wall Paint	NEG	0.00	0.02
276	Exterior	Grey	Wall Paint	NEG	0.00	0.01
277	Exterior	Grey	Wall Paint	NEG	0.00	0.11
278	Exterior	Grey	Wall Paint	NEG	0.00	0.02
279	Exterior	Grey	Wall Paint	NEG	0.00	0.02
280	Exterior	Grey	Wall Paint	NEG	0.00	0.02
281	Exterior	Grey	Wall Paint	NEG	0.00	0.13
282	Exterior	Grey	Wall Paint	NEG	0.00	0.01
283	Exterior	Grey	Wall Paint	NEG	0.00	0.11
284	Exterior	Grey	Wall Paint	NEG	0.00	0.01
285	Exterior	Grey	Wall Paint	NEG	0.00	0.13
286	Exterior	Grey	Wall Paint	NEG	0.00	0.14
287	Exterior	Grey	Wall Paint	NEG	0.00	0.10
288	Exterior	Grey	Wall Paint	NEG	0.00	0.10
289	Exterior	Grey	Wall Paint	NEG	0.00	0.11
290	Exterior	Grey	Wall Paint	NEG	0.00	0.01
291	Exterior	Grey	Wall Paint	NEG	0.00	0.10
292	Exterior	Grey	Wall Paint	NEG	0.00	0.01
293	Exterior	Grey	Wall Paint	NEG	0.00	0.01
294	Exterior	Grey	Wall Paint	NEG	0.00	0.14
295	Exterior	Grey	Wall Paint	NEG	0.00	0.11
296	Exterior	Grey	Wall Paint	NEG	0.00	0.02
297	**Exterior**	**Grey**	**Wall Paint**	**POS**	**2.23**	**0.64**
298	**Exterior**	**Grey**	**Wall Paint**	**POS**	**2.46**	**0.88**
299	**Exterior**	**Grey**	**Wall Paint**	**POS**	**2.23**	**0.81**
300	**Exterior**	**Grey**	**Wall Paint**	**POS**	**2.43**	**0.87**
301	**Exterior**	**Grey**	**Wall Paint**	**POS**	**3.27**	**1.21**
302	**Exterior**	**Grey**	**Wall Paint**	**POS**	**1.87**	**0.69**
303	Exterior	Blue	Trim Paint	NEG	0.00	0.14
304	Arts & Crafts	White	Wall Paint	NEG	0.00	0.01
305	Arts & Crafts	White	Wall Paint	NEG	-0.43	1.10
306	Arts & Crafts	Brown	Sheet Vinyl Floor	NEG	0.00	0.01
307	Story Area	White	Wall Paint	NEG	0.00	0.01
310	Story Area	White	Wall Paint	NEG	-0.47	1.15
311	Story Area	Brown	Carpet	NEG	0.00	0.11
312	Childs Study Area	White	Wall Paint	NEG	-0.67	1.20
313	Childs Study Area	White	Wall Paint	NEG	0.00	0.01

No	Location	Color	Material	Result	Pb mg/cm^2	Pb Error
314	Childs Study Area	White	Exit Door	NEG	0.11	0.66
315	Bathroom Childs Area	White	Water Closet	NEG	0.00	0.01
316	Bathroom Childs Area	White	Sink	NEG	0.00	0.01
317	Office Childs Area	White	Wall Paint	NEG	0.00	0.03
318	Office Childs Area	White	Wall Paint	NEG	0.01	0.14
319	Main Area	Light Blue	Wall Panel	NEG	0.00	0.02
320	Main Area	Light Blue	Wall Panel	NEG	0.00	0.12
321	Main Area	Light Blue	Panel	NEG	0.04	0.25
322	Main Area	Green	Carpet	NEG	0.01	0.21
323	Main Area	Light Blue	Panel	NEG	0.01	0.21
324	Men's Restroom	White	Water Closet	NEG	0.00	0.02
325	Men's Restroom	White	Sink	NEG	0.00	0.03
326	Men's Restroom	Grey	Wall Wainscoting	NEG	0.00	0.01
327	Men's Restroom			NEG	0.00	0.01
328	Men's Restroom	White	Sink	NEG	0.00	0.01
329	Men's Restroom	White	Sheet Vinyl	NEG	0.00	0.02
330	Women's Restroom	Light Blue	Door Paint	NEG	0.00	0.14
331	Main Area	White	Wall Paint	NEG	0.00	0.02
332	Main Area	White	Wall Paint	NEG	0.01	0.19
333	Main Area	White	Wall Paint	NEG	0.00	0.09
334	Main Area	White	Heat Convector	NEG	0.00	0.15
335	Main Area	White	Exit Door	NEG	0.04	0.10
336	Main Area	White	Wall Paint	NEG	0.01	0.02
337	Main Area	Gold	Door Paint	NEG	0.02	0.31
338	Main Area	Light Blue	Panel	NEG	0.00	0.13
339	Main Area	Light Blue	Panel	NEG	0.00	0.07
340	Main Area	Light Blue	Panel	NEG	0.00	0.12
341	Janitors Closet	White	Wall Paint	NEG	0.06	0.20
342	**Janitors/Staff Closet**	**White**	**Sink**	**POS**	**37.27**	**7.31**
343	Reference	Brown White	Panel	NEG	0.00	0.11
344	Reference	Brown White	Panel	NEG	0.00	0.12
345	Reference	Beige	VCT	NEG	0.00	0.02
346	Director Office	Brown White	Panel	NEG	0.00	0.13
347	Director Office	Beige	VCT	NEG	0.00	0.10
348	Director Office	Stain	Door	NEG	0.00	0.01
349	Conference Room	White	Wall Paint	NEG	0.00	0.08
350	Conference Room	White	Wall Paint	NEG	-0.14	0.90
351	Corridor	Beige	Wall Paint	NEG	0.00	0.05
352	Storage		Concrete Floor	NEG	0.07	0.12
353	Storage	Gray	Door	NEG	0.05	0.26
354	Storage	Green	Wall	NEG	0.01	0.04
355	Storage	Gray	Door	NEG	0.05	0.35
356	Staff Lounge	Green	Door	NEG	0.00	0.10
357	Staff Lounge	White	Window Sill	NEG	0.00	0.15

No	Location	Color	Material	Result	Pb mg/cm^2	Pb Error
358	Staff Lounge	White	Wall	NEG	0.00	0.07
359	Vestibule	Silver	Door Frame	NEG	0.00	0.01
360	Boiler Room	Beige	Wall Paint	NEG	0.01	0.20
361	Boiler Room	Wood	Floor	NEG	0.07	0.03
362	Roof	Silver	Roof Overcoat	NEG	0.00	0.02
818900-Bulk-Pb-06		Gray	Exterior Wall Paint on wood. XRF was NEGATIVE	<0.01%		
818900-Bulk-Pb-07		Gray	CMU Wall	3.3%		
818900-Bulk-Pb-08		Gray	Exterior Wall Paint on wood. XRF was NEGATIVE	<0.01%		
818900-Bulk-Pb-09		Gray	Wood Wall	1.8%		
818900-Bulk-Pb-10		Silver	Roof Overcoat	<0.01%		

2.2.5 Conclusions And Recommendations

The amount of material and the health risk due to this type of lead based paint and solder joints are not significant.

The specification should include the following:

> "The Contractor may obtain three composite samples of the building materials that are to be demolished, one from each building and conduct TCLP testing of the composite samples in conformance with EPA sampling protocol for building demolition debris and buildings painted with lead-based paint. If the composite samples pass the TCLP test for lead the building debris can be disposed of as non-hazardous debris. The Contractor may conduct sampling and testing and submit the results of the TCLP test to the Owner for approval prior to disposal of the building debris. In the event that the building debris fails the TCLP test or the contractor chooses not to conduct TCLP testing then the Contractor shall dispose of the debris in an approved hazardous waste landfill and in accordance with this specification."

TCLP is the testing procedure used to determine if lead is present in amounts to classify the material as hazardous waste. For lead, the limit for the material extracted is five parts per million (5 ppm).

With the amount of lead based paint limited to the exterior of the building and on Janitor's Sink inside the TCLP will most likely pass and all the demolition materials can be disposed of as ordinary construction.

At the beginning of the demolition of the first building the Contractor shall conduct a "Negative Assessment". This consists of taking background samples before any work begins. The recommendation is for five background tests to be conducted. During the next two days of demolition, conduct area testing, recommend a total of sixteen tests, eight each day. Compare the area test and if the results are not above the background tests or above the permissible exposure limit set by the Alaska Occupational Safety and Health Organization (OSHS) then a "Negative Assessment" has been established. This allows the Contractor to cease taking

additional air tests as long as the rest of the building and the other two are demolished using the same means and methods.

The lead air tests must be analyzed on–site. This will minimize the exposure time to the workers if the air sample is above the permissible exposure limit.

2.3 Mold Air And Petri-Dishes Survey

2.3.1 Introduction

On May 13, 2005, USKH collected ten (10) air samples, eight inside the Library and two outside, one at the front of the building and one in the back. Three bulk mold samples were collected. In addition, six mold petri-dish samples were collected in the following areas:

- Office adjacent to the Children's section of the Library, see photo Petri-03.
- Children's section of the Library, see photo Petri-04.
- Main area in the original Library, see photo Petri-05.
- Crawl Space, see photo Petri-06.
- Staff Area, see photo Petri-07.
- Above the suspended ceiling in the original Library, see photo Petri-08.

Photos are located in Appendix B.

2.3.2 Mold

Molds are microscopic fungal organisms. They grow as networks of interlocking filaments that spread on and into organic matter, leading to its decomposition. When clusters of these filaments become large enough, they are visible as fuzzy growths of mold or mildew. Bread mold is a familiar example.

Mold lives by secreting enzymes that break down the organic matter on which the mold is living, making it available as a nutrient for the mold. This breaking-down action is what makes mold damaging to items such as building materials. Molds reproduce by forming spores, which travel through the air, settle on organic materials, and grow into new clusters of filaments. The mold spores travel over large distances, and are often more numerous than the pollen grains of plants. Proteins in the secretions of the mold filaments, and possibly in the mold spores, are capable of causing allergic reaction in some people.

Molds are found primarily in warm, dark, and damp locations. Unlike plants, which use energy from the sun to produce food, molds obtain their energy by digesting other organic matter. To do so, they need moisture. Molds grow out-of-doors throughout Alaska; and, if the humidity is high, such as is in Kodiak, Alaska, they will grow indoors as well. They do not have the clearly defined seasons that pollens do, but are at their peak during months of high humidity, and are absent in outdoor air only if there is snow on the ground. They can grow on grass and on the bark of trees, and are plentiful in fallen leaves and other decaying vegetation. Indoors, they live in areas of high humidity.

Mold flourishes in dark, damp places, which are poorly ventilated, and in areas where water pools. Moisture and warmth can accelerate the growth of dormant mildew spores on most surfaces. Once the area of mold growth has been identified, a miticide should be used to kill the mold spores and an inhibitor used to prevent regrowth. Modifications such as increased ventilation and proper drainage should be used to discourage mold growth. Also keep the humidity low, between 35 and 40 percent if possible, but in no case over 50 percent.

If any of the occupants experienced any of the following conditions, it may indicate that mold is present in their environment:

A. allergies
B. asthma
C. skin rashes
D. fatigue
E. depression
F. unexplained irritability
G. flu-like symptoms
H. trouble breathing
I. coughing
J. sinus congestion
K. nausea
L. sneezing
M. runny nose
N. loss of memory
O. loss of hearing
P. loss of eyesight
Q. bloody noses
R. arthritic-like aches
S. chronic headaches
T. "crawly" feeling skin
U. epileptic-like seizures
V. upper respiratory distress
W. irritation of the eyes, nose or throat
X. restlessness
Y. equilibrium or balance loss
Z. dizziness or stuffiness

2.3.3 Definitions

Below are definitions of the type of molds that were identified in the air and bulk samples:

Mold Term Definitions

Type of Mold	Description
Acremonium (Hyphomycetes):	Naturally found in soils, decaying organic matter, and plant debris. Can be found in food and the indoor environment. Acremonium is a common allergen, can produce a trichothecene mycotoxin, and volatile organic compounds (VOCs).
Actinomycetes	Actinomycetes comprise a significant proportion of the bacterial population in agricultural soils. They are capable of degrading many complex chemical substances including chitin. They favor alkaline or neutral soil pH and are intolerant of waterlogged soils. Actinomycetes are responsible for the musty or earthy odor of a freshly plowed field and are helpful in improving soil crumb structure. Most soil actinomycetes are streptomycetes, which are well known for the production of antibiotics. Although the presence of antibiotic substances in the soil can rarely be detected, it is possible they are present and active in a micro-environment. Agricultural soil actinomycete enumerations are typically in the

Type of Mold	Description
	range of 100 thousand to 1 million (1 x 105 to 1 x 106) CFU per gram of soil. A finished compost will typically contain between 1 x 104 and 1 x 106 CFU/g, although some composts prepared with woody substrates may have 100 million (1 x 108) CFU/g actinomycetes.
Alternaria (Hyphomycetes):	A common saprobe found on decaying wood, decaying plants, food, soil, and outdoor air. Some species are plant pathogens. Indoors, it can be found in house dust, carpet, damp areas around showers and window frames, and anywhere condensation occurs. Because of its abundance and ubiquity, Alternaria is one of the most important fungal allergens and is recognized as the chief fungal cause of hay fever. Infection is extremely rare.
Ascomycetes:	Constitutes the largest class of fungi characterized by the production of sexual spores in structures called asci. This includes plant pathogens, saprobes, and decomposers. With a few exceptions, most Ascomycetes do not grow in buildings and are seldom agents of wood rot. Ascomycetes are the perfect stages of molds like Aspergillus and Penicillium. At high levels, Ascomycetes spores may cause allergies. Since most Ascomycetes are plant pathogens, ascospores are common during the growing season of plants and rare during winter, such as those of the Ascomycetes genera: Daldinia, Hypoxylon, Paraphaeosphaeria, Phaeosphaeria, and Leptosphaeria.
Ascospore:	A spore borne in a special cell called an ascus. Spores of this type are reported to be allergenic. All ascomycetes, members of a group of fungi called Ascomycotina, have this type of spore. The minute black dots on rotting wood and leaves or the little cups on lichens are examples of ascomycetes; another is the "truffle" mushroom.
Aspergillus (Hyphomycetes):	Teleomorph: Emericella (Ascomycetes), Eurotium (Ascomycetes) Found in soil, compost piles, decaying vegetation, stored grain, and other kinds of organic matter. Can be found indoors in water-damaged buildings. A few species can cause aspergillosis in humans with compromised or defective immune systems. Most people are naturally immune to this infection of the lung. Aspergillus fumigatus is the most common cause of aspergillosis. Some species are able to produce mycotoxins, depending on the strain, substrate, and/or food source. Others species are used in the manufacture of food, such as oryzae or soyae for soy sauce.

Type of Mold	Description
Basidiomycetes:	A class of fungi characterized by spores formed on basidia. Includes the mushrooms, toadstools, boletes, wood bracket fungi, and puffballs. Some species are edible, such as Agaricus bisporus, the commercially cultivated mushroom. A few species cause wood brown rot, white rot, and dry rot in buildings.
Basidiospore:	Spore from basidiomycetes. Many varieties are reported to be allergenic.
Cladosporium (Hyphomycetes):	Teleomorph: Mycosphaerella (Ascomycetes) Widely distributed as plant pathogens and saprobes. It is the most frequently found fungus in outdoor air. Indoors, it usually occurs at low concentrations in damp or humid areas, but may be found in high concentrations in water-damaged building materials. Its ability to sporulate heavily and to get airborne makes it an important fungal allergen. Frequently isolated as a contaminant in foods. Only occasionally associated with disease in humans, one species can cause chronic subcutaneous infection.
Fusarium	Fusarium is a filamentous fungus widely distributed on plants and in the soil. It is found in normal mycoflora of commodities, such as rice, bean, soybean, and other crops. While most species are more common at tropical and subtropical areas, some inhabit in soil in cold climates. Some Fusarium species have a teleomorphic state. As well as being a common contaminant and a well-known plant pathogen, Fusarium species may cause various infections in humans. Fusarium is one of the emerging causes of opportunistic mycoses.
Gliocladium	Gliocladium is a mitosporic filamentous fungus which is widely distributed in soil and decaying vegetation. It is commonly considered as a contaminant. Gliocladium has not been reported as the causative agent of any disease in man or animals.
Hyphae (singular hypha):	The individual filament or thread that makes up a fungus.
Hyphomycetes:	A group of fungi in which asexual spores called conidia are produced from special conidiogenous cells.
Myxomycetes (plasmodial slime molds)	A group of fungus-like organisms usually present and sometimes abundant in terrestrial ecosystems. The myxomycete life cycle involves two very different trophic (feeding) stages, one consisting of uninucleate amoebae, with or without flagella, and the other consisting of a distinctive multinucleate structure, the plasmodium. Myxomycete plasmodia typically occur in cool, moist, shady places such as within crevices of decaying wood, beneath the partially decayed bark of logs and stumps, and in leaf litter on the

Type of Mold	Description
	forest floor. Under favorable conditions, the plasmodium gives rise to one or more fruiting bodies containing spores. The spores of myxomycetes are for most species apparently wind-dispersed and complete the life cycle by germinating to produce the uninucleate amoeboflagellate cells.
Penicillium (Hyphomycetes):	Many species are common contaminants on a variety of substrates. May be found indoors in air samples, carpet dust, or on wallpaper. Some species are able to produce mycotoxins. Human pathogenic species are rare, only limited to marneffei, which causes disease in immunocompromised individuals. Some species are used for commercial production, such as chrysogenum for the antibiotic penicillin, griseofulvum for the antibiotic griseofulvin, and roquefortii for blue cheese.
Scopulariopsis	Scopulariopsis is a filamentous fungus that inhabits soil, plant material, feathers, and insects. It is distributed worldwide. Several species of Scopulariopsis have teleomorphs which are classified in the genus Microascus. While Scopulariopsis is commonly considered as a contaminant, it may cause infections in humans, particularly in immunocompromised patients. It is a weakly keratinolytic fungus, which is highly resistant to benomyl.
Sporobolomyces	Sporobolomyces is a yeast commonly isolated from environmental sources, such as air, tree leaves, and orange peels. The natural habitats are humans, mammals, birds, the environment, and plants. Sporobolomyces may cause infections, particularly in immunosuppressed patients.
Trichoderma	Trichoderma is a filamentous fungus that is widely distributed in the soil, plant material, decaying vegetation, and wood. Hypocrea species are the teleomorph of some Trichoderma species. Although it is commonly considered as a contaminant, Trichoderma may cause infections in presence of certain predisposing factors. The genus Trichoderma has five species; Trichoderma harzianum, Trichoderma koningii, Trichoderma longibrachiatum, Trichoderma pseudokoningii, and Trichoderma viride. Morphological features of the conidia and phialides help in differentiation of these species from each other.
Verticillium	Verticillium is a widely distributed filamentous fungus that inhabits decaying vegetation and soil. Some Verticillium species may be pathogenic to arthropods, plants, and other fungi. It is commonly considered as a contaminant. Verticillium may very rarely cause human disease.

2.3.4 Samples

The following table identifies location and air/material samples that were analyzed for mold. Mold is found throughout Alaska and two of the seven samples were acquired from the outside of the building.

Total average exterior concentration outside the Library is:

- Basidiospores - 725 per cubic meter.
- Ascospores – 275 per cubic meter.
- Cladosporium – 29 per cubic meter.

Table 10 – Library Mold Air Samples

Samples that exceed the average outside count are **bold**. ** = Below Limit of detection

Sample #	Location	Type of Mold	Count per Meter^3
818900-Mold-Air-08 Total Concentration = 460 per m^3	Office adjacent to Children's Area	Basidiospores	260
		Aspergillus/Penicillium	**150**
		Misc. unidentified	**5**
		Cladosporium	29
		Ascospores	29
818900-Mold-Air-09 Total Concentration = 780 per m^3	Children's Area	Basidiospores	520
		Aspergillus/Penicillium	**87**
		Hyphae	58
		Cladosporium	58
		Misc. Unidentified	29
		Ascospores	29
818900-Mold-Air-10 Total Concentration = 440 per m^3	Original Wing	Basidiospores	150
		Misc. unidentified	**120**
		Aspergillus/Penicillium	**120**
		Cladosporium	58
818900-Mold-Air-11 Total Concentration = 700 per m^3	Outside Front	Basidiospores	490
		Ascospores	200
818900-Mold-Air-12 Total Concentration = 490 per m^3	Main Area	Basidiospores	230
		Aspergillus/Penicillium	**120**
		Misc. unidentified	87
		Hyphae	29
		Ascospores	29
818900-Mold-Air-13 Total Concentration =990 per m^3	Staff Lunch Area	Basidiospores	380
		Misc. unidentified	290
		Aspergillus/Penicillium	**150**
		Cladosporium	87
		Ascospores	87
818900-Mold-Air-14 Total Concentration = 1,300 per m^3	Outside Back	Basidiospores	960
		Ascospores	350
		Cladosporium	29

Sample #	Location	Type of Mold	Count per Meter^3
818900-Mold-Air-15 Total Concentration = 410 per m^3	Library Check Out	Basidiospores	150
		Aspergillus/Penicillium	**150**
		Hyphae	120
818900-Mold-Air-16 Total Concentration = 670 per m^3	Crawl Space	Basidiospores	200
		Aspergillus/Penicillium	**290**
		Misc. unidentified	29
		Hyphae	29
		Ascospores	120
818900-Mold-Air-28 Total Concentration = 670 per m^3	Duct	Basidiospores	520
		Misc. unidentified	29
		Misc. unidentified	120
		Hyphae	29

Table 11 – Library Mold Bulk Samples

Sample #	Location	Type of Mold	Culture Fix Units/g
818900-Mold-004	Crawl Space	Verticillium	30,000
		Aerobic actinomycete	15,000
		Trichoderma harzianum	1500
		Fusarium	150
		Trichoderma koningii	98
		Gliocladium	98
818900-Mold-005	Above the suspended ceiling	Acremonium	1,600,000
		Sporobolomyces	190,000
		Misc. Unidentified	110,000
		Penicillium	110,000
		Aerobic actinomycete	22,000
818900-Mold-006	Above the suspended ceiling	Fungi	Less than the limit of detection

2.3.5 Conclusion

Review of the data indicates that there is a mold health concern in the Library, but is limited to the crawl space and select areas above the suspended ceiling.

The air tests indicate that the mold spores are not migrating into the occupied areas.

Significant mold growth in the crawl space petri-dish sample after 48 hours was noticed. The mold growth from the above ceiling petri-dish sample was not as fast. All the other petri-dish samples in the occupied areas showed very limited mold growth. It appears the mold affected areas are the crawl space and limited areas above the suspended ceiling.

No mold was discovered within the air handling system.

This would indicate:

- The ventilation system filters are capturing the outside mold spores.

- The housekeeping of the occupied areas of the building, i.e. cleaning, sweeping and maintenance is preventing mold growth.

Before the demolition of the building the affective areas will need to have the mold removed. Providing ventilation to the areas will most likely eliminate the mold.

2.4 Diesel Range Organics Survey

2.4.1 Introduction

The Owner reports that the Library was affected by a diesel oil spill from an adjacent building located uphill from the site. USKH did a preliminary inspection of the suspected soil. Ten samples of the soil were collected. The collection depth was the first seven inches of soil. Samples were collected at the lowest point of the spill collection area and then in one hundred foot intervals for five intervals in the uphill direction of the spill, see sketch in Appendix C for the sample locations. Nine of the ten samples indicated that the sample was analyzed for DRO but none was detected. The single sample that had a positive reading was located at the lowest area of the spill collection site.

Table 12 – Library DRO Survey Results

All samples were collected around the Library. Positive results are in **bold** font.

SAMPLE NUMBER	LOCATION	RESULTS
818900-DRO-01	Outside office adjacent the "Story Area"	None Detected
818900-DRO-02	**Back of Library – Lowest Area**	**19.7mg/Kg above the permissible limit.**
818900-DRO-03	Outside Mechanical Room	None Detected
818900-DRO-04	Under rear fuel oil tank	None Detected
818900-DRO-05	Under front fuel oil tank	None Detected
818900-DRO-06	Uphill 100 foot from lowest point	None Detected
818900-DRO-07	Uphill 200 foot from lowest point	None Detected
818900-DRO-08	Uphill 300 foot from lowest point	None Detected
818900-DRO-09	Uphill 400 foot from lowest point	None Detected
818900-DRO-10	Uphill 500 foot from lowest point	None Detected

2.4.2 Conclusion

This was a preliminary investigation sampled to a depth of seven inches. Only one sample tested positive for DRO and the quantity of the contamination was low. It does not appear that there are any long term effects from the oil spill.

It is recommended that prior to the demolition of the building to acquire two bore hole samples in the area of the positive sample number 2 to a depth of six to eight feet for analysis of DRO. If this is not possible, the specifications should include the following items:

1. Contractor shall test the excavated area for any contamination of DRO.

2. If there is contaminated DRO soil, the contractor shall stockpile the contaminated soil on a site designated by the City.

3. The ground where the soil is stockpiled shall be protected with two layers of reinforced ten mils visqueen.

4. The height of the stockpile shall be no higher than six feet.

5. The contaminated soils shall be allowed to off gas the DRO products. The estimated time of duration is two months.

6. The Contractor shall confirm through testing that the contaminated soil levels are below the allowed limits set by the Environmental Protection Agency (EPA).

7. When the soils DRO limits are acceptable, the soils shall be placed back in the original excavated area and compacted to 95%.

8. Basis of bid is 50 cubic yards.

9. Provide a unit price for each additional cubic yard of contaminated soils.

2.5 PCB Survey

2.5.1 Introduction

Polychlorinated biphenyls (PCB's) are oily liquids used in transformers, capacitors, switches and light fixture ballasts as a non-conducting liquid for thermal insulation purposes.

The Environmental Protection Agency (EPA) states that any ballast with PCB concentrations equal to or greater than 50 mg/Kg shall be disposed of as hazardous waste. Federal and state laws require trained workers to remove, handle, transport, and dispose of all PCB-containing or contaminated materials. There is no air monitoring requirements during removal of PCB-containing materials. However, there are specific work practices to ensure no PCB contamination of the building or the environment occurs.

Equipment is considered to be PCB free if the fixture is marked as “PCB Free” by the manufacturer or other entity which has performed the required testing. If ballasts are not marked, they should be suspected to be PCB-containing.

Worker protection procedures have been established which require protective equipment (i.e. full bodysuits, gloves, face shield, aprons) and decontamination of all materials used for removal process, personal protection equipment, and environmental protection.

An EPA approved disposal site is required for the disposal of hazardous materials. As with hazardous lead-containing materials, the PCB waste must be shipped to an out of state approved disposal site.

Random inspection of the ballasts indicated that the ballasts **were not** marked “PCB FREE”.

2.5.2 Ballasts

The following table identifies location and quantity of suspected PCB Ballasts.

Table 13 – Library PCB Ballast Locations

Building	Material	Location	Quantity
Library	PCB light fixture ballasts	Arts	15
Library	PCB light fixture ballasts	Children	30
Library	PCB light fixture ballasts	Children Area	6
Library	PCB light fixture ballasts	Main Area	144
Library	PCB light fixture ballasts	Restroom Men's	1
Library	PCB light fixture ballasts	Restroom Women's	2
Library	PCB light fixture ballasts	Vestibule	1
Library	PCB light fixture ballasts	Archives	3
Library	PCB light fixture ballasts	Counter Area	12
Library	PCB light fixture ballasts	Director	8
Library	PCB light fixture ballasts	Administrative Corridor	2
Library	PCB light fixture ballasts	Conference Room	16
Library	PCB light fixture ballasts	Administrative Work Area	5
Library	PCB light fixture ballasts	Break Room	12
		Total Ballasts =	**257**

2.5.3 Conclusion

Past experience has shown that ballasts which do not contain the words "PCB FREE" usually have PCB in the ballasts. The current cost to the Owner to dispose of the ballasts as PCB is approximately $40.00 per ballast.

Ballasts have a fixed life span. Given the age of the building some of the ballasts had to be replaced. The replacement ballasts would have been labeled "PCB FREE".

Recommendation: Have the Contractor submit:

- Base bid to remove and dispose of as hazardous waste 50 PCB ballasts.
- Provide a unit price to remove and dispose of as hazardous waste each additional ballast.

2.6 Mercury Vapor

2.6.1 Introduction

Mercury is an essential ingredient for most energy-efficient lamps. Fluorescent lamps and high intensity discharge (HID) lamps are the two most common types of lamps that utilize mercury. Fluorescent lamps provide lighting for the Fire Station, Police Station and Library. A typical fluorescent lamp is composed of a phosphor-coated glass tube with electrodes located at either end. The tube contains mercury, of which only a very small amount is in vapor form. When a voltage is applied, the electrodes energize the mercury vapor, causing it to emit ultraviolet (UV) energy. The phosphor coating absorbs the UV energy, causing the phosphor to fluoresce and emit visible light. Without the mercury vapor to produce UV energy, there would be no light. A

four-foot fluorescent lamp has an average rated life of at least 20,000 hours. To achieve this long life, lamps must contain a specific quantity of mercury. The amount of mercury required is very small, typically measured in milligrams, and varies by lamp type, date of manufacture, manufacturing plant and manufacturer.

The phosphor powder found inside fluorescent lamps - not only the familiar tubes, but the new "energy saver" lamps designed to replace conventional incandescent light bulbs - contains mercury. For that reason, used fluorescent lamps need to be handled and disposed of carefully. When one breaks or implodes, it releases mercury into the air and anyone nearby may be exposed to the vapor.

Mercury is classified as a hazardous and toxic by the Federal EPA. Fluorescent lamps often contain over three times the concentration of mercury allowable for landfill disposal. Disposal of spent tubes and lamps at a designated hazardous waste landfill can be costly and lead to increased liability in the long run. Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Federal EPA can hold any individual or corporation liable for cleanup of a hazardous waste site regardless of the extent of their contribution.

The table on the following page identifies location and quantity of suspected mercury vapor tubes

Table 14 - Library Mercury Vapor Tubes

Building	Material	Location	Quantity
Library	Mercury Vapor Tubes	Arts	30
Library	Mercury Vapor Tubes	Children	60
Library	Mercury Vapor Tubes	Children Area	12
Library	Mercury Vapor Tubes	Main Area	288
Library	Mercury Vapor Tubes	Restroom Men’s	2
Library	Mercury Vapor Tubes	Restroom Women’s	4
Library	Mercury Vapor Tubes	Vestibule	2
Library	Mercury Vapor Tubes	Archives	6
Library	Mercury Vapor Tubes	Counter Area	24
Library	Mercury Vapor Tubes	Director	16
Library	Mercury Vapor Tubes	Administrative Corridor	4
Library	Mercury Vapor Tubes	Conference Room	32
Library	Mercury Vapor Tubes	Administrative Work Area	10
Library	Mercury Vapor Tubes	Break Room	24
		Total Ballasts =	514

In addition to the mercury vapor tubes all the bulb type thermostats will need to be removed and disposed of as hazardous waste. The Library has nine thermostats locate in the following areas:

- Director Office
- Staff Area (2)
- Conference Room
- Storage Room

- Main Area (3)
- Children's Area

2.6.2 Conclusion

The mercury vapor tubes and thermostats will require removal and disposal as hazardous waste prior to the demolition of the building. The current cost to the Owner for disposal of the mercury vapor tubes is $1.75 per foot. Based on the average tube length of four feet long, the disposal cost would be $3,598.00. The cost to dispose of the thermostats is $60.00 each for a total $540.00. Total removal and disposal cost for these materials is $4,138.00.

Kodiak Library

Kodiak, Alaska

Construction Cost Estimate
Condition Assessment Report Submittal
February 16, 2016

ESTIMATIONS
1225 E. International Airport Road, Suite 205
Anchorage, Alaska 99518
907.561.0790

Prepared for:
Stantec
725 E Fireweed Lane, Suite 200
Anchorage, Alaska 99503
907.276.4245

Documents

Library Condition Assessment Report (9/4/2015)
Asbuilt Drawing
Hazmat Report (9/22/2005)
Updated 16Feb16 based on emails from Stantec Adding Sitework

Notes and Assumptions

1 Based on 2016 procurement/2016 construction.
2 Labor rates based on Davis Bacon, 60 hours/week.
3 Weather, logistics and construction time window has been considered, assuming summer season.
4 Assumes open competitive bid procurement.
5 Materials storage area will be designated near the building.
6 Local contractor.

Kodiak Library

Prepared for Stantec by Estimations

Construction Cost Estimate

Condition Assessment Report Submittal
February 16, 2016

Description	Estimated Cost	Estimated Cost Plus Contingency & Escalation	Div.
Basic Bid			
01 - GENERAL REQUIREMENTS	$845,703	$961,411	1
02 - EXISTING CONSTRUCTION	$231,241	$262,879	2
03 - CONCRETE			3
04 - MASONRY	$3,500	$3,979	4
05 - METALS			5
06 - WOOD AND PLASTIC	$141,800	$161,201	6
07 - THERMAL & MOISTURE PROTECTION	$226,056	$256,985	7
08 - OPENINGS	$63,332	$71,997	8
09 - FINISHES	$224,961	$255,740	9
10 - SPECIALTIES	$5,327	$6,056	10
11 - EQUIPMENT			11
12 - FURNISHINGS			12
13 - SPECIAL CONSTRUCTION			13
14 - CONVEYING			14
21 - FIRE SUPPRESSION			21
22 - PLUMBING	$119,463	$135,808	22
23 - HVAC	$318,150	$361,679	23
26 - ELECTRICAL	$347,750	$395,329	26
27 - COMMUNICATIONS	$61,228	$69,605	27
28 - ELECTRONIC SAFETY & SECURITY	$39,157	$44,514	28
31 - EARTHWORK	$158,215	$179,862	21
32 - EXTERIOR IMPROVEMENTS	$100,661	$114,433	32
33 - UTILITIES			33
Total Estimated Cost - Basic Bid:	**$2,886,544**	**$3,281,477**	**<<<<<**
Alternates			
A1 - CCTV	$35,442	$40,291	
Total Estimated Cost - Basic Bid pluse Alternates:	**$2,921,987**	**$3,321,769**	**<<<<<**

Estimating Contingency:				10.0%
Escalation For Inflation:	16 Mths	@	2.5%	3.3%

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
1	**01 - GENERAL REQUIREMENTS**										
2											
3	**Project Management**										
4	Project Manager, 20 Hour/week	28	WEEKS			20.000	560.0	$54,600		$54,600	$54,600
5	Supervisor, 60 Hour/week	26	WEEKS			60.000	1,560.0	$126,672		$126,672	$126,672
6	Project Expeditor, 20 Hour/week	26	WEEKS			20.000	520.0	$45,126		$45,126	$45,126
7	Time Keeper/Cost Control, 20 Hour/week	26	WEEKS			20.000	520.0	$27,144		$27,144	$27,144
8											
9	**Subsistence**										
10	Room & Board	898	MANDAY	$75.00	$67,374					$67,374	$67,374
11											
12	**Travel**										
13	Air Fare - Anchorage - Site	20	EA	$650.00	$13,000					$13,000	$13,000
14											
15	**Small Tools & Consumables**										
16	Consumables	1	LS	$1,300.00	$1,300					$1,300	$1,300
17	Small Tools	1	LS	$5,770.00	$5,770					$5,770	$5,770
18											
19	**Mobilization**										
20	Mobilization/Demobilization, Assume Local Contractor	1	LS	$3,500.00	$3,500	80.000	80.0	$6,943		$10,443	$10,443
21	Surface Freight, Seattle - Job Site	121	TONS	$500.00	$60,594					$60,594	$60,594
22	Air Freight, Anchorage - Job Site	25,980	LBS	$1.20	$31,176					$31,176	$31,176
23											
24	**Equipment**										
25	Pickup (2 Ea)	26	WEEKS						$9,750	$9,750	$9,750
26	Forklift (1 Ea)	26	WEEKS						$46,800	$46,800	$46,800
27	Flatbed (1 Ea)	26	WEEKS						$39,000	$39,000	$39,000
28	Manlift (1 Ea)	26	WEEKS						$11,700	$11,700	$11,700
29											
30											
31											
32											
33											
34											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
35	**Other Requirements**										
36	Project Meetings	24	EA			4.000	96.0	$5,568		$5,568	$5,568
37	Project Layout	9,466	SF	$0.05	$473	0.006	56.8	$4,929		$5,402	$5,402
38	Temporary Facilities	6	MTHS								
39	Project Office Trailer	6	MTHS						$12,000	$12,000	$12,000
40	Office Equipment/Supplies	6	MTHS	$1,000.00	$6,000					$6,000	$6,000
41	Project Tool Sheds	6	MTHS						$1,200	$1,200	$1,200
42	Project Safety Equipment	1	LS	$2,890.00	$2,890					$2,890	$2,890
43	Temporary Services										
44	Chemical Toilets	6	MTHS	$700.00	$4,200					$4,200	$4,200
45	Power	6	MTHS	$283.98	$1,704					$1,704	$1,704
46	Lighting	9,466	SF	$1.00	$9,466					$9,466	$9,466
47	Heat Temporary	2	MOS	$4,733.00	$9,466					$9,466	$9,466
48	Cleaning										
49	Progressive	9	MSF	$2.00	$19	1.143	10.8	$937	$19	$975	$975
50	Final	9	MSF	$2.00	$19	2.229	21.1	$1,831	$28	$1,878	$1,878
51	Dumpsters	6	MTHS	$1,000.00	$6,000					$6,000	$6,000
52	Construction Fence	600	LF	$15.00	$9,000					$9,000	$9,000
53											
54	Record Documents	1	LS	$5,000.00	$5,000					$5,000	$5,000
55	Operations and Maintenance Manuals	1	LS	$2,500.00	$2,500					$2,500	$2,500
56	Contract Closeout and Training	1	LS	$2,500.00	$2,500					$2,500	$2,500
57	Certified Payroll Fee	1	LS	$5,000.00	$5,000					$5,000	$5,000
58											
59											
60											
61											
62											
63	**General Contractor Profit (Fee)**	5%									$134,102
64	**General Contractor Bond & Insurance**	2.5%									$70,404
65											
66	**Subtotal: 01 - GENERAL REQUIREMENTS**				$246,951		3,424.7	$273,750	$120,497	$641,198	**$845,703**
67	Average Unit Price for this division is: $89.34 per SF based on 9,466 SF										
68											
69											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
70	**02 - EXISTING CONSTRUCTION**										
71	**02 41 00 Demolition**										
72	**Demolish, Remove Pavement**										
73	Demo 2" AC Pavement - Sub Price	6,000	SF			0.006	36.0	$3,050	$660	$3,710	$4,452
74	Debris Handling & Disposal	84	TONS			2.000	168.0	$14,234		$14,234	$17,081
75	Hauling and Dump Fees	84	TONS	$48.00	$4,032	0.580	48.7	$4,126	$1,217	$9,375	$11,250
76											
77	**Structural & Architectural Demolition**										
78	Demo Partitions, Gab & Studs	120	LF			0.460	55.2	$4,677		$4,677	$5,612
79	Demo GWB at Int Walls	6,890	SF			0.010	68.9	$5,838		$5,838	$7,006
80	Demo GWB at Ext Wall	6,754	SF			0.010	67.5	$5,719		$5,719	$6,863
81	Demo Roof Assembly	4,506	SF			0.029	130.7	$11,074		$11,074	$13,289
82	Demo Plumbing Fixtures	8	EA			1.500	12.0	$1,017		$1,017	$1,220
83	Demo Roof Drains	12	EA			2.000	24.0	$2,033		$2,033	$2,440
84	Demo Floor Finishes	5,454	SF			0.016	87.3	$7,397		$7,397	$8,876
85	Demo Ceiling Finishes, GWB	186	SF			0.029	5.4	$458		$458	$550
86	Demo Windows	2	EA			1.500	3.0	$254		$254	$305
87	Demo Casework	118	LF			0.200	23.6	$2,000		$2,000	$2,400
88	Demo Door & Frame	19	EA			1.500	28.5	$2,415		$2,415	$2,898
89	Demo Door & Frame, Dbl	2	EA			2.000	4.0	$339		$339	$407
90	Debris Handling & Disposal	32	TONS			2.000	64.0	$5,422		$5,422	$6,506
91	Hauling and Dump Fees	32	TONS	$48.00	$1,536	0.580	18.6	$1,576	$464	$3,576	$4,291
92											
93	**02 82 13 Asbestos Abatement**										
94	Demo Flooring with ACM	4,012	SF			0.100	401.2	$29,018		$29,018	$34,822
95	Demo Ceilings with ACM	9,280	SF			0.057	529.0	$38,261		$38,261	$45,913
96	Demo Sink W/ ACM Undercoat	3	EA			1.000	3.0	$217		$217	$260
97	Demo Roofing with ACM Mastic	5,875	SF			0.057	334.9	$24,222		$24,222	$29,066
98	Demo Fittings (ACM)	50	EA			2.000	100.0	$7,233		$7,233	$8,680
99											
100	**08 83 00 Lead Remediation**	1	EA	$10,000.00	$10,000					$10,000	$10,000
101											
102	**02 84 00 Chemical Remediation**										
103	Fluor Tubes, Mercury	189	EA	$10.64	$2,011	0.100	18.9	$1,367		$3,378	$4,054
104											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
105	**02 85 00 Mold Remediation**	1	LS	$3,000.00	$3,000					$3,000	$3,000
106											
107	**Subtotal: 02 - EXISTING CONSTRUCTION**				$20,579		2,232.4	$171,947	$2,341	$194,867	**$231,241**
108	Average Unit Price for this division is: $24.43 per SF based on 9,466 SF										
109											
110											
111	**03 - CONCRETE**		**NONE**								
112											
113											
114											
115	**Subtotal: 03 - CONCRETE**										
116	Average Unit Price for this division is: $0.00 per SF based on 9,466 SF										
117											
118											
119	**04 - MASONRY**										
120											
121	**04 81 00 Unit Masonry Assemblies**										
122	Infill Windows	2	EA	$1,750.00	$3,500					$3,500	$3,500
123											
124											
125											
126	**Subtotal: 04 - MASONRY**				$3,500					$3,500	**$3,500**
127	Average Unit Price for this division is: $0.37 per SF based on 9,466 SF										
128											
129											
130	**05 - METALS**		**NONE**								
131											
132											
133											
134											
135											
136	**Subtotal: 05 - METALS**										
137	Average Unit Price for this division is: $0.00 per SF based on 9,466 SF										
138											
139											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
140	**06 - WOOD AND PLASTIC**										
141											
142	**06 10 00 Rough Carpentry**										
143	**Shearwalls, Original**	**1,500**	**SF**								
144	2x6 Framing	1,500	BF	$0.60	$900	0.021	31.5	$2,734		$3,634	$3,634
145	1" Plywood	3,000	SF	$1.20	$3,600	0.017	51.0	$4,426		$8,026	$8,026
146	Holddowns	8	EA	$35.00	$280	1.500	12.0	$1,041		$1,321	$1,321
147	Anchor Bolts	75	EA	$12.00	$900	0.500	37.5	$3,254		$4,154	$4,154
148											
149	**Shearwalls, First Addition**										
150	Holddowns	6	EA	$35.00	$210	1.500	9.0	$781		$991	$991
151	Anchor Bolts	24	EA	$4.00	$96	0.114	2.7	$234		$330	$330
152											
153	**Roof Framing**										
154	Diaphragm connection anchors and straps	82	EA	$42.00	$3,444	1.000	82.0	$7,116		$10,560	$10,560
155	Roof Sheathing 1/2"	4,960	SF	$0.60	$2,976	0.016	79.4	$6,890		$9,866	$9,866
156	Bent Plate At Addition	60	LF	$25.00	$1,500	1.000	60.0	$5,207		$6,707	$6,707
157	Tie Roof Beams to Conc Ftgs with Straps	16	EA	$98.00	$1,568	8.000	128.0	$11,108		$12,676	$12,676
158	Reentrant Corner Correction, anchors and straps	45	EA	$42.00	$1,895	1.000	45.1	$3,914		$5,809	$5,809
159											
160	**Floor Framing**										
161	Tie Floor Beams to Conc Ftgs with Straps	32	EA	$98.00	$3,136	8.000	256.0	$22,216		$25,352	$25,352
162	Underlayment	6,650	SF	$0.75	$4,988	0.019	126.4	$10,969		$15,957	$15,957
163											
164	**06 41 00 Interior Architectural Wood Casework**										
165	Base Cabinets	82	LF	$220.00	$18,040	0.314	25.7	$1,829		$19,869	$23,843
166	Countertops, Plastic Laminate	82	LF	$45.00	$3,690	0.100	8.2	$584		$4,274	$5,129
167	Wall Cabinets	36	LF	$150.00	$5,400	0.314	11.3	$804		$6,204	$7,445
168											
169											
170	**Subtotal: 06 - WOOD AND PLASTIC**				$52,623		965.8	$83,107		$135,730	**$141,800**
171	Average Unit Price for this division is: $14.98 per SF based on 9,466 SF										
172											
173											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
174	**07 - THERMAL & MOISTURE PROTECTION**										
175											
176	**07 21 13 Building Insulation**										
177	R-19 Batt, Walls	6,754	SF	$0.50	$3,377	0.010	67.5	$4,804		$8,181	$9,817
178	Sound Insulation	2,504	SF	$0.40	$1,002	0.010	25.0	$1,779		$2,781	$3,337
179											
180	**07 26 13 Vapor Retarders**										
181	Vapor Retarder, 6 Mil	6,754	SF	$0.08	$540	0.006	40.5	$3,515		$4,055	$4,055
182											
183	**07 53 00 EPDM Membrane Roofing**										
184	**Membrane Roofing**	**10,381**	**SF**								
185	Vapor Retarder, 10 Mil V.Q	10,381	SF	$0.15	$1,557	0.006	62.3	$5,093		$6,650	$7,980
186	Gypsum Sheathing, 1/2"	10,381	SF	$0.75	$7,786	0.010	103.8	$8,486		$16,272	$19,526
187	EPDM Membrane, Fully Adhered	11,956	SF	$1.30	$15,543	0.021	251.1	$21,791		$37,334	$37,334
188	Rigid Insulation, R38	98,620	BF	$0.60	$59,172	0.004	394.5	$32,252		$91,424	$109,709
189											
190	**07 62 00 Sheet Metal Flashing and Trim**										
191	Base Flashing	572	LF	$6.00	$3,432	0.040	22.9	$1,872		$5,304	$6,365
192	Misc Flashings	1,200	LF	$2.00	$2,400	0.040	48.0	$3,924		$6,324	$7,589
193	Coping	600	LF	$16.00	$9,600	0.100	60.0	$4,905		$14,505	$17,406
194											
195	**07 92 00 Joint Sealants**	9,466	SF	$0.05	$473	0.003	28.4	$2,465		$2,938	$2,938
196											
197											
198											
199											
200											
201											
202											
203											
204											
205	**Subtotal: 07 - THERMAL & MOISTURE PROTECTION**				$104,882		1,104.0	$90,886		$195,768	**$226,056**
206	Average Unit Price for this division is: $23.88 per SF based on 9,466 SF										
207											
208											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
209	**08 - OPENINGS**										
210											
211	**08 11 13 Steel Doors and Frames**										
212	HM Insulated 3'0"x7'0"	3	EA	$400.00	$1,200	2.000	6.0	$521		$1,721	$1,721
213	Insul. HM Frame	3	EA	$300.00	$900	2.000	6.0	$521		$1,421	$1,421
214	HM Frames	15	EA	$220.00	$3,300	2.000	30.0	$2,603		$5,903	$5,903
215											
216	**08 14 16 Flush Wood Doors**										
217	Solid Core Wood Flush Door 3x7	15	EA	$460.00	$6,900	2.000	30.0	$2,603		$9,503	$9,503
218											
219	**08 41 13 Aluminum-Framed Entrances and Storefronts**										
220	Entrances - Alum/Glass, Single	1	EA	$6,000.00	$6,000					$6,000	$6,000
221	Entrances - Alum/Glass, Double	2	EA	$9,000.00	$18,000					$18,000	$18,000
222											
223	**08 71 00 Door Hardware**										
224	Int Hardware Sets	15	EA	$900.00	$13,500	2.000	30.0	$2,603		$16,103	$16,103
225	Ext Hardware Set, No Exit Devices	3	EA	$1,300.00	$3,900	3.000	9.0	$781		$4,681	$4,681
226	Entrances Include Hardware above										
227											
228											
229											
230											
231											
232											
233											
234											
235											
236											
237											
238											
239											
240	**Subtotal: 08 - OPENINGS**				$53,700		111.0	$9,632		$63,332	**$63,332**
241	Average Unit Price for this division is: $6.69 per SF based on 9,466 SF										
242											
243											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
244	**09 - FINISHES**										
245											
246	**09 22 16 Non-Load-Bearing Steel Framing**										
247	Metal Framing 6" 20 Ga 16" o.c.	1,560	SF	$1.28	$1,997	0.050	78.0	$6,769		$8,766	$10,519
248											
249	**09 29 13 Gypsum Board**										
250	GWB 5/8" Walls	16,769	SF	$0.45	$7,546	0.029	486.3	$42,202		$49,748	$59,698
251	Suspended GWB Ceilings	186	SF	$2.60	$484	0.057	10.6	$920		$1,404	$1,685
252											
253	**09 30 00 Tile**										
254	Ceramic Wall Tile, 4'Wainscot at	400	SF	$8.60	$3,440	0.107	42.8	$3,510		$6,950	$8,340
255	CBB	400	SF	$1.25	$500	0.025	10.0	$820		$1,320	$1,584
256											
257	**09 51 00 Acoustical Tile Ceilings**										
258	Acoustical Suspended Ceilings	7,998	SF	$3.25	$25,994	0.023	184.0	$17,881		$43,875	$43,875
259	Linear Wood Ceilings		SF	$57.00							
260											
261	**09 65 00 Resilient Floors**										
262	Sheet Vinyl Flooring	1,200	SF	$5.00	$6,000	0.029	34.8	$2,449		$8,449	$10,139
263	Resilient Base	1,106	LF	$0.75	$830	0.019	21.0	$1,478		$2,308	$2,770
264											
265	**09 68 00 Carpet**										
266	Carpet Tiles	5,405	SF	$4.00	$21,620	0.020	108.1	$7,609		$29,229	$35,075
267	Entry Carpet	44	SF	$9.00	$396	0.029	1.3	$113		$509	$509
268											
269	**09 91 00 Painting**										
270	Paint	16,955	SF	$0.15	$2,543	0.019	322.1	$25,901		$28,444	$34,133
271	Paint Exposed Structure	200	SF	$0.10	$20	0.011	2.2	$177		$197	$236
272	Paint Exterior	6,754	SF	$0.08	$540	0.020	135.1	$10,864		$11,404	$13,685
273	Paint/Stain Doors & Frames	18	EA	$5.00	$90	1.500	27.0	$2,171		$2,261	$2,713
274											
275											
276	**Subtotal: 09 - FINISHES**				$72,000		1,463.3	$122,864		$194,864	**$224,961**
277	Average Unit Price for this division is: $23.77 per SF based on 9,466 SF										
278											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
279											
280	**10 - SPECIALTIES**										
281											
282	**10 28 00 Toilet and Bath Accessories**										
283	Toilet Paper Dispenser - 2 Roll	3	EA	$67.00	$201	0.500	1.5	$107		$308	$370
284	Soap Dispensers	3	EA	$29.50	$89	0.500	1.5	$107		$196	$235
285	Seat Cover Dispenser	3	EA	$30.00	$90	0.250	0.8	$57		$147	$176
286	Paper Towel/Waste - Recessed	3	EA	$330.00	$990	1.500	4.5	$320		$1,310	$1,572
287	Grab Bar, Single Bar, 42"	3	EA	$42.00	$126	0.743	2.2	$157		$283	$340
288	Grab Bar, Single Bar, 48"	3	EA	$50.00	$150	0.743	2.2	$157		$307	$368
289	Mirror 24" X 36"	3	EA	$85.00	$255	0.743	2.2	$157		$412	$494
290											
291	**10520 Fire-Protection Specialties**										
292	FEC, Recessed	3	EA	$350.00	$1,050	2.000	6.0	$427		$1,477	$1,772
293											
294											
295											
296	**Subtotal: 10 - SPECIALTIES**				$2,951		20.9	$1,489		$4,440	**$5,327**
297	Average Unit Price for this division is: $0.56 per SF based on 9,466 SF										
298											
299											
300	**11 - EQUIPMENT**		**NONE**								
301											
302											
303	**Subtotal: 11 - EQUIPMENT**										
304	Average Unit Price for this division is: $0.00 per SF based on 9,466 SF										
305											
306											
307	**12 - FURNISHINGS**		**NONE**								
308											
309											
310	**Subtotal: 12 - FURNISHINGS**										
311	Average Unit Price for this division is: $0.00 per SF based on 9,466 SF										
312											
313											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
314	**13 - SPECIAL CONSTRUCTION**		**NONE**								
315											
316											
317	**Subtotal: 13 - SPECIAL CONSTRUCTION**										
318	Average Unit Price for this division is: $0.00 per SF based on 9,466 SF										
319											
320											
321	**14 - CONVEYING**		**NONE**								
322											
323											
324	**Subtotal: 14 - CONVEYING**										
325	Average Unit Price for this division is: $0.00 per SF based on 9,466 SF										
326											
327											
328	**21 - FIRE SUPPRESSION**		**NONE**								
329											
330											
331	**Subtotal: 21 - FIRE SUPPRESSION**										
332	Average Unit Price for this division is: $0.00 per SF based on 9,466 SF										
333											
334											
335	**22 - PLUMBING**										
336											
337	**22 05 00 Common Work Results for Plumbing**										
338	Field Engineering: Submittals, Shop & Record Dwgs, Operating Instructions, O&M Manuals	40	HRS	$5.00	$200	1.000	40.0	$2,320		$2,520	$2,520
339	Mob & Demob	1	LS	$1,500.00	$1,500	48.000	48.0	$4,166		$5,666	$5,666
340	Supervision	6	WEEKS			40.000	240.0	$19,488	$375	$19,863	$19,863
341	Materials Control	6	WEEKS			20.000	120.0	$6,264	$413	$6,677	$6,677
342	Tools and Equipment	1	LS						$500	$500	$500
343	Seismic & Vibration Control	1	LS	$2,390.00	$2,390					$2,390	$2,390
344											
345											
346											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
347	**Demolition**										
348	Demo Elec Water Heater, Assoc Piping	1	EA			3.000	3.0	$260		$260	$260
349	Demo Plumbing Fixtures, Assoc Piping	10	EA			2.000	20.0	$1,736		$1,736	$1,736
350	Demo Misc Plumbing Piping To Accommodate New Layout	1	LS			8.000	8.0	$694		$694	$694
351											
352	**22 07 00 Plumbing Insulation**										
353	Allow for Pipe & Valve I.D.	1	LS	$240.00	$240					$240	$240
354											
355	**Piping Insulation**										
356	Fiberglass Pipe Insulation, 1" Thick W/ ASJ										
357	Domestic Hot/Cold Water										
358	3/4" Pipe, Fittings	100	LF	$1.80	$180	0.070	7.0	$613		$793	$1,071
359	1" Pipe, Fittings	100	LF	$2.16	$216	0.073	7.3	$639		$855	$1,154
360	1-1/4" - 1/2" Pipe, Fittings	50	LF	$2.23	$112	0.076	3.8	$333		$445	$601
361											
362	Insulated Protectors, ADA, Lav P-traps	4	EA	$16.80	$67	0.250	1.0	$88		$155	$209
363											
364	VTR	2	EA	$20.00	$40	1.400	2.8	$245		$285	$385
365											
366	**22 11 13 Facility Water Distribution Piping**										
367	Domestic HW/CW Supply, Type L Copper										
368	1/2" Pipe	220	LF	$3.44	$757	0.114	25.1	$2,241		$2,998	$3,448
369	3/4" Pipe	100	LF	$4.10	$410	0.121	12.1	$1,080		$1,490	$1,714
370	1" Pipe	100	LF	$8.14	$814	0.136	13.6	$1,214		$2,028	$2,332
371	1-1/2" Pipe	50	LF	$11.18	$559	0.177	8.9	$794		$1,353	$1,556
372	Fittings	1	LS	$601.65	$602	33.315	33.3	$2,890		$3,492	$3,492
373	Sterilization	1	LS	$25.00	$25	9.400	9.4	$839		$864	$994
374											
375	**22 11 19 Facility Water Distribution Specialties**										
376	Mixing Valves	1	LS	$200.00	$200	1.000	1.0	$89		$289	$332
377	Water Hammer Arresters										
378	PDI Type A	2	EA	$56.00	$112	0.800	1.6	$143		$255	$293
379	PDI Type B	2	EA	$75.00	$150	0.800	1.6	$143		$293	$337
380											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
381	**22 11 23 Pumps**										
382	Domestic Water Pump, Bronze, Frac HP	1	EA	$420.00	$420	4.000	4.0	$357		$777	$894
383											
384	**22 13 16 Facility Sanitary Sewage Piping**										
385	Below Grade DWV, Cast Iron No-Hub										
386	1-1/2" Pipe	10	LF	$5.00	$50	0.117	1.2	$107		$157	$181
387	2" Pipe	10	LF	$6.60	$66	0.117	1.2	$107		$173	$199
388	3" Pipe	20	LF	$8.70	$174	0.146	2.9	$259		$433	$498
389	4" Pipe	20	LF	$15.90	$318	0.146	2.9	$259		$577	$664
390	Fittings	1	LS	$325.20	$325	4.200	4.2	$375		$700	$805
391	Trenching	60	LF	$2.00	$120	0.200	12.0	$1,071	$420	$1,611	$1,853
392											
393	Above Grade Copper DWV										
394	1-1/2" Pipe	110	LF	$4.80	$528	0.117	12.9	$1,152		$1,680	$1,932
395	2" Pipe	110	LF	$6.60	$726	0.117	12.9	$1,152		$1,878	$2,160
396	3" Pipe	110	LF	$8.60	$946	0.146	16.1	$1,437		$2,383	$2,740
397	4" Pipe	50	LF	$22.98	$1,149	0.146	7.3	$652		$1,801	$2,071
398	Fittings	1	LS	$870.74	$871	29.520	29.5	$2,633		$3,504	$4,030
399											
400	**22 13 16 Facility Sanitary Sewage Piping Specialties**										
401	Floor Drains										
402	2", Cast Iron Body, Ni-Bronze Grate	4	EA	$176.00	$704	1.000	4.0	$357		$1,061	$1,220
403	Roof Drains -- Seismic Brace Existing 6'	4	EA	$380.00	$1,659	2.300	10.0	$893		$2,552	$2,935
404	Floor Cleanouts	4	EA	$285.00	$1,140	0.700	2.8	$250		$1,390	$1,599
405	Vent Thru Roof, 4"	2	EA	$65.00	$130	1.000	2.0	$179		$309	$355
406	Trap Primer	2	EA	$60.00	$120	1.500	3.0	$268		$388	$446
407											
408	**22 33 00 Electric Domestic Water Heaters**										
409	Replace Existing, Assume 60 Gallon	1	EA	$1,200.00	$1,200	4.000	4.0	$357		$1,557	$1,791
410	Assoc Valves, Fittings, Specialties	1	LS	$250.00	$250	2.000	2.0	$174		$424	$424
411											
412											
413											
414											
415											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
416	**22 42 00 Commercial Plumbing Fixtures**										
417	Water Closet, Flush Valve, ADA	11	EA	$750.00	$8,250	8.000	88.0	$7,855		$16,105	$18,521
418	Wall Hung Lavatory, ADA	4	EA	$475.00	$1,900	8.000	32.0	$2,857		$4,757	$5,471
419	Wall Hung Urinal, ADA	3	EA	$730.00	$2,190	8.000	24.0	$2,142		$4,332	$4,982
420	Mop Sink, Stainless Steel	1	EA	$750.00	$750	8.000	8.0	$714		$1,464	$1,684
421	Hose Bibb, Install Vacuum Breakers	3	EA	$25.00	$75	4.000	12.0	$1,071		$1,146	$1,318
422	Drinking Fountain, St. Stl. ADA	1	EA	$1,400.00	$1,400	6.000	6.0	$536		$1,936	$2,226
423											
424											
425	**Subtotal: 22 - PLUMBING**				$34,035		912.4	$73,493	$1,708	$109,236	**$119,463**
426	Average Unit Price for this division is: $12.62 per SF based on 9,466 SF										
427											
428											
429	**23 - HVAC**										
430	**23 05 00 Common Work Results for HVAC**										
431	**General Requirements**										
432	Field Engineering: Submittals, Shop & Record Dwgs, Operating Instructions, O&M Manuals	80	HRS	$5.00	$400	1.000	80.0	$4,640		$5,040	$5,040
433	Mob & Demob	1	LS	$1,500.00	$1,500	48.000	48.0	$4,166		$5,666	$5,666
434	Tests, Inspections	1	LS	$100.00	$100	28.571	28.6	$2,482		$2,582	$2,582
435	Supervision	12	WEEKS			20.000	240.0	$19,488	$750	$20,238	$20,238
436	Materials Control	12	WEEKS			20.000	240.0	$12,528	$825	$13,353	$13,353
437	Bond and Insurance	1	LS	$3,200.00	$3,200					$3,200	$3,200
438	Tools and Equipment	1	LS						$1,300	$1,300	$1,300
439	Seismic & Vibration Control	1	LS	$6,360.00	$6,360					$6,360	$6,360
440	Mechanical Identification										
441	Allow for Pipe & Valve I.D.	1	EA	$800.00	$800					$800	$800
442	Valve Tags										
443	Pipe I.D @ 6'O.C.		EA	$7.50		0.100					
444	Equipment I.D.										
445											
446											
447											
448											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
449	**23 05 05 HVAC Demolition**										
450	Remove Single Wall Fuel Tanks, Assoc Single Wall Piping	2	EA	$3,500.00	$7,000					$7,000	$8,050
451	Demo Single Wall Chimney	1	EA			4.000	4.0	$357		$357	$411
452	Demo Boiler Room Piping, Pumps	1	LS			16.000	16.0	$1,428		$1,428	$1,642
453	Demo Oil-Fired Furnace (East Addn)	1	EA								
454	Demo Ductwork To Accommodate New Layout	1	LS			8.000	8.0	$714		$714	$821
455	Demo Unit Heaters Above Clg (Core Bldg)	1	LS			2.000	2.0	$179		$179	$206
456	Demo Roof Mtd Exhaust Fans	2	EA			2.000	4.0	$358		$358	$430
457	Demo Hydronic Piping, Perimeter Fintube To Accommodate New Layout	1	LS			24.000	24.0	$2,142		$2,142	$2,463
458											
459	**23 05 93 Testing Adjusting and Balancing**										
460	Balance Hydronic System	1	LS	$200.00	$200	14.286	14.3	$1,281		$1,481	$1,999
461	Balance Air Systems	1	LS	$200.00	$200	14.286	14.3	$1,281		$1,481	$1,999
462	Commissioning, Startup	9,466	SF			0.007	66.3	$5,939		$5,939	$8,018
463											
464	**23 07 00 HVAC Insulation**										
465	**Piping Insulation**										
466	Fiberglass Pipe Insulation, 1" Thick W/ ASJ										
467	Hydronic										
468	3/4" Pipe, Fittings	355	LF	$1.80	$639	0.070	24.9	$2,181		$2,820	$3,807
469	1" Pipe, Fittings	80	LF	$1.84	$147	0.073	5.8	$508		$655	$884
470	1-1/4" - 1-1/2" Pipe, Fittings	80	LF	$2.23	$178	0.076	6.1	$534		$712	$961
471	2" Pipe, Fittings	80	LF	$2.44	$195	0.080	6.4	$560		$755	$1,019
472											
473	**Ductwork Insulation**										
474	Glass Fiber, Flexi. Ductwrap.75 Lb, FSK										
475	1" Thick (Typical For E/A Ducts, Round)	100	SF	$0.32	$32	0.046	4.6	$403		$435	$587
476											
477											
478											
479											
480											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
481	**23 09 00 Instrumentation & Control for HVAC**										
482	Heating Zones	12	EA	$200.00	$2,300	2.000	23.0	$2,053		$4,353	$5,006
483	Heating Equipment: Boiler, Pump, RTUs, Furnace, Condensing Unit Controls - Allowance for Electronic	9,466	SF	$1.00	$9,466					$9,466	$12,779
484											
485	**23 11 13 Facility Fuel Oil Piping**										
486	FOS, FOR Piping, 1/2" - 3/4" Type K	100	LF	$7.00	$700	0.100	10.0	$893		$1,593	$1,832
487	Day Tank/Pump Pkg, 100 Gal	1	EA	$2,200.00	$2,200	8.000	8.0	$714		$2,914	$3,351
488											
489	**23 13 00 Facility Fuel-Storage Tanks**										
490	Fuel Tank, 1,500 Gal Diked, Incl Level Gauge, Valves, Fittings, Vent										
491	Fuel Tank, 1,500 Gal Diked, Incl Level Gauge, Valves, Fittings, Vent	1	EA	$22,500.00	$22,500	40.000	40.0	$3,571		$26,071	$29,982
492											
493	**23 21 13 Hydronic Piping**										
494	**Pipe & Fittings, Copper Type L**										
495	3/4" Pipe	355	LF	$4.10	$1,456	0.121	43.0	$3,838		$5,294	$6,088
496	1" Pipe	80	LF	$8.14	$651	0.136	10.9	$973		$1,624	$1,868
497	1-1/2" Pipe	80	LF	$11.18	$894	0.177	14.2	$1,268		$2,162	$2,486
498	2" Pipe	80	LF	$17.51	$1,401	0.219	17.5	$1,562		$2,963	$3,407
499	Fittings	1	LS	$1,765.65	$1,766	42.405	42.4	$3,785		$5,551	$6,384
500											
501	**23 21 20 Hydronic Specialties**										
502	Replace/Upgrade/Repair Existing Boiler Room as Required - Allowance	1	LS	$1,500.00	$1,500	24.000	24.0	$2,142		$3,642	$4,188
503											
504	**23 21 23 Hydronic Pumps**										
505	Main Heating Circ Pump, 1.5 HP	2	EA	$1,500.00	$3,000	6.000	12.0	$1,071		$4,071	$4,682
506											
507											
508											
509											
510											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
511	**23 31 13 Ducts**										
512	Low Velocity Duct, Incl Allowance For Waste, Supports and Joints										
513	Round Spiral, Galvanized	2,400	LBS	$2.47	$5,928	0.105	252.0	$22,534		$28,462	$34,154
514	Rectangular, Galvanized	900	LBS	$3.71	$3,339	0.158	142.2	$12,715		$16,054	$19,265
515											
516	**23 33 00 Duct Accessories**										
517	Allowance	1	LS	$500.00	$500	2.000	2.0	$179		$679	$815
518											
519	**23 34 00 Fans**										
520	Exhaust Fans										
521	Roof Mounted, Replace Existing	2	EA	$1,200.00	$2,400	4.000	8.0	$715		$3,115	$3,738
522											
523	**23 37 00 Air Outlets & Inlets**										
524	S/A Diffusers	35	EA	$75.00	$2,625	1.000	35.0	$3,130		$5,755	$6,906
525	R/A, E/A, Transfer Grilles	18	EA	$28.00	$490	0.660	11.6	$1,037		$1,527	$1,832
526											
527	**23 51 00 Breechings, Chimneys, & Stacks**										
528	**Stack and Flue Vents**										
529	Pressure Stack, 8"	16	LF	$77.00	$1,232	0.308	4.9	$437		$1,669	$1,919
530	Fittings, 8"	4	EA	$400.00	$1,600	0.615	2.5	$223		$1,823	$2,096
531	Roof Support Assy, Penetration, Curb	1	EA	$480.00	$480	0.769	0.8	$71		$551	$634
532	Stack Cap, Supports	1	EA	$320.00	$320	0.410	0.4	$36		$356	$409
533											
534	**23 52 00 Heating Boilers**										
535	Boilers - Cast Iron Oil Fired, 541 MBH -- Modify and Refurbish Existing	1	EA	$3,600.00	$3,600	18.462	18.5	$1,651		$5,251	$6,039
536	Boiler Trim, Appurtenances, Specialties - Replace Existing	1	LS	$2,700.00	$2,700	13.714	13.7	$1,223		$3,923	$4,511
537											
538	**23 53 00 Heating Boiler Feedwater Equipment**										
539	Allowance	1	LS	$500.00	$500	4.000	4.0	$357		$857	$986
540											
541											
542											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
543	**23 54 00 Furnaces**										
544	Replace Existing Oil-Fired Furnace, Assume 150 MBH - w/ Cooling Coil	1	EA	$3,500.00	$3,500	8.000	8.0	$714		$4,214	$4,846
545	FO Piping, Ductwork Mods - Allowance	1	LS	$1,000.00	$1,000	4.000	4.0	$357		$1,357	$1,561
546											
547	**23 63 00 Condensing Units**										
548	Air-Cooled Condensing Unit - Supplies Cooling Coil In Furnace, 3.5 Ton	1	EA	$2,000.00	$2,000	8.000	8.0	$714		$2,714	$3,121
549	Pad, Piping, Specialties - Allowance	1	LS	$1,000.00	$1,000	4.000	4.0	$357		$1,357	$1,561
550											
551	**23 74 00 Packaged Roof Top Units**										
552	10 Ton AC, 230 MBH Heating, Oil Fired	1	EA	$15,000.00	$15,000	40.000	40.0	$3,571		$18,571	$21,357
553	5 Ton AC, 115 MBH Heating, Oil Fired	1	EA	$7,500.00	$7,500	28.000	28.0	$2,430		$9,930	$9,930
554	Structural Roof Modifications -- See Div										
555	Curbs, Assoc Piping, Ductwork Mods, Patch and Repair Roof	1	LS	$5,000.00	$5,000	32.000	32.0	$2,857		$7,857	$9,036
556											
557	**23 82 00 Convection Heating Units**										
558	(Typical Assy Includes Fittings, AAV, Ctrl Valve, Isolation Valves, Bal Valve)										
559	Baseboard Radiation - Relocate Existing To Accommodate New Room Layout										
560	No. Of Units (Zones)	12	EA	$200.00	$2,400	2.000	24.0	$2,142		$4,542	$5,223
561	Enclosure - Relocate existing	131	LF			0.200	26.3	$2,348		$2,348	$2,700
562	Fintube, Relocate Existing	79	LF			0.200	15.8	$1,410		$1,410	$1,622
563											
564											
565											
566											
567											
568											
569	**Subtotal: 23 - HVAC**				$131,899		1,768.0	$144,247	$2,875	$279,021	**$318,150**
570	Average Unit Price for this division is: $33.61 per SF based on 9,466 SF										
571											
572											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
573	**26 - ELECTRICAL**										
574	**26 05 00 Common Work Results for Electrical**										
575	**General Requirements**										
576	Field Engineering: Submittals, Shop & Record										
577	Dwgs, Operating Instructions, O&M Manuals	40	HRS	$5.00	$200	1.000	40.0	$2,320		$2,520	$2,520
578	Permits, Tests, Inspections	1	LS	$100.00	$100	40.000	40.0	$3,471		$3,571	$3,571
579	Supervision	20	WEEKS			20.000	400.0	$32,480	$1,250	$33,730	$33,730
580	Materials Control	20	WEEKS			20.000	400.0	$20,880	$1,375	$22,255	$22,255
581	Bond and Insurance	1	LS	$4,500.00	$4,500					$4,500	$4,500
582	Small Tools	1	LS						$4,300	$4,300	$4,300
583	Equipment	1	LS						$6,500	$6,500	$6,500
584	Electrical Identification	9,466	SF	$0.05	$473					$473	$544
585											
586	**26 05 05 Electrical Demolition**	9,466	SF	$1.00	$9,466					$9,466	$9,466
587											
588	**26 05 26 Grounding**	1	LS	$500.00	$500	16.000	16.0	$1,389		$1,889	$1,889
589											
590	**26 24 16 Panelboards**										
591	Panelboards, 120/208V, 3 Phase, 4 Wire, 200A, MLO, 42 Circuit, W/ Breakers	1	EA	$1,800.00	$1,800	10.000	10.0	$902		$2,702	$3,107
592	Panelboards, 120/208V, 3 Phase, 4 Wire, 100A, MLO, 42 Circuit, W/ Breakers	3	EA	$1,100.00	$3,300	10.000	30.0	$2,707		$6,007	$6,908
593											
594	**Feeders & Subfeeds**										
595	100 Amp: 1-1/4" EMT, 4#2, 1#8	300	LF	$5.90	$1,770	0.161	48.3	$4,358		$6,128	$7,047
596	200 Amp: 2" EMT, 4#3/0, 1#6	50	LF	$12.88	$644	0.240	12.0	$1,083		$1,727	$1,986
597	400 Amp: 3" RGS, 3#500 KCMIL, 1#3	50	LF	$62.99	$3,150	0.377	18.9	$1,705		$4,855	$5,583
598											
599	**26 27 13 Electricity Metering**										
600	CT Cabinet 400A	1	EA	$800.00	$800	8.000	8.0	$722		$1,522	$1,750
601											
602											
603											
604											
605											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
606	**26 27 26 Wiring Devices**										
607	**Receptacles: Complete Assemblies**	**130**	**EA**								
608	Duplex 20A 125V	108	EA	$5.38	$581	0.200	21.6	$1,949		$2,530	$2,910
609	Quadruplex 20A 125V	10	EA	$10.76	$108	0.400	4.0	$361		$469	$539
610	GFCI Receptacles	8	EA	$22.00	$176	0.250	2.0	$180		$356	$409
611	WP GFCI Receptacles	4	EA	$26.79	$107	0.300	1.2	$108		$215	$247
612	Add For:										
613	3/4in. EMT (Reuse 30%)	2,729	LF	$0.36	$982	0.035	95.5	$8,617		$9,599	$11,039
614	3/4in. EMT CONN	260	EA	$0.37	$96	0.030	7.8	$704		$800	$920
615	3/4in. EMT CPLG	260	EA	$0.45	$117					$117	$135
616	3/4in. EMT STRAP 1-H	390	EA	$0.09	$35	0.025	9.7	$875		$910	$1,047
617	#8 THHN		LF	$0.35		0.007					
618	#10 THHN	4,483	LF	$0.24	$1,076	0.006	26.9	$2,427		$3,503	$4,028
619	#12 THHN	4,483	LF	$0.16	$717	0.005	22.4	$2,021		$2,738	$3,149
620	UTILITY BOX 2-1/2 D 1/2 KO	130	EA	$1.27	$165	0.200	26.0	$2,346		$2,511	$2,888
621	1G SS RECEPTACLE PLATE	130	EA	$1.04	$135	0.025	3.2	$289		$424	$488
622	1in. x10 S-TAP SCREW	650	EA	$0.03	$19	0.020	13.0	$1,173		$1,192	$1,371
623											
624	**26 28 16Enclosed Switches and Circuit Breakers**										
625	Main Disconnect 200A. NEMA 3R	1	EA	$2,000.00	$2,000	6.000	6.0	$541		$2,541	$2,922
626	Main Disconnect 100A, NEMA 3R	1	EA	$1,100.00	$1,100	4.000	4.0	$361		$1,461	$1,680
627											
628	**26 29 13 Enclosed Controllers**	9,466	SF	$0.20	$1,893	0.007	66.3	$5,982		$7,875	$9,056
629											
630	**26 51 13 Interior Lighting**										
631	LED Interior Lighting, Office	119	EA	$300.00	$35,700	1.250	148.8	$13,427		$49,127	$56,496
632	LED Interior Lighting, Maint and Utilities Area	16	EA	$190.00	$3,040	1.250	20.0	$1,805		$4,845	$5,572
633	Exit Sign, LED	10	EA	$160.00	$1,600	1.000	10.0	$902		$2,502	$2,877
634	Emergency Ballast	20	EA	$150.00	$3,038					$3,038	$3,494
635	Switches	30	EA	$17.00	$510	0.314	9.4	$848		$1,358	$1,562
636	Lighting Control system	9,466	SF	$1.25	$11,833					$11,833	$13,608
637	Wiring: 3/4" Cond, 3-#12, Gnd, Reuse 30% of Conduit	608	LF	$1.44	$875	0.074	45.0	$4,060		$4,935	$5,675
638											
639											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
640	**26 56 13 Exterior Lighting**										
641	Wall Mtd LED	6	EA	$600.00	$3,600	2.000	12.0	$1,083		$4,683	$5,385
642	Wiring: 3/4" Cond, 3-#12, Gnd	210	LF	$1.52	$319	0.091	19.1	$1,723		$2,042	$2,348
643	Photocell	1	EA	$70.00	$70	1.000	1.0	$90		$160	$184
644	Lighting Controls	1	LS	$1,470.00	$1,470	18.571	18.6	$1,678		$3,148	$3,620
645	1: Luminaire On 30' Tall Pole, LED	4	EA	$3,300.00	$13,200	10.000	40.0	$3,609		$16,809	$19,330
646	2: Luminaire On 30' Tall Pole, LED	4	EA	$4,000.00	$16,000	16.000	64.0	$5,775		$21,775	$25,041
647	Wiring: 3/4" Cond, 3-#12, Gnd	1,650	LF	$1.49	$2,459	0.091	150.2	$13,553		$16,012	$18,414
648	Trenching	1,650	LF	$1.00	$1,650	0.100	165.0	$14,888	$5,775	$22,313	$25,660
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671	**Subtotal: 26 - ELECTRICAL**				$131,374		2,035.9	$163,392	$19,200	$313,966	**$347,750**
672	Average Unit Price for this division is: $36.74 per SF based on 9,466 SF										
673											
674											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
675	**27 - COMMUNICATIONS**										
676											
677	**27 13 00 Communications Backbone Cabling**										
678	**Telephone, Data/Comm Systems**										
679	Telecom Racks, Enclosed	1	EA	$1,500.00	$1,500	4.000	4.0	$361		$1,861	$2,140
680	Rack Grounding Bus Bar	1	EA	$65.00	$65	2.000	2.0	$180		$245	$282
681	Fiber Optics Patch Panels	1	EA	$350.00	$350	4.000	4.0	$361		$711	$818
682	48 Port Patch Panels	2	EA	$250.00	$500	8.000	16.0	$1,444		$1,944	$2,236
683	Terminations	82	EA			0.100	8.2	$740		$740	$851
684	Telecomm Backboard	64	SF	$1.00	$64	0.017	1.1	$99		$163	$187
685											
686	**27 15 00 Horizontal Cabling**										
687	**Telecomm Outlets**	**70**	**EA**								
688	Telecomm Outlets (1)	6	EA	$22.56	$135	0.752	4.5	$406		$541	$703
689	Telecomm Outlets (2)	30	EA	$22.56	$677	0.752	22.6	$2,039		$2,716	$3,531
690	Telecomm Outlets (4)	4	EA	$22.56	$90	0.752	3.0	$271		$361	$469
691	Box, Cover Plate, Fittings	70	EA	$16.00	$1,120	1.000	70.0	$6,316		$7,436	$9,667
692	Conduit, Fittings 1"	1,050	LF	$1.20	$1,260	0.086	90.3	$8,148		$9,408	$12,230
693	J-Hooks	525	LF	$4.00	$2,100	0.100	52.5	$4,737		$6,837	$8,888
694	Cat 6 Cable	12	MLF	$300.00	$3,690	10.000	123.0	$11,099		$14,789	$19,226
695											
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702											
703											
704											
705											
706	**Subtotal: 27 - COMMUNICATIONS**				$11,551		401.2	$36,201		$47,752	**$61,228**
707	Average Unit Price for this division is: $6.47 per SF based on 9,466 SF										
708											
709											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
710	**28 - ELECTRONIC SAFETY & SECURITY**										
711											
712	**28 23 23 CCTV**										
713	See Alternate 1										
714											
715	**28 31 00 Fire Detection & Alarm**										
716	FACP,& Engineering	1	EA	$4,500.00	$4,500	8.000	8.0	$722		$5,222	$6,005
717	FAA	1	EA	$3,500.00	$3,500	8.000	8.0	$722		$4,222	$4,855
718	Horn Strobe	18	EA	$150.00	$2,700	1.000	18.0	$1,624		$4,324	$4,973
719	Strobe	5	EA	$150.00	$750	1.000	5.0	$451		$1,201	$1,381
720	WP Horn Strobe	1	EA	$175.00	$175	1.500	1.5	$135		$310	$357
721	Manual Pull Station	6	EA	$150.00	$900	1.000	6.0	$541		$1,441	$1,657
722	Heat Detector	5	EA	$150.00	$750	1.000	5.0	$451		$1,201	$1,381
723	Smoke Detector	10	EA	$150.00	$1,500	2.500	25.0	$2,256		$3,756	$4,319
724	Duct Smoke Sensor/Detector	2	EA	$350.00	$700	2.500	5.0	$451		$1,151	$1,324
725	FA Wiring 2 Conductors	1,350	LF	$0.22	$297	0.036	48.6	$4,385		$4,682	$5,384
726	Conduit 1/2"	1,350	LF	$0.60	$810	0.047	63.5	$5,730		$6,540	$7,521
727											
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735											
736											
737											
738											
739											
740											
741	**Subtotal: 28 - ELECTRONIC SAFETY & SECURITY**				$16,582		193.6	$17,468		$34,050	**$39,157**
742	Average Unit Price for this division is: $4.14 per SF based on 9,466 SF										
743											
744											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
745	**31 - EARTHWORK**										
746											
747	**31 11 10 Clearing & Grubbing**										
748	Clear & Grub	1	LS	$10,000.00	$10,000					$10,000	$12,000
749											
750	**31 22 13 Rough Grading**										
751	Rough Grading	1,711	SY			0.020	34.2	$2,898	$1,711	$4,609	$5,531
752											
753	**31 23 00 Excavation and Fill**										
754	Excavation For Parking, Walks, Drives, 3 Ft	1,255	CY			0.014	17.6	$1,491	$2,151	$3,642	$4,371
755	Haul Exc To Waste	1,255	CY	$3.00	$3,764	0.029	36.4	$3,084	$3,764	$10,612	$12,735
756	NFS Fill - Parking, Roads & Walks, 3 Ft	3,576	TONS	$13.00	$46,491	0.098	350.5	$29,697	$12,517	$88,705	$106,446
757	Drainage Swale	300	LF	$21.00	$6,300	0.222	66.6	$5,643	$2,333	$14,276	$17,132
758											
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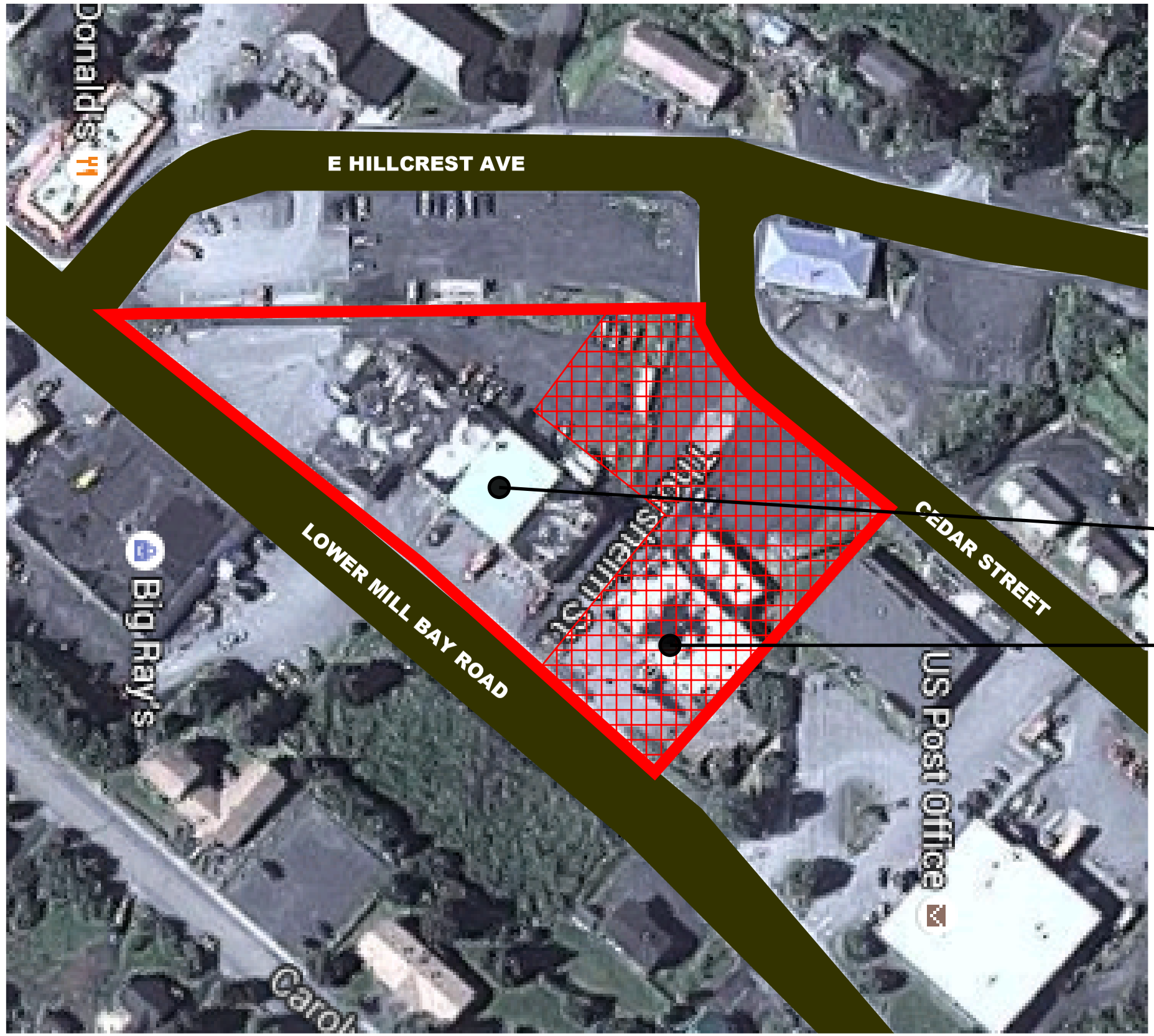
775											
776	**Subtotal: 31 - EARTHWORK**				$66,555		505.3	$42,813	$22,477	$131,845	**$158,215**
777	Average Unit Price for this division is: $16.71 per SF based on 9,466 SF										
778											
779											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
780	**32 - EXTERIOR IMPROVEMENTS**										
781											
782	**32 12 16 Asphalt Paving**										
783	Roadway Asphalt 2" W/ 4" Base	1,711	SY	$16.00	$27,378					$27,378	$32,854
784											
785	**32 17 17 Pavement Markings**										
786	Paint 4" Lines On Pavement	700	LF	$0.45	$315					$315	$378
787	HCP Parking Markings	4	EA	$15.00	$60	1.000	4.0	$339		$399	$479
788											
789	**32 32 00 Retaining Wall**										
790	New Retaining Wall, 3' H	200	LF	$135.00	$27,000	1.286	257.2	$21,792	$2,000	$50,792	$60,950
791											
792	**32 92 00 Lawns and Grasses**										
793	Repair to disturbed Surfaces	1	LS	$5,000.00	$5,000					$5,000	$6,000
794											
795											
796											
797	**Subtotal: 32 - EXTERIOR IMPROVEMENTS**				$59,753		261.2	$22,131	$2,000	$83,884	**$100,661**
798	Average Unit Price for this division is: $10.63 per SF based on 9,466 SF										
799											
800											
801	**33 - UTILITIES**		**NONE**								
802											
803											
804											
805											
806											
807											
808											
809											
810	**Subtotal: 33 - UTILITIES**										
811	Average Unit Price for this division is: $0.00 per SF based on 9,466 SF										
812											
813											
814											

Line No.	Description	Qty	UNITS	Material Costs Unit	Material Costs Total	Labor Hours Units	Labor Hours Totals	Labor Cost	Equip Cost	Total Cost	Total Cost w/ OH & P
815	**A1 - CCTV**										
816											
817	**28 23 23 CCTV**										
818	Head End Equipment	1	LS	$5,000.00	$5,000	16.000	16.0	$1,444		$6,444	$8,377
819	Ceiling Mtd Dome Type Cameras	10	EA	$750.00	$7,500	2.000	20.0	$1,805		$9,305	$12,097
820	Cat 6 Cabling	2,000	LF	$0.35	$700	0.010	20.0	$1,805		$2,505	$3,257
821	J-Hooks	167	LF	$4.00	$667	0.100	16.7	$1,507		$2,174	$2,826
822	Conduit, Fittings 1"	200	LF	$1.20	$240	0.086	17.2	$1,552		$1,792	$2,330
823											
824											
825	**General Requirements**	14%									$4,044
826	**General Contractor Overhead & Profit**	5%									$1,647
827	**General Contractor Bond & Insurance**	2.5%									$864
828											
829	**Subtotal: A1 - CCTV**				$14,107		89.9	$8,113		$22,220	**$35,442**
830	Average Unit Price for this division is: $3.74 per SF based on 9,466 SF										
831											



KEY:

NEW FIRE STATION RENOVATION ADDITION SITE

FORMER KODIAK PUBLIC LIBRARY (52% OF TOTAL LOT)

200'

Stantec

Design with community in mind.

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2016 City of Kodiak Water Rate Update: Financial Plan

PREPARED FOR: Mark Kozak/Public Works Director

PREPARED BY: CH2M

DATE: February 12, 2016

PROJECT NUMBER: 666763

Executive Summary

CH2M completed a financial analysis and rate study for the City of Kodiak (City) water utility. A 5-year financial model (fiscal year [FY] 2017 through FY 2021) was developed to analyze the impact that implementing the utility's proposed capital improvement plan (CIP) and projected operating expenses will have on the City's water rates. As part of the analysis, CH2M reviewed historical expenses and revenues associated with the utility as well as water consumption records by customer class.

Based on the City's existing rate schedule, and including non-rate revenues (revenue from interest income, connection fees, miscellaneous charges, and intergovernmental sources), that are deducted from the utility revenue requirements, existing rate levels will not be sufficient to cover the projected system revenue requirements, and rate increases or adjustments to the projected costs will be necessary. For this analysis, it was assumed that rate adjustments would be used to generate sufficient revenues to cover the projected system costs.

For this analysis, rate increases are introduced every year beginning in FY 2017. The current rates generate sufficient revenue to fund current operations and maintenance (O&M) and debt service costs. However, because the proposed CIP over the 5 year analysis period totals approximately $32.2 million (inflation-adjusted), rate increases are required. Table ES-1 presents the projected annual rate increases.

Table ES-1. Projected Annual Rate Increases

Fiscal Year	Annual Water Increase
FY 2017	3.0%
FY 2018	3.0%
FY 2019	3.0%
FY 2020	3.0%
FY 2021	3.0%

In addition to implementing the proposed rates shown in Table ES-1, CH2M recommends that the City review and update the capital improvement plan on a regular basis, and adjust the schedule and cost estimates to reflect current project timing and cost estimates. The City also should make appropriate adjustments for changes in operations, capital spending, and customer account composition. Rates should be adjusted accordingly.

Introduction

In October 2015, the City of Kodiak, AK, authorized CH2M to proceed with a cost of service analysis and evaluation of the water rates for the water utility. The purpose of this study is to determine if projected rate revenue requirements from operation and maintenance (O&M) and capital improvement costs will require rate increases in the future. The study will also conduct a cost of service analysis where the revenue requirements identified in the financial plan will be allocated to utility functions and customer classes based on user characteristics. A number of rate structure scenarios will be developed. The last rate study for the water utility was performed in 2010 by CH2M HILL and a five-year rate increase schedule was passed by the City council. The last of the planned rate increases was implemented at the beginning of FY 2016.

This Technical Memorandum (TM) summarizes the results of the first phase of the analysis which includes the development of revenue requirements over the study period. A 5-year financial model (fiscal year [FY] 2017 through FY 2021) was developed to analyze the impact that implementing the proposed capital improvement plan (CIP) and projected operating expenses will have on water rates. The TM includes a review of the historical expenses and revenues associated with the water utility and existing water rates; an analysis of the existing rates, including estimating projected water system revenue requirements and revenues; and recommendations for adjusting current rates to meet the projected revenue requirements of the system.

The City of Kodiak maintains and operates a water utility serving residential, commercial, and industrial customers on Kodiak Island, AK. The utility operates as an enterprise fund and is expected to cover its operating and capital costs through user charges. The city council requires enterprise funds to review user fees every 5 years to ensure the fund is generating sufficient revenues. The utility operates two funds: the Water Utility Fund (Fund 550) and the Water Capital Projects Fund (Fund 305). The Water Utility Fund tracks user revenues and operating expenses for the utility while the Capital Projects Fund is used to track capital expenditures. The Water Utility Fund transfers 10 percent of sales revenue each year to the Water Capital Projects Fund to help pay for capital expenditures. The Water Utility will also transfer available fund balances to the Capital Project Fund to help pay for capital projects.

Financial and customer data used in this analysis were provided by the City. The City's fiscal year runs from July 1st to June 30th (that is, "FY 2015" means the data are from July 2014 through June 2015).

Background Information

A majority of the system is unmetered; only larger commercial and industrial customers are metered. The seafood processing industry is the major consumer of water and its operations during the fishing season drives the peak usage for the utility. The City's potable water is supplied by a reservoir behind the Monashaka Dam. In September of 2015, the City experienced a water supply shortage requiring conservation notices from the City to its customers. The water supply issue was resolved after receiving seasonal precipitation in October 2015.

Water Customers

Table 1 presents the total number of customers for the water utility as of September 2015. The total number of accounts is approximately 2,660. Customers are summarized as being located within the city limits ("Inside City") or within the Borough ("Outside City"). Currently, outside city customer rates are 20 percent higher than inside city rates. All residential customers are unmetered as are a majority of commercial accounts. Industrial meters represent seafood processors.

Table 1. Number of Water Accounts

	Accounts	
Customer Type	**Inside City**	**Outside City**
Single Family Vacant	15	16
Single Family-Half	244	151
Single Family	762	707
Multi family vacant	25	22
Multi family	284	160
Business-vacant	7	1
Business 1	141	18
Business 2	39	2
Business 3	1	0
Commercial 1-2"	30	4
Commercial 3"	2	0
Commercial 4"	4	0
Commercial 6"	0	0
Commercial 8"	0	0
Industrial 1-2"	11	0
Industrial 3"	1	0
Industrial 4"	2	0
Industrial 6"	5	0
Industrial 8"	7	0
VFW	0	1
Total	1,580	1,082

Source: City of Kodiak, September 2015 Usage Charges Report

Water Volumes

Table 2 lists total water production from FY 2013 through FY 2015. In FY 2015, the utility produced approximately 1.9 billion gallons, which is an average daily production of approximately 5.2 million gallons per day (gpd). Estimated unaccounted for water is assumed to be 10 percent of total water production. Billed water consumption for each metered customer class was derived from billing records. The industrial class is the utility's largest water user, using over 50 percent of bill water consumption in FY 2015. Total annual water production increased from approximately 1.7 billion gallons in FY 2013 to approximately 1.9 billion gallons in FY 2015, an increase of approximately four percent.

Table 2. Historic Water Consumption (gallons), FY 2013–FY 2015

Customer Class	**FY 2013**	**FY 2014**	**FY 2015**
Unmetered	631,911,800	622,260,421	634,131,779
Commercial	33,583,100	45,142,449	45,403,371
Industrial	895,565,200	1,140,835,430	1,020,717,550
VFW	374,000	751,000	1,382,000

Table 2. Historic Water Consumption (gallons), FY 2013–FY 2015

Customer Class	FY 2013	FY 2014	FY 2015
Petro	1,158,900	1,062,300	983,300
Pool	837,500	745,700	759,400
Estimated Losses	173,714,500	201,199,700	189,264,156
Total Production	1,737,145,000	2,011,997,000	1,892,641,556

Source: City of Kodiak, Usage Report Oct. 2014-Sept. 2015.

Largest Customers

Table 3 presents the largest customers for the water utility. All ten of the largest customers are seafood processing plants. Customers are listed multiple times as some customers own multiple facilities or one facility may have multiple meters. For the 12-month period summarized, the ten largest customers used nearly 1 billion gallons of water.

Table 3. Largest Customers

Customer	Water Use
International Seafoods	143,274,100
Ocean Beauty Seafoods	136,138,300
Ocean Beauty Seafoods	133,921,000
Trident Seafoods	117,519,000
Global Seafoods	106,790,000
Ocean Beauty Seafoods	69,947,000
Trident Seafoods	46,365,000
Trident Seafoods	39,877,000
Pacific Seafoods	14,364,200
Total	958,125,100

Source: City of Kodiak, Usage Report Oct. 2014-Sept 2015.

Existing Rates

Tables 3 and 4 present the current rate schedules for the City's water system. Water rates for customers outside the city limits are twenty percent higher than inside city customers. Customers consist of unmetered and metered customers. The water rates for residential and most commercial customers are a flat rate monthly charge. Commercial customers are billed a flat monthly fee per unit based on the type of business. There are three different types of unmetered business customers that are defined as follows:

- B1: Healthcare (1 Unit) and Number of exam/chairs (1/2 unit); Beauty Parlor (1 Unit) and Number of chairs (1/2 unit); Hotel/Motel/Lodging Room per room (1/2 unit); School (1 unit per 20 people); Day Care (1/4 unit per 5 people)
- B2: Bars, Cafes;, Auto Shop, Grocery, and Dry Cleaner
- B3: Laundry

Table 3. Current City of Kodiak Non-Metered Water Rates

Class	Description	Inside City	Outside City
Residential ($/mo)			
	Single Family Residential	55.23	66.26
	Multi-Family Residential	49.78	59.83
	Single Family Residential, Vacant	27.62	33.14
	Multi-Family Residential, Vacant	24.89	29.92
Commercial ($/month)			
	B1, per unit	55.23	66.26
	B2, per unit	200.41	240.36
	B3, per unit	345.38	414.47

Metered water rates include a meter charge based on the size of the meter and a volume charge. Volumetric charges are based on each customer's monthly water consumption. Outside City customers' rates are twenty percent higher than inside city rates. There are currently only 5 metered customers located outside the City

Table 4. Current City of Kodiak Metered Water Rates

Class	Description	Inside City	Outside City
Meter Charge($/month)			
	1-2"	68.88	82.62
	3"	129.02	
	4"	214.83	
	6"	429.86	
	8"	688.01	
	VFW	181.76	
Consumption Charge ($/000 gallons)			
	Commercial	2.29	2.85
	Industrial	1.75	
	VFW	1.95	

Historical Revenues –Water Utility Fund

Figure 1 shows historical revenues for the Water Utility Fund for FY 2013 through FY 2015. Total system revenues increased from $3.7 million in FY 2013 to $4.6 million in FY 2015. The increase in water consumption and increased water rates during this time period were the reasons for the additional

revenue. In FY 2015, water rate revenues accounted for approximately $4.4 million, or 96 percent, of total revenue. The remaining non-rate revenue was generated by interest, taxes, hookup fees, and intergovernmental charges.

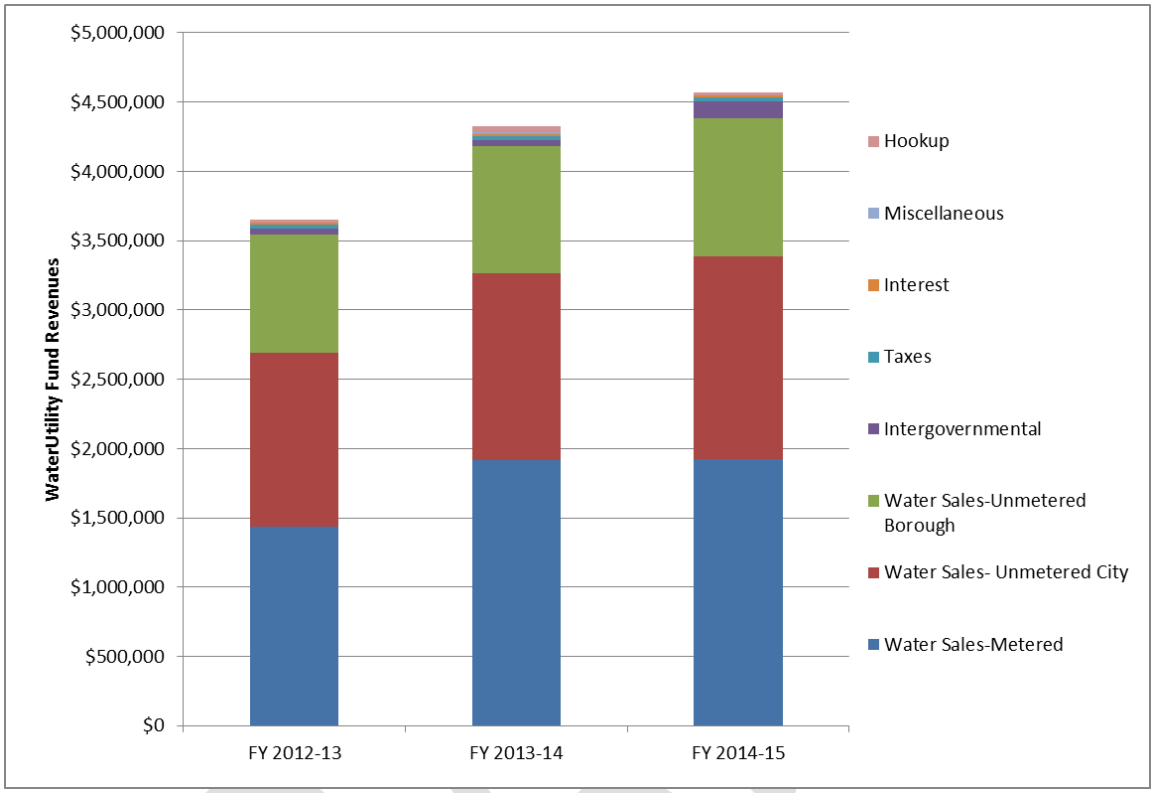

Figure 1. Historical Revenues, FY 2013-2015

Table 5 presents a breakdown of the City's water revenues by service type. Water revenue from metered accounts, which includes industrial users, represents the largest contributor of total sales revenue at 44 percent. Unmetered customers within the city accounted for 33 percent of sales revenue while unmetered customers outside the city represented 23 percent of sales revenue.

Table 5. Water Revenues by Customer Class

Service Description	FY 2013	FY 2014	FY 2015
Water			
Water Sales-Metered	1,434,137	1,915,934	1,921,671
Water Sales- Unmetered City	1,258,848	1,351,679	1,466,382
Water Sales-Unmetered Borough	850,210	917,991	993,073
Intergovernmental	42,937	40,054	123,975
Taxes	31,850	28,595	28,945
Interest	9,196	11,174	11,335
Miscellaneous	6,795	15,065	4,661
Hookup	15,837	42,684	18,017
Total Revenues	**3,649,810**	**4,323,176**	**4,568,058**

Source: City of Kodiak Budget Worksheet Report, Water Utility Fund

Historical Operation and Maintenance Expenses –Water Utility Fund

O&M expenses include all costs associated with operating and maintaining the water utility, including personnel, utilities, support goods and services, and professional services costs. Interfund charges include transfers to other City departments to cover administrative, financial, public works, and engineering services. Interfund charges also includes a transfer to the Water Capital Projects Fund to help pay for annual capital expenditures. Figure 2 summarizes actual operating expenses for FY 2013 through FY 2015. Cash operating expenses ranged from approximately $1.7 million in FY 2013 to nearly $2.0 million in FY 2015.

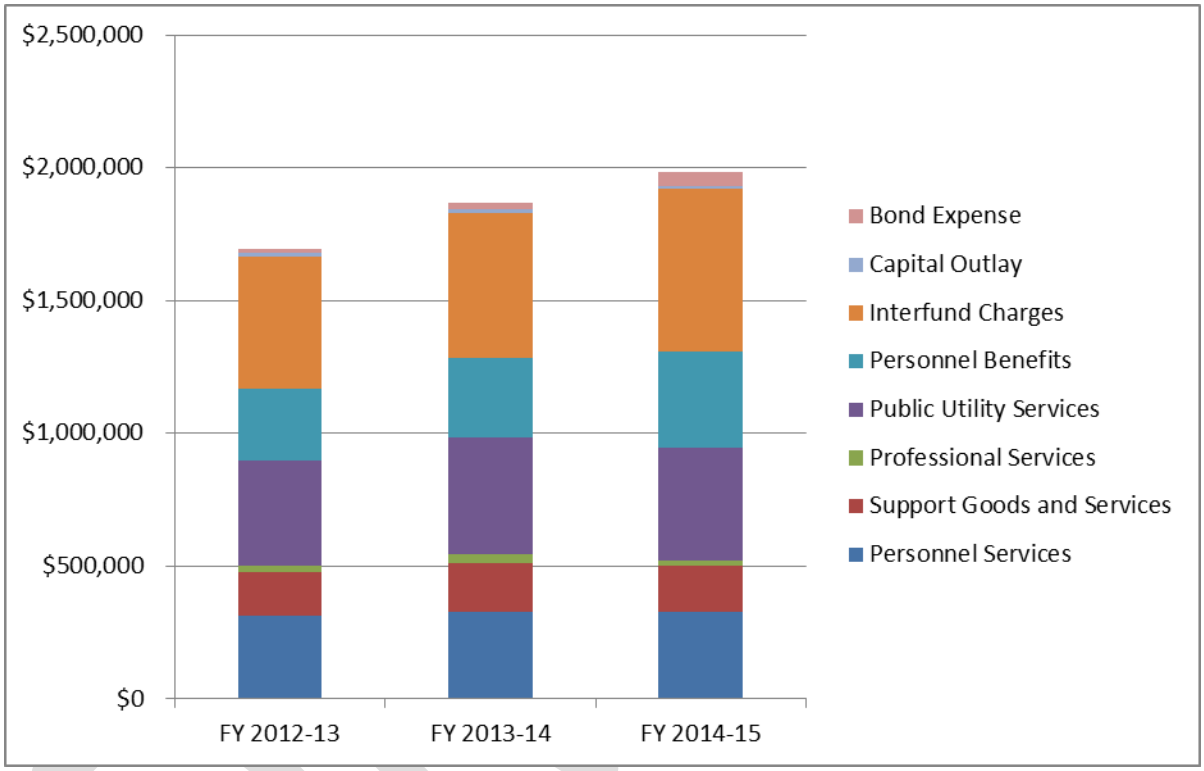

Figure 2. Operation and Maintenance Expenses

Existing Debt Service Expenses

Existing debt service costs are the annual principal and interest payments associated with three outstanding Department of Environmental Conservation Drinking Water Fund loans. For FY 2015, the principal and interest payments were as follows:

- 503071 DEC: PH II Downtown Comprehensive Design: $75,558
- 503061 DEC: UV Water Treatment Facility: $85,123
- 503091 DEC: Aleutian Homes Water Replacement Phase IV: $50,208

The City recently retired an Alaskan Drinking Water Fund loan associated with the Aleutian Homes Water Replacement Phase II.

Water Capital Improvement Fund

The Water Capital Improvement Fund has historically received revenues from state matching grants, federal grants, and interfund transfers from the Water Utility Fund and the Sewer Utility Fund. The Water Utility Fund makes annual transfers of 10 percent of sales revenues as well as available fund

balance for capital projects. Over the past three years, the water utility has completed some major capital improvement projects: the UV Water Treatment Plant, Aleutian Homes Phase V utility pipe replacement, and a portion of the Monashka pump house Project. The remainder of the pump house project will be completed in FY 2016.

Analysis of Rates

Assumptions

This financial analysis and rate study is based on projections of costs (both O&M and capital) that the City will incur during the 5-year planning period, FY 2017 through FY 2021, and the revenues that the City expects to generate during the same period. The financial plan is based on a set of overall assumptions related to customer growth, inflation, and other factors, as well as the specific phasing of the City's capital spending.

The following general assumptions were used in developing the plan:

- Customer growth will occur at the following annual rates:
  - Residential Growth: 0.5%
  - Commercial Growth: 0.5%
  - Industrial Growth: 0.0%
- Operation and maintenance costs – specific annual escalation factors used include:
  - Salaries and wages inflation: 3.0%
  - Group insurance inflation: 8.0%
  - Workmen's comp inflation: 3.0%
  - Public utility service inflation: 3.0%
  - Administrative, financial and public works services inflation: 3.0%
  - General inflation: 3.0%
- Personnel expenses were increased starting in FY 2017 by $150,000 to account for additional personnel at the treatment plant. Position had previously been allocated to the Wastewater Utility.
- Capital costs will increase at an annual rate of 3.0% to account for inflation
- Debt Service:
  - Interest rate: 4.5%
  - Term: 20 years
  - Issuance cost: 2%
  - Bond reserve amount equal to one year of principal and interest. For this analysis, it was assumed the bond reserve will be funded through debt proceeds.
- Interest earned on investments: 0.5%
- Beginning balance in FY 2016:
  - Water Utility Fund: $4,276,744
  - Water Capital Projects: $3,470,331
- An annual operating contingency equal to 45 days of personnel and operating expenses was projected. It was assumed that any unspent contingency would be available the following year.

Revenue Requirements

The costs associated with providing water service that are to be funded from annual revenues are referred to as 'revenue requirements' for rate-making purposes. Total requirements are composed of:

- O&M costs
- Annual capital improvement projects funded by rates and reserves
- Debt service expenditures
- Transfers to other City funds for indirect and direct services provided to the utility

In addition, annual requirements include operating contingencies equal to 60 days of personnel and operating costs. However, 100 percent of annual contingencies are assumed to be unspent and roll forward to subsequent year beginning balances.

Revenue requirements were projected based on data provided by the City. The proposed budget for FY 2016 was used as the base year for the operating cost projects. The proposed CIP with implementation schedule and costs from FY 2016 through FY 2021 was used for the projected capital outlays.

Operation and Maintenance Expenses

Operation and maintenance expenses include all costs associated with operating and maintaining the water utility, including personnel and materials and services costs. Figure 3 shows projected O&M costs from FY 2016 through FY 2021. For budget year FY 2016, O&M expenses are projected to increase to approximately $2.7 million from $2.0 million in FY 2015.

One reason for the increase in O&M expenses in FY 2016 is additional Capital expenses, which increased from approximately $8,500 in FY 2015 to approximately $173,000 in FY 2016. Personnel, supplies, administrative services, and PERS obligation expenses also experienced larger increases when compared to previous years. Personnel expenses include the estimated costs assuming the department fills all allowed full time equivalents while the City's share of PERS obligation expenses has increased because of additional funding requirements placed by the state. Additional personnel services and benefit expenses occur in FY 2017 as an operator position was moved from the wastewater utility to the water utility. Finally, the budget for FY 2016 also includes a more conservative contingency of 45days of operating expenses. O&M expenses are projected to increase from $2.7 million in FY 2016 to approximately $3.5 million in FY 2021.

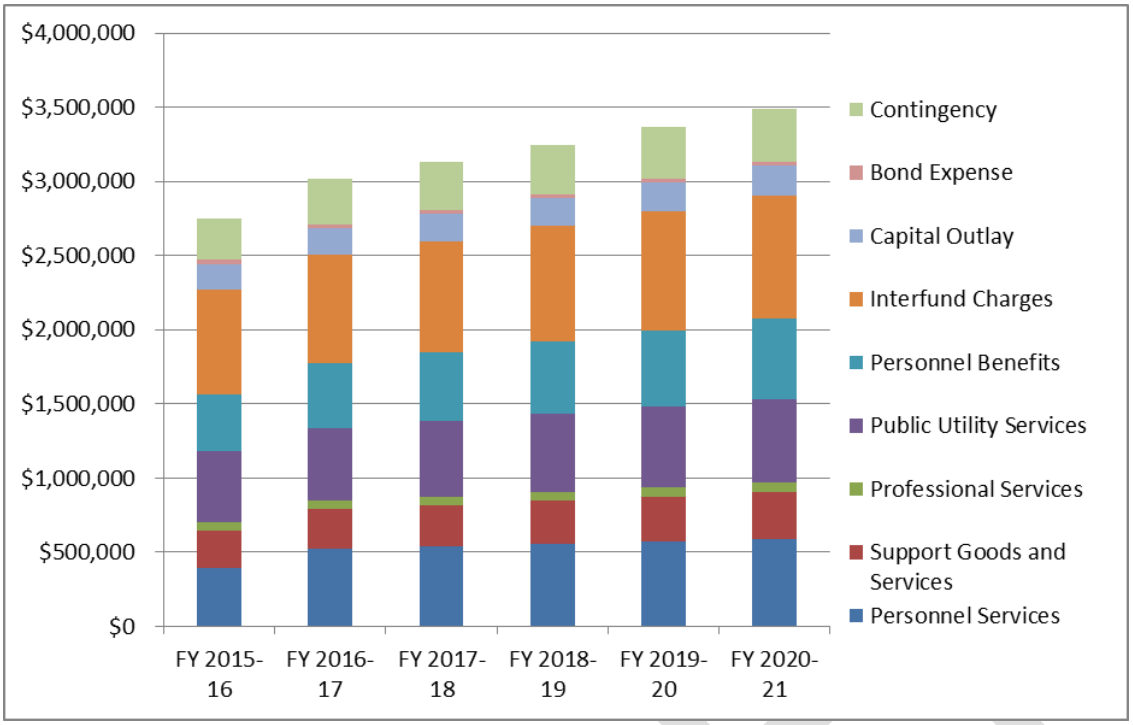

Figure 3. Projected O&M Expenses, FY 2016–FY 2021

Debt Service Costs

The City has existing ADWF loans that will have annual debt service payments over the analysis period. The annual debt service payment schedule (principal and interest) for existing debt is presented in Table 6. The outstanding debts were issued to pay for portions of the UV Treatment Facility, the comprehensive design of Downtown Phase II, and the Aleutian Homes Phase IV project. The loan for the Aleutian Homes Phase IV project is expected to be retired in FY 2020. Annual debt service costs are included in the revenue requirement and will be recovered through water rates.

Table 6. Existing Debt Service Schedule, 2006 Revenue Bonds

Fiscal Year	ADWF # 503061			ADWF # 503071			ADWF # 503091			
	Interest	Principal	Total	Interest	Principal	Total	Interest	Principal	Total	Total
FY 2016	$17,256	$59,912	$77,168	$10,954	$62,694	$73,649	$9,447	$40,761	$50,208	$201,024
FY 2017	$16,357	$60,811	$77,168	$3,905	$63,635	$67,539	$8,835	$41,373	$50,208	$194,915
FY2018	$15,445	$61,723	$77,168	$2,950	$64,589	$67,539	$8,215	$41,993	$50,208	$194,915
FY 2019	$14,519	$62,649	$77,168	$1,981	$65,558	$67,539	$7,585	$42,623	$50,208	$194,915
FY 2020	$13,579	$63,588	$77,168	$998	$66,541	$67,539	$6,945	$43,262	$50,208	$194,915
FY 2021	$12,626	$64,542	$77,168				$6,296	$43,911	$50,208	$127,376
FY 2022	$11,657	$65,510	$77,168				$5,638	$44,570	$50,208	$127,376
FY 2023	$10,675	$66,493	$77,168				$4,969	$45,239	$50,208	$127,376
FY 2024	$9,677	$67,490	$77,168				$4,291	$45,917	$50,208	$127,376
FY 2025	$8,665	$68,503	$77,168				$3,602	$46,606	$50,208	$127,376
FY 2026	$7,638	$69,530	$77,168				$2,903	$47,305	$50,208	$127,376

Capital Costs

Table 7 summarizes the capital improvement plan for the water system from FY 2016 through FY 2021 in 2015 dollars. The CIP identifies approximately $30.3 million (in 2015 dollars) in capital improvements from FY 2016 through FY2021. The projects are necessary to maintain the current level of service provided by existing facilities, comply with state and federal regulations, and provide capacity to meet the needs of projected growth. The largest project in the CIP includes the construction of the Monashaka Transmission Line. The exact timing of this project will be determined after the condition analysis is completed in the spring of 2016. In order to be conservative and to plan for the immediate need to complete the project, it was scheduled earlier than may be necessary. Based on the anticipated project schedules and an estimated annual capital cost escalation rate of 3 percent, the total, inflation-adjusted capital improvement plan for the water system is $32.9 million through FY 2021.

The projected capital improvements will be paid by a combination of current revenues, available fund balance, debt proceeds, and additional revenue generated by any rate increases that the City may implement. This analysis assumed the City would not receive state matching grants to fund any of the projects as funds are not expected to be available in the near future. In order to provide a conservative estimate for debt financing, it was assumed the City would issue debt through the revenue bond market which has a higher cost of capital than loans received through the ADEC.

For this analysis, it was assumed that the City would issue revenue bonds to pay for a significant portion of the planned improvements. Based on the current CIP schedule, three separate debt issuances, ranging from $4.4 million to $14.2 million, are assumed over the 5-year period to allow for more level rate increases. Annual debt service for the water system increases from its current level of approximately $200,000 to approximately $1.7 million by FY 2020/21. Debt service payments are based on a 20-year term, 4.25 percent interest, 2.0 percent issuance costs, and a reserve requirement equal to one year principal and interest.

Table 7. Proposed Capital Improvement Program, FY 2016–FY 2021

Project	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Periodic Dam Safety Insp.	$60,000			$80,000		
W&S Utility Rate Update	$48,000					$50,000
Underground Fuel Tank Inspect. PW	$10,000			$10,000		
Annual Water Main Replacement Service District	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000
CT Tank Painting				$300,000	$1,500,000	
Pillar Creek Spillway	$100,000					
Downtown PH 2, Comprehensive Design water, sewer , storm dr.						
Monashka Pumphouse Rebuilding						
Monashka Transmission Line	$200,000		$12,000,000			
Aleutian Homes PH 6 Birch St Design	$465,530	$1,872,000				
Downtown PH 3, Center Street	$119,000	$1,915,000				
Downtown PH 4, Mecca to Center St. On Marine Way				$110,000	$2,024,000	
Aleutian Homes PH 7 Hemlock			$100,000	$2,207,200		
Downtown PH 5, Mecca to Rez. On Marine way&Mall					$100,800	$1,904,400
Downtown PH 6, Alley north of Mall, American Legion, Sunaq Tribe						$120,000
Downtown PH 7, Mission Rd, Marine Way to Kashevarof						
Downtown PH 8, Kashevarof, Rez to Mission Rd.						
Aleutian Homes PH 8, Carolyn & Wilson						$2,040,000
Aleutian Homes PH 9 High Avenue, Hillcrest and Lightfoot Ave.						
Total	$1,502,530	$4,287,000	$12,600,000	$3,207,200	$4,124,800	$4,614,400

Total Revenue Requirements

Figure 4 presents the total water utility revenue requirements projected for FY 2017 through FY 2021. Total projected revenue requirements are expected to increase from nearly $4.4 million in FY 2017 to approximately $5.1 million in FY 2021.

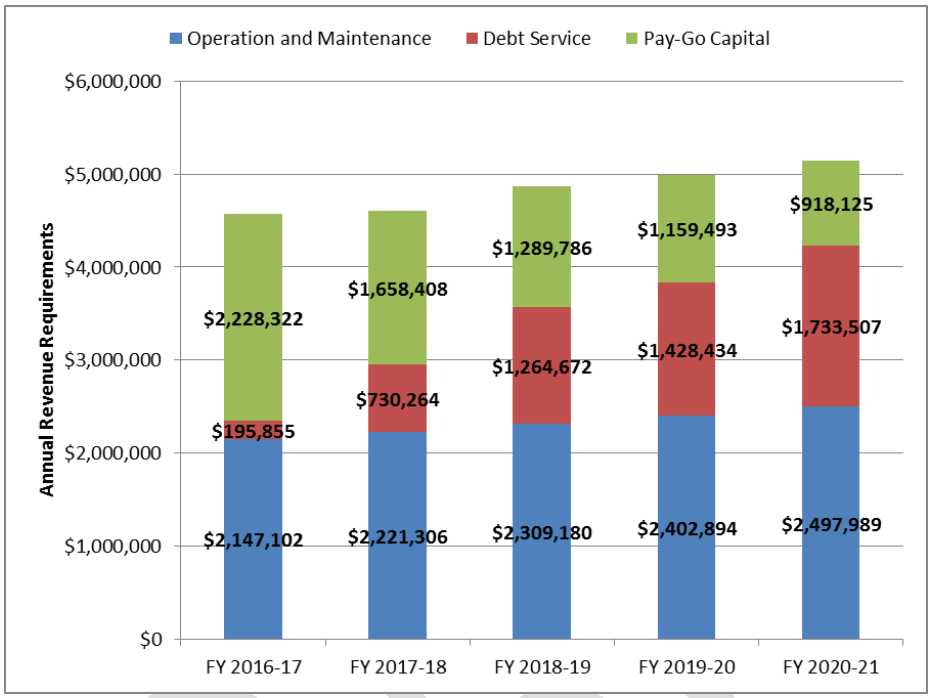

Figure 4. Total Revenue Requirements, FY 2017-FY 2021

Projected Rate Revenues

For this analysis, it was assumed the City would rely on a combination of water rates, including rate increases, available fund balance, and revenue bonds to fund the projected system costs for the next 5 years. Water sales revenues based on existing rates are projected to generate approximately $4.4 million in FY 2016. This projection is based on the City's existing rate schedule presented in Tables 3 and 4.

Non-rate revenues, including revenue from interest income, connection fees, miscellaneous charges, and intergovernmental sources, are projected at approximately $129,000 for the water utility in FY 2016. For this analysis, it was assumed the non-rate revenue would remain relatively stable during the study period. Non-rate revenues are projected to be approximately $134,000 by the end of the study period.

Non-rate revenues are deducted from the System revenue requirements to determine the amount of revenue that needs to be generated through the utility rates to cover the projected system costs and other cash needs.

Figure 5 presents the revenue requirements for the utility over the analysis period. Revenue requirements consist of O&M expenses, debt service payments, and pay-as-you-go capital expenses. Net O&M

expenses are operating and personnel expenses plus additional contingency costs less non-rate revenue. Net Capital Requirements are debt service costs plus pay-as-you-go capital and additions to reserves. As Figure 5 illustrates, existing rate levels will not be sufficient to cover the revenue requirements, and rate increases will be necessary.

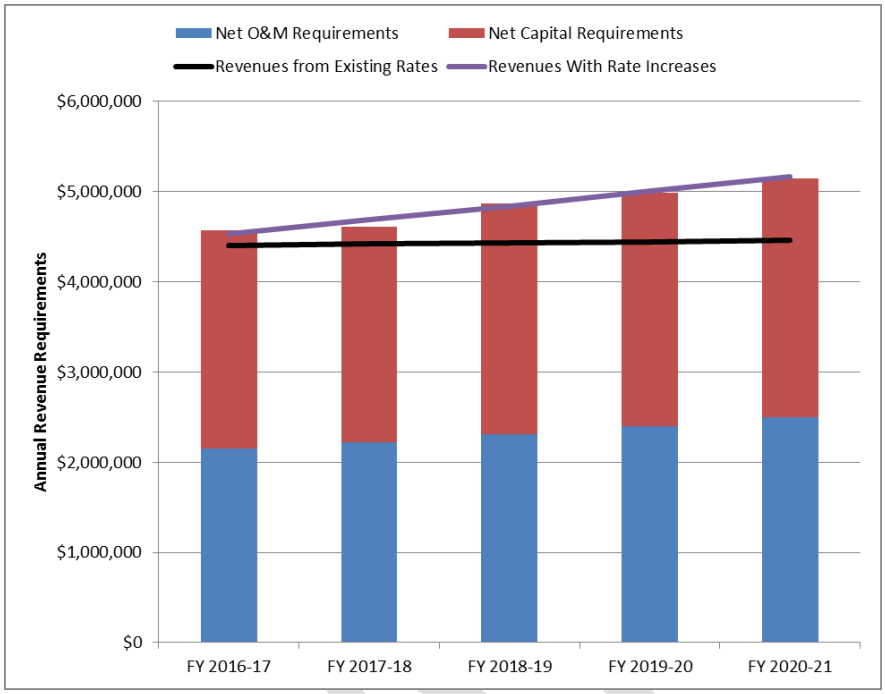

Figure 5. Net Revenue Requirements and Projected Revenues, FY 2017-2021

Results of Rate Study and Recommendations

As of the beginning of FY 2016, the City's has an estimated combined $7.7 million in available reserves between the water utility fund and the water capital projects fund. As discussed previously, this analysis assumes that the City will use a combination of rate revenue, debt issuance, and existing reserves to pay for the planned projects. To repay the existing and new debt service, maintain appropriate debt service coverage requirements, build reserves, and to pay for the additional capital and operating expenses forecast over the study period, water rate increases will be required.

For this analysis, rate increases are introduced every year beginning in FY 2017. The current rates generate sufficient revenue to fund current O&M and debt service costs. However, because the proposed CIP over the 5 year analysis period total approximately $32.2 million (inflation-adjusted) , rate increases are required. Additionally, the utility will not meet its debt service coverage requirements in the future without increasing rates.

The rate increases have been structured with increases near inflationary levels for FY 2017 through 2021. Table 8 presents the projected annual rate increases needed to meet the City's revenue requirements. The rate increases presented would be applied to both fixed and consumption charges and would impact all customer classes. Attachment I shows projected water rate revenues.

Table 8. Projected Annual Rate Increases

Fiscal Year	Annual Water Increase
FY 2017	3.0%
FY 2018	3.0%

Table 8. Projected Annual Rate Increases

Fiscal Year	Annual Water Increase
FY 2019	3.0%
FY 2020	3.0%
FY 2021	3.0%

Attachment II presents the projected sources and uses of funds for the utility. Sources of funds include beginning balance, water rate revenue, non-rate revenues, and interest. Uses of funds include O&M expenses, annual debt service, capital costs, and contingency. As stated previously, this analysis assumed the City would issue new debt to pay for the capital improvement projects. Unused contingency is added to the ending fund balance to estimate the next year's beginning fund balance. At the end of FY 2021, the ending fund balance plus the contingency is estimated to be approximately $4.7 million.

Table 10 presents an estimated water monthly bill for an unmetered residential customer and the forecast rate increases presented in Table 8 for FY 2017 through FY 2021. The existing water monthly bill is $55.23 per month. Based on the forecast rate increases, the residential water bill is expected to increase to $64.03 by FY 2021.

Table 10. Sample Residential Water Monthly Bill

Scenarios	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Estimated Monthly Bill	$55.23	$56.89	$58.59	$60.35	$62.16	$64.03
% Annual Change		3.00%	3.00%	3.00%	3.00%	3.00%

Debt service coverage requirements require net revenues (system income and revenue less O&M expenses) to be at least 1.20 times the average annual principal and interest requirements of all outstanding bonds. While the City's existing ADEC loans do not have a debt service coverage requirement, this analysis assumes new debt issuance would be revenue bonds and would have a coverage requirement of at least 1.20. The required debt service coverage was included in the analysis for estimating future rate increases. Figure 6 shows the projected debt service coverage based on the projected operating revenues and O&M expenses over the study period. In each year, debt service coverage meets the assumed minimum coverage typically required by bond covenants. This is largely because rates have been set to generate sufficient revenues to cover a significant amount of capital costs. The additional revenue generated for capital projects counts toward meeting the coverage requirements. Without increases to the water rates, the utility would not generate enough revenue under existing rates to meet the minimum debt service coverage requirement.

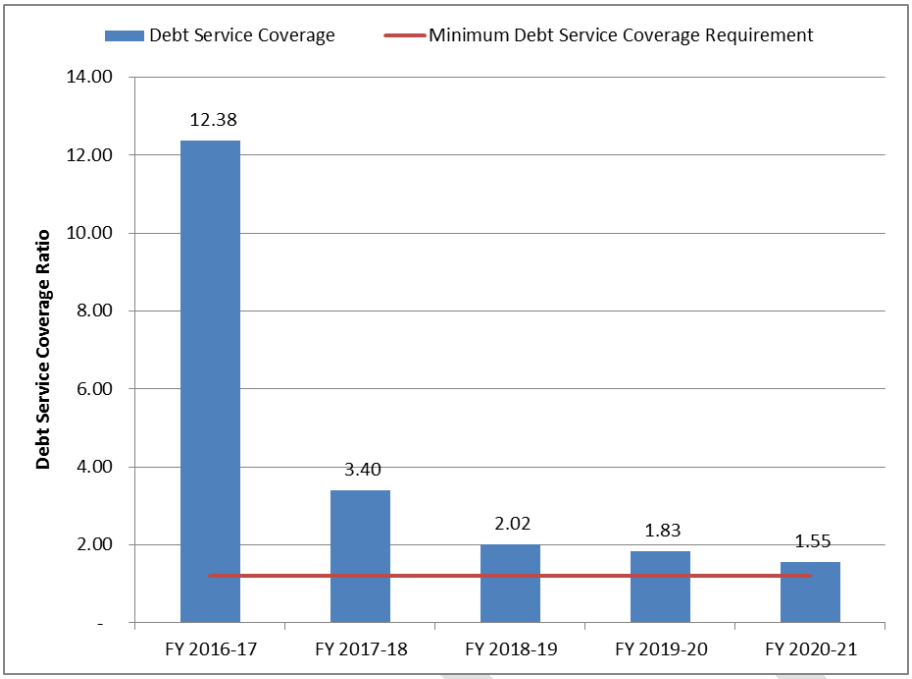

Figure 6. Estimated Debt Service Coverage, FY 2017-FY 2021

Bill Comparison

CH2M conducted a survey of current rates in other communities for residential water customers. A monthly bill for water service for a residential customer consuming 6,000 gallons of water per month was estimated. Table 11 presents the survey results, which include the most current rate structures available on each community's website and may not reflect recent or planned increases. It should be noted that direct bill comparisons between different utilities are difficult because of differing system requirements, rate structures, customer classifications, policy decisions, and usage levels for the various utilities.

Table 11. Estimated Residential Monthly Water Bill

Utility	Estimated Monthly Water Bill
Kodiak	$55.23
Anchorage	$49.89
Juneau	$29.94
Kenai	$30.87
Sitka	$38.96
Ketchikan	$46.34
Cordova	$29.58
Fairbanks (Golden Heart Utility)	$50.14
Unalaska	$35.59

Note:

Table 11. Estimated Residential Monthly Water Bill

Utility	Estimated Monthly Water Bill

Assumed water consumption of 6,000 gallons per month

Conclusions

Based on the results of the financial analysis summarized in the previous sections, including the data and assumptions used as a basis for the study, the following recommendations are presented for the City's consideration:

- Implement the rate increases presented in Table 8 (FY 2017 through FY 2021) across the board to all customer classes. Rate increases are needed to meet debt coverage service requirements on new debt, pay for needed capital improvements, maintain pace with inflationary pressure on operating expenses, and meet reserve balance targets.
- Review and update the capital improvement plan on a regular basis, and adjust schedule and cost estimates to reflect current project timing and cost conditions.
- Review financial plan annually to ensure actual revenue and expenditures are tracking with the projections developed herein. The City should make appropriate adjustments for changes in operations, capital spending, and customer account composition. Rates should be adjusted accordingly.

Attachments I & II

Attachment 1. Projected Water and Sewer Revenues

		Budget FY 2016	Projected FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020	Projected FY 2021
Water Sales Revenue from Existing Rates (with growth)		4,400,000	$4,401,463	$4,414,954	$4,428,513	$4,442,139	$4,455,834
Annual % Rate Increase							
FY 2017	3.0%		132,044	132,449	132,855	133,264	133,675
FY 2018	3.0%			136,422	136,841	137,262	137,685
FY 2019	3.0%				140,946	141,380	141,816
FY 2020	3.0%					145,621	146,070
FY 2021	3.0%						150,452
Revenue from Rate Increases			$132,044	$268,871	$410,643	$557,528	$709,699
Total Water Rate Revenue After Increases		$4,400,000	$4,533,507	$4,683,825	$4,839,155	$4,999,667	$5,165,532
Debt Svc Coverage			12.31	3.38	2.01	1.82	1.54

Attachment 2: Sources and Uses of Funds

Item	Budget FY 2015-16	Projected FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
Water Utility Fund						
Sources of Funds						
Beginning Balance	$4,276,744	$4,819,301	$1,575,175	$2,339,383	$1,122,757	$1,791,755
Intergovernmental	80,280	80,280	80,280	80,280	80,280	80,280
Taxes	27,000	27,000	27,000	27,000	27,000	27,000
Interest	2,000	12,048	3,938	5,848	2,807	4,479
Miscellaneous	5,000	5,000	5,000	5,000	5,000	5,000
Hookup	15,000	15,075	15,150	15,226	15,302	15,379
Water Sales Revenue	4,400,000	4,533,507	4,683,825	4,839,155	4,999,667	5,165,532
Miscellaneous	0	0	0	0	0	0
Bond Proceeds (funded reserve)	0	0	1,067,625	0	328,500	410,625
Appropriation	-1,191,234	0	0	0	0	0
Total Sources of Funds	$7,614,790	9,492,211	7,457,993	7,311,893	6,581,313	7,500,051
Uses of Funds						
Personnel Services	$392,340	$524,110	$539,834	$556,029	$572,709	$589,891
Support Goods and Services	$265,689	$276,706	$288,270	$300,413	$313,171	$326,581
Professional Services	$53,400	$55,213	$57,089	$59,027	$61,032	$63,104
Public Utility Services	$477,250	$493,457	$510,215	$527,542	$545,457	$563,981
Personnel Benefits	$383,890	$435,102	$460,039	$486,584	$514,851	$544,962
Interfund Charges	$709,372	$730,804	$754,159	$778,266	$803,147	$828,829
Capital Outlay	$172,425	$177,598	$182,926	$188,413	$194,066	$199,888
Bond Expense	$28,190	$28,190	$28,190	$28,190	$28,190	$28,190
Transfers Out						0
Water Improvements Fund	-	5,000,000	500,000	2,000,000	-	500,000
Sewer Improvement Fund	-	-	-	-	-	-
Street Improvement Fund	110,000	-	-	-	-	-
Bond Reserve Fund		-	1,067,625	-	328,500	410,625
Debt Service	202,934	195,855	730,264	1,264,672	1,428,434	1,733,507
Ending Fund Balance	4,538,301	1,265,175	2,017,383	788,757	1,445,755	1,350,492
Contingency	281,000	310,000	322,000	334,000	346,000	360,000
Reserves	0	0	0	0	0	0
Total Uses of Funds	$7,614,790	$9,492,211	$7,457,993	$7,311,893	$6,581,313	$7,500,051
Water Improvements Fund						
Sources of Funds						
Beginning Balance	$3,470,331	2,701,831	3,613,858	3,726,943	2,576,679	2,271,783
Grants	0	0	0	0	0	0
10% Water Sales	440,000	453,351	468,382	483,916	499,967	516,553
Interests	0	6,755	9,035	9,317	6,442	5,679
Proceeds from Loan	0	0	13,167,375	0	4,051,500	5,064,375
Transfers From						
Water Utility Fund	0	5,000,000	500,000	2,000,000	0	500,000
Sewer Utility Fund	0	0	0	0	0	0
Street Utility Fund	0	0	0	0	0	0
Total Sources of Funds	$4,249,437	$8,161,937	$17,758,651	$6,220,176	$7,134,587	$8,358,391
Uses of Funds						
Capital Improvements	$0	$4,548,078	$13,768,360	$3,643,497	$4,781,774	$5,450,132
Debt Issuance	0	0	263,348	0	81,030	101,288
Ending Fund Balance	2,701,831	3,613,858	3,726,943	2,576,679	2,271,783	2,806,971
Total Uses of Funds	$4,249,437	$8,161,937	$17,758,651	$6,220,176	$7,134,587	$8,358,391

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City of Kodiak

DRAFT Budget Calendar FY 2017

DATE	ITEM	BY
January 16, 2016	Review City Council Goals and prepare suggested changes	City Manager & City Council
February 11, 2016	City Council adopts Goals by Resolution	City Manager & City Council
February 23, 2016	City Council presentation FY2017 revenue projections	City Manager & Finance Director
March 2, 2016	Meeting of City Manager & Department Heads to distribute budget packets and provide overview of information in packets.	City Manager & Department Heads
March 31, 2016	Final day for departmental budget requests to be returned to Manager (via Finance Department)	Department Heads
April 11-15, 2016	City Manager & Finance Director reviews departmental budget with respective Department Heads.	City Manager/ Finance Director & Department Heads
April 28-29, 2016	Distribute Manager's Budget to City Council	City Manager
May 1, 2016	Budget presentation to City Council by management staff	City Manager/ Department Heads & City Council
May 6, 2016	First reading of budget ordinance	City Manager/ Finance Director & City Council
May 27, 2016	Advertisement for overall City Council agenda including budget	Clerk
June 9, 2016	Second reading and public hearing of budget ordinance; adoption of budget	City Manager/ Finance Director & City Council
July 1, 2016	Budget Implementation	Finance Director
September 7, 2016	90 day Submittal to Distinguished Budget Presentation Awards Program - Government Finance Officers Association	Finance Director

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Alaska Business License # 1016083 Alaska Contractors License # 39993

City of Kodiak Public Works
Attn: Mark Kozak

February 14, 2016

Re: Encroachment Permit of Open-Faced Rock-Lined Ditch along Rezanof Dr.

Dear Mark:

We have an existing project with ADOT & PF titled ***HSIP: Rock Fall Mitigation – Project No. 0111(013)/Z57709000.*** A portion of the project will install an "Underdrain", intended to direct surface water in to a sub-drainage perforated pipe along a section of Rezanof Drive. The purpose of this Underdrain is to prevent further mud-slides in an area that has been prone to them in the past. However, the designed placement of the Underdrain is in the middle of the existing side-slope, due to the location of the ADOT Right of Way (Please see attached drawings).

It so happens that there is an old bench above this Underdrain that is the Old Road location. We would like to move the location of the Underdrain uphill on to this bench. However, this would put it on to City of Kodiak Property and out of the ADOT Right of Way. After discussions with yourself and the ADOT Project Engineer, we came to the conclusion that it would be better to re-design the Underdrain in to an Open-Faced Rock-Lined Ditch for ease of maintenance.

Installing the Open-Faced Rock-Lined Ditch in this location will solve multiple problems:

- The bench location is a natural catch-all for the water coming down the side slope. This location would protect the City of Kodiak's property as well as the ADOT's property.
- Since this Open-Faced Rock-Lined Ditch will be improved surface drainage rather than a sub-surface structure, installation can be achieved with an Encroachment Permit, rather than the need for a full Construction Easement. ADOT would still maintain this Ditch, even though it would now be on City of Kodiak property.
- The bench location would provide better access for maintenance purposes than a sub-surface Underdrain half-way down the side slope.
- If we installed the Underdrain in its designed location, we would need to remove a substantial amount of existing vegetation including berry bushes, alders, and cottonwood trees that have a root structure preventing current slides from occurring (as shown in the attached photograph). If we removed this vegetation, I fear it may open this area to the possibility of slides, rather than preventing them as intended.
- The bench is a far safer location for installation than the lower side slope.
- The proposed location protects almost 3 times as much property as the designed location.

We respectfully request an Encroachment Permit to cover the installation of the Open-Faced Rock-Lined Ditch in the approximate location as shown on the attached drawings. Surveyed As-Builts will be provided after construction activities are complete.

Respectfully,

Louis Rocheleau, CPC
Vice President, Project Manager

Att: Proposed Location of Open Faced Rock Lined Ditch on COK Property:
2 Drawings – Cross Sectional View
Overhead Plan View
Photograph of Designed Location of Underdrain

2705 Mill Bay Road, Kodiak, Alaska 99615 (907) 486-3215

COK PROPERTY

ADOT ROW

RIGHT OF WAY

EXISTING GROUND

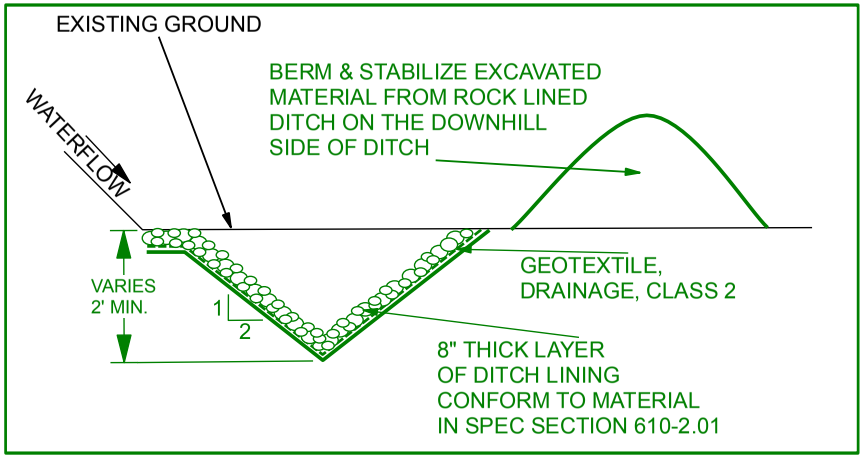
VARIES
APPROXIMATELY 90'

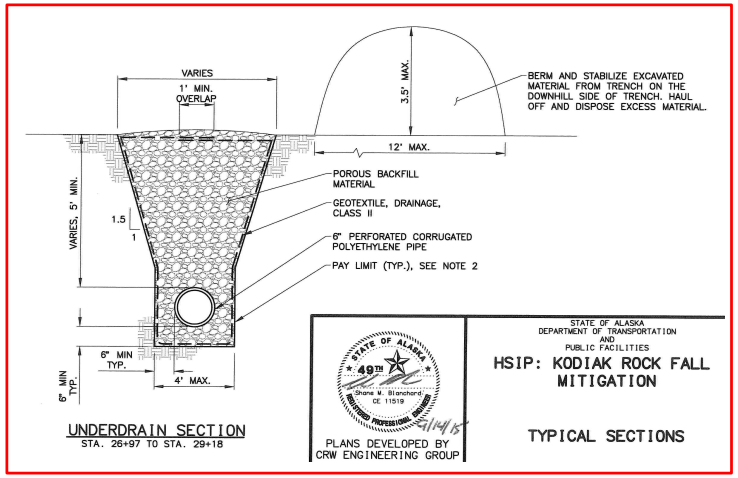
PROPOSED
MAINTENANCE
ACCESS

OLD ROAD
LOCATION

WATERFLOW

PROPOSED LOCATION OF
OPEN FACED DITCH WITH DITCH LINING





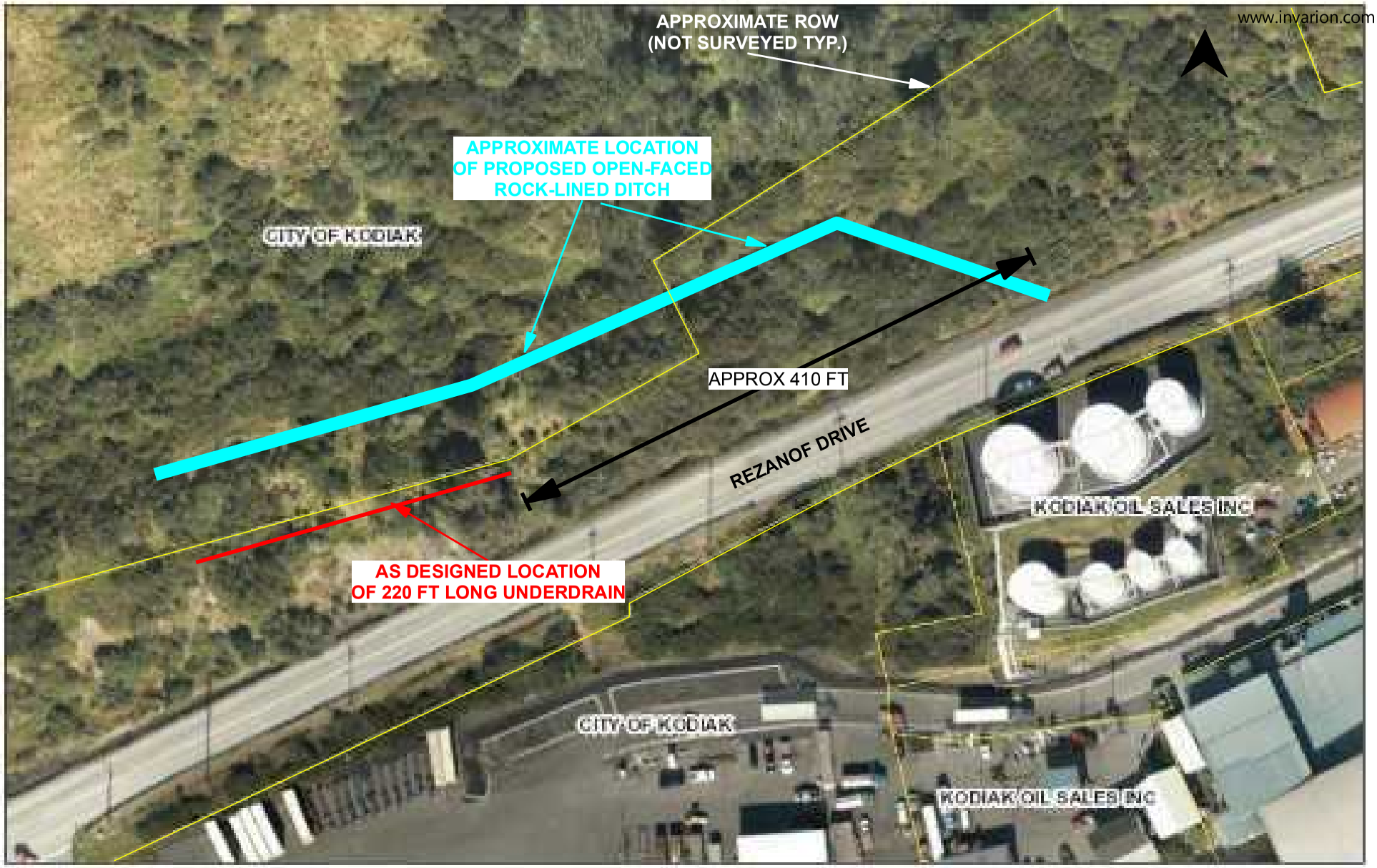
AS DESIGNED LOCATION
OF UNDERDRAIN

EXISTING GROUND

EXISTING
REZANOF DR.
ROAD SURFACE

Date: 2/14/2016 **Author:** LOUIS ROCHELEAU **Project:** HSIP: KODIAK ROCK FALL MITIGATION
TITLE: PROPOSED LOCATION OF OPEN FACED ROCK LINED DITCH ON COK PROPERTY

Comments:
PAGE 1/2 - CROSS SECTIONAL VIEW



Brechan Construction, LLC	**Date:** 2/14/2016 **Author:** LOUIS ROCHELEAU **Project:** HSIP: KODIAK ROCK FALL MITIGATION **TITLE:** PROPOSED LOCATION OF OPEN FACED ROCK LINED DITCH ON COK PROPERTY
	Comments: PAGE 2/2 - OVERHEAD PLAN VIEW


UNDER DRAIN ALIGNMENT