# New Mexico State University

College of Agricultural, Consumer, and Environmental Sciences



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### ACKNOWLEDGMENTS

Dr. Rolando A. Flores Dean & Chief Administrative Officer College of Agricultural, Consumer and Environmental Sciences Dr. Leslie Edgar Associate Dean and Director of Agricultural Experiment Station Brooke Boren AES Director of Land and Assets Shad Cox AES Livestock Operations Director Dave Lowry AES Farm Operations Director

Heather Watenpaugh University Architect Facilities and Services Robert Herrera Executive Director Facilities and Services Jose Loera Assistant Director Facilities and Services Gary Martinez Project Manager Facilities and Services

Additional thanks to representatives of the research center:

Glenn D. Cuff- Clayton Livestock Research Center Shad Cox- Corona Range and Livestock Research Center Kevin Lombard, PhD- Farmington Agricultural Center Mark Marsalis- Los Lunas Agricultural Science Center Dave Lowry- Fabian Garcia Research Center Dave Lowry- Leyendecker Plant Science Research Center Andrew Cox- NMSU College Ranch Jason Box- R. E. Kirksey Agricultural Science Center at Tucumcari Dr. Robert Flynn- Artesia Science Center Dr. Owen Burney- J. T. Harrington Forestry Research Center

Planning Consultant

Staff of NINE DEGREES ARCHITECTURE AND DESIGN, INC. NMSU-ACES IT DEPARTMENT - Information Technology

#### New Mexico State University College of Agricultural, Consumer, and Environmental Sciences

# FACILITIES MASTER PLAN REPORT

Executive Summary | June 2023

## **OVERVIEW**

New Mexico State University Facilities Group (NMSU) commissioned Nine Degrees Architecture and Design, Inc. (NDA&D) in the Fall of 2021 to perform a facility assessment study and master plan of the institution's agricultural research centers that are located throughout the State of New Mexico. As identified in this report, this consortium of twelve agricultural research facility locations is an integral part of the College of Agricultural, Consumer, and Environmental Sciences (ACES) academic, research, and public service program for the New Mexico State University System. These assessment efforts required NDA&D to complete this evaluation plan under an open and transparent methodology to ensure a fair data-driven Facility Master Plan (FMP) effort. The Facilities Master Plan is intended to inform NMSU of the College of ACES agricultural research facilities building conditions for operations, use, and future capital investment decisions that may be needed for these agricultural centers' next five years of operations. Together with the College of ACES administration, NMSU Facilities and Services Department Staff, and ACES research centers' staff, our architectural staff members undertook an assessment effort and outreach process that included extensive field visits and data gathering at all twelve research center locations.

The Facilities Master Plan (FMP) findings that informed our team of the specific recommendations are summarized in this document, thus providing NMSU with an outsider's snapshot of the state of operations, facilities conditions, and functional suitability to maintain the center's successful operations. Our team's expectations are that, as this plan is implemented, it will assist the staff at NMSU College of ACES to continue its educational and research vision and mission by having their centers equipped and capable of meeting the needs of their academic endeavors for upcoming research grants and being able to achieve a balance of their existing needs. Through this balance ACES will be able to increase capacity utilization, and by being able to improve their research programs – both being crucial and beneficial issues to all New Mexico State University College of Agricultural Consumer Environmental Sciences students today and in the future.

## **FINDINGS**

After a series of on-site visits and through visual assessment of each facility, the findings included in this Facility Master Plan (FMP) begin to illustrate that many of the College of ACES research center facilities appear to be in relatively poor condition and/or declining conditions. These conditions can be attributed to the historically low level of state funding for critical maintenance and capital investment for basic building maintenance, structural repairs, facility erosion control, mechanical systems repairs, and roof replacement. In addition, based on the data that was discovered during our assessment process, it appears that all research centers, in some form or another, have suffered from issues such as a shortage of maintenance personnel, staff attrition, and financial cutbacks, which have exacerbated their por facilities' conditions. The annual maintenance and operation budget awarded to each of the agricultural centers has directly impacted the number of repair projects required to improve and maintain each of the centers to perform to their optimal capabilities.

After evaluating demographic information for the State of New Mexico from 1990 to 2020, as reported in the annual assessment by the State of New Mexico Economic Development Department, the state increased its population by an average of 240,000 citizens per decade since the 1990s. It leveled off in 2020 for a total of 2.1 million citizens. Over the past three years since, the population has continued to grow but at a slower and smaller pace. Current assessment predicts a smaller but steady increase in population, with a projected student enrollment for the next 2 to 3 years that will continue to remain relatively level with smaller incremental growth. Additionally, the assessment describes that there will be growth and/or decline in specific geographic areas as the state experiences regional population immigration or interstate migration.

NMSU	ACES
FACILITY DEFICIENC	Y COST - PRESENT \$17,604,854.00
5-YEAR LIFE CYCLE	FORECAST- ESCALATION \$6,402,251.14
TOTAL 5-YEAR NEED	DED - OVERALL BUDGET \$24,007,105.46

This facilities assessment has identified the need for a minimum expenditure of around \$24,007,105.46 million in projected Operations & Maintenance funding for facility-related needs within the next five years (in 2022 dollars), comprised of \$13,843,194.00 million for the repair of current deficiencies, and additional \$3,761,660.00 million for instructional technology infrastructure improvements. Furthermore, an add is anticipated over the next five years for end of life-cycle repairs

of \$6,402,251.14 million premium to the O&M Budget. This budget does not include any additional funding that may be required to transition each center to a renewable energy system as currently being studied by NMSU Facilities Team. Each agricultural center's physical condition and functional adequacy were determined by thoroughly inventorying all buildings and accessory structures against their current scheduled use. By comparing the operational capacity of each center against current and projected enrollment predictions based on existing utilization capacity, utilization percentages were developed to inform our assessment team on how to develop individual strategies for facility repair and replacement efforts. These strategies created the best use and value for all college of ACES research facilities. It is certain that continued degradation of the research facilities will financially strain NMSU College of ACES's academic and research mission. The operational expenditures, such as utilities, annual maintenance, and growing extensive repairs caused by buildings and operational systems reaching the end of their life-cycle, will become overwhelming and create greater difficulty to repair the existing buildings.

### RECOMMENDATIONS

To determine whether an asset is critical to the continuation of the mission of the University, a needs assessment must be scheduled and performed every five-years and, in some facilities, even sooner, when regulations, curriculum shift, or just a change in the facilities conditions, warrants a new assessment. Our recommendations are based on a mixture of both basic general building systems performance and institutional priorities. Institutional priorities are based on academic necessities as they are balanced against the maintenance and maintenance budgets provided within the annual system's expenditure strategy. Our observations of the buildings' performance were based on assessing the life expectancy of the building systems as they are collectively beginning to reach their end of the life-cycle or by analyzing the systems' age. Based on the field conditions and facility historical data, Nine Degrees Architecture and Design, Inc., recommends to the NMSU College of Agricultural, Consumer, and Environmental Sciences and NMSU Facilities Planning Team to begin taking additional operational and capital funding steps that will provide opportunities for improving each Ag Center and create the possibility for a more balanced utilization program for each of their research centers.

These additionl operational and capital actions are detailed below.

#### **OPTION ONE: Divest Surplus Landholdings.**

Divesting surplus landholdings with strategic time-to-market transactions will replenish the NMSU College of Agricultural, Consumer, and Environmental Sciences funding budget and create additional resources for potential reinvestment into their current research center facilities. This recommendation directly aligns with research center staff recommendations towards enhancing the center's mission and vision.

#### **OPTION TWO: Review Land Use for the Surplus Landholdings.**

Rethinking and reallocating surplus landholdings with strategic lease transactions to the private sector to create wind farms, grazing farms, solar farms, or any other public-minded use that will allow for a cash flow increase while still retaining land ownership that should replenish NMSU College of Agricultural, Consumer, and Environmental Sciences fund balance and create financial resources for additional reinvestment into each research center facility and infrastructure. This recommendation directly aligns with each research center's mission and vision.

#### **OPTION THREE: Explore Public Bond Support.**

The evaluation team advises the institution to consider using non-state funding sources and develop a plan for a multi-million bond referendum to fund facility improvements at each of the twelve research centers. If approved by the voters, these funds would optimize the immediate safety concerns and modernization of the research centers while addressing top-priority facility repair and infrastructure needs in the near term. Consequently this would defer the remaining \$6,402,251.40 million in lower priorities for future implementation due to construction escalation over the next 5-year cycle. In an effort to assist the bond steering committee, the planning team defined a list of recommended high-importance/ high-impact enhancements for each research center focusing on critical facility replacements, repairs, and high technology needs.

#### **OPTION FOUR: Explore Public-Private Partnership.**

The evaluation team also recommends that the NMSU College of Agricultural, Consumer, and Environmental Sciences team and the institution consider identifying and developing specific strategic public partnerships aligned with their 5-year cycle to secure targeted sponsorship and ventures with key industry leaders that each center serves. This proposed association can work with donors or sponsors with a vested interest in the success of the research agenda of each center. This option will require a more detailed analysis to engage the private sector in identifying suitable candidates for each research center.







## INTRODUCTION AND METHODOLOGY

In concurrence with the academic offering by New Mexico State University, the College of Agricultural, Consumer, and Environmental, the expected outcome for this assessment effort is to provide the New Mexico State University Planning and Design team with a snapshot assessment of the "present day" state of their existing facilities with the expectations of developing a sound strategy for the maintenance, upgrades, and/or replacement of their agricultural centers' building facilities. This assessment also serves as an inventory of the building conditions of each center intended to inform the College of Agricultural, Consumer, and Environmental Science leadership as they continue to prioritize their needs for academic, research, and public service. In order for the system to help fulfill the NMSU College of ACES educational and research vision, the NMSU Board of Regents and Administration determined the necessity to develop the Facility Master Plan (FMP) and assessment that will inform and guide the potential of needed facility rehabilitation and capital investment decisions for the next 5-year cycle. Entrusted with first putting College of ACES research excellence in the forefront and then emphasizing the effective stewardship of the university's assets, NDA&D engaged and undertook an exhaustive visual assessment of every research center facility, evaluated demographic studies, and facilitated a transparent assessment and planning process. This process included the participation of staff members from the NMSU team and administrative members of each agricultural center.

The Facility Master Plan findings and recommendations from our assessments and reviews are summarized within this document, providing the NMSU Board of Regents with an independent, unbiased snapshot and near-term forecast of all ACES facilities' condition, suitability, and utilization. This document summarizes the results of a comprehensive assessment performed in the Fall of 2022 through the Summer of 2023, culminating in this Facility Master Plan with recommendations for NMSU College of ACES that identifies options for future investments in the enhancement and maintenance of its agricultural centers'. We have included a review of the entire facility portfolio, an educational/ research adequacy assessment, a facility condition assessment, a five (5) year life-cycle forecast, and a review of College of ACES's current enrollment statistics.

## NMSU ACES RESEARCH AT EACH SITE

JOHN T HARRINGTON FORESTRY RESEARCH CENTER AT MORA 3021 Highway 518, Mora, New Mexico, 87732

The research mission of the John T Harrington Forestry Research Center (JTH FRC) in Mora, New Mexico is to address many of the state and regional issues related to forest regeneration after timber harvesting and forest fires. Forest health in New Mexico and the entire southwestern US region has continued to decline due to a combination of factors that include over a century of fire suppression, increased fuel densities, warmer drought, and a lack of proper forest management. A condition leading to the creation of the John T Harrington Forestry Research Center.

Future research efforts - continuation of current research efforts.

## John T. Harrington Forestry **Research Center at Mora -**WAYFINDING



# John T. Harrington Forestry **Research Center at Mora - WAYFINDING**





# John T. Harrington Forestry **Research Center at Mora**



Architecture + Design, Inc.

# John T. Harrington Forestry **Research Center at Mora -**LOCATIONS





# John T. Harrington Forestry Research Center at Mora - PROPERTY BOUNDARY



# John T. Harrington Forestry **Research Center at Mora**



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## John T. Harrington Forestry Research Center at Mora - LOCATIONS





## John T. Harrington Forestry **Research Center at Mora**

- 1. Trailer 334C (FCI Score 0.675)
- 2. Office/Farm Implement Shed 334A (FCI Score 0.513)
- 3. Office & Residence Trailer 334G (FCI Score 0.648)
- 4. Greenhouse 334B (FCI Score 0.266)
- 5. Greenhouse North 334E (FCI Score 0.174)
- 6. Pesticide Storage 334D (FCI Score 0.834)
- 7. Pump House 334F (FCI Score 0.247)
- 8. South Pump House 334H (FCI Score 0.183)



## John T. Harrington Forestry **Research Center at Mora -DEFICIENCIES LIST**



![](_page_13_Picture_1.jpeg)

![](_page_13_Picture_2.jpeg)

#### **TRAILER 334C**

#### OFFICE AND FARM IMPLEMENT SHED 334A

The building needs roof repairs throughout the West end, replace all damaged ceiling tiles, add new LED lighting throughout, and Restrooms are not ADA accessible needing to be completely renovated. The shower at men's restroom are cracked and needs a replacement unit. The shop area needs the insulation replaced and roof leaks fixed. The heater not working at shop area and be replaced. Overhead doors need new weatherstripping and seals, also the overhead door foam panels need repairs. The lab area does not have ADA access from the exterior or interior. Need to add exterior parking spaces, sidewalk, ramp, and landing as part of an accessible route. The lab vent unit is broken and needs replacement. Replace damaged exterior metal wall panels, add new steel pipe bollards filled with concrete at overhead door entrances, and repair, repaint overhead door jambs and heads. Seal beam outriggers at Northeast corner, regrade West end to eliminate hill coming to building, and need concrete landing at Northwest corner entry for ADA compliance and sidewalk and ADA parking space. Repaint exterior entry doors to conference room, replace windows with double pane, add new ADA ramp and landing at Southeast entry door. Repair sidewalk along South side, replace rotted wood door jambs at Southeast entry door, and repaint Southeast lab entry doors and weatherstrip them. Need concrete apron on all sides where missing and regrade site away from building for positive drainage.

The building needs roof repairs, a new skirting, new gutters and downleaders, and repair damaged exterior wall panels. Replace windows with double pane with new insect screens, replace collapsed fence at back yard, and replace front porch wood deck and railings as they are severely rotted. The front porch corrugated plastic roof panels need to be replaced. Need to add an ADA access ramp and deck at entry and rear door, replace restroom as is not ADA compliant, and need ADA hardware to entry and back doors. Regrade for erosion and add concrete apron all around for positive flow away from building.

![](_page_14_Picture_1.jpeg)

#### **PESTICIDE STORAGE 334D**

Replace rotted wood roof framing and outriggers and repaint, and replace rotted wood gable ends and repaint. Need to extend roof panels over roof framing along the East elevation, and gutters and downleaders need to be added. Add a concrete apron on 3 sides and regrade to give positive flow away from building. Repaint the entire building, and replace roof turbine vent. Replace damaged concrete slab at East elevation with new slab at door threshold height

![](_page_14_Picture_4.jpeg)

#### SOUTH PUMP HOUSE 334H

Replace damaged wood siding and paint, replace entry doors and repaint the building. Provide ADA hardware and accessible route. Add gutters and downleaders, and a concrete apron and regrade for positive flow away from building.

![](_page_15_Picture_1.jpeg)

#### PUMP HOUSE 334F

Replace damaged corrugated metal wall panels, and replace rotted wood fascia and outriggers and paint. Add gutter and downleaders, and install a concrete apron and regrade for positive flow away from building.

![](_page_15_Picture_4.jpeg)

**OFFICE AND RESIDENT TRAILER 334G** 

Existing reeds roof to be repaired and a new skirt around the building needs to be added. Add new gutters and downleaders, and repair damaged exterior wall panels. The trailer needs an ADA access ramp and deck at entry and rear door, the existing restroom is not ADA accessible and needs repair, and it needs new ADA hardware to entry and back doors,. Replace windows with double pane with new insect screens and paint and seal wood filler panel at window with AC unit on South side. Regrade for erosion and add concrete apron all around for positive flow away from building.

![](_page_16_Picture_1.jpeg)

#### **GREENHOUSE 334B**

At headhouse the roof leak need to be repairs, the entry door needs to be painted, lighting fixtures needs to be changed to LED, and the skylights are brittle and leaking-need replacing. The facility needs a concrete landing and apron along the side walls corrugated metal panels, and remove concrete and regrade entry area for ADA accessible entry the double doors, and add ADA lockset at double doors. Add a concrete apron around the East and West sides of the headhouse. The rusted metal corner need to be replacement and replace rusted metal and damaged wall panels throughout. The facility needs to be repainted and weatherstrip the double entry doors. The operable windows motor and mechanism needs repairs as they are hard to operate. The the greenhouse south end needs downleaders. The site needs to be regraded to allow water to flow away easily. The south main door needs ADA lockset and a new concrete landing big enough for ADA with an accessible route including sidewalk, and the concrete walk in the middle of greenhouse needs to be replaced as it is full of trip hazards

![](_page_16_Picture_4.jpeg)

**GREENHOUSE 334E** 

The front door needs to be repainted, install a new concrete landing and sidewalk approach, for ADA compliance it need concrete walk down middle of the floor space, and best replace rotted wood battens along all sides with aluminum material.

## John T. Harrington Forestry **Research Center at Mora-FLOOR PLANS**

![](_page_17_Picture_1.jpeg)

![](_page_18_Figure_0.jpeg)

![](_page_18_Picture_2.jpeg)

## John T. Harrington Forestry **Research Center at Mora**

- 1- Trailer 334C
- 2- Office/Farm Implement Shed 334A

![](_page_18_Picture_6.jpeg)

Кеу Мар

![](_page_18_Picture_8.jpeg)

![](_page_18_Picture_9.jpeg)

**NINE DEGREES** Architecture + Design, Inc.

![](_page_19_Figure_0.jpeg)

NMSU Agriculture Centers Facilities Master Plan

![](_page_19_Picture_2.jpeg)

# John T. Harrington Forestry **Research Center at Mora**

- 3- Office and Residence 334G
- 4- Greenhouse 334B

![](_page_19_Picture_6.jpeg)

Кеу Мар

![](_page_19_Picture_8.jpeg)

![](_page_19_Picture_9.jpeg)

**NINE DEGREES** Architecture + Design, Inc.

![](_page_20_Figure_0.jpeg)

![](_page_20_Picture_2.jpeg)

## John T. Harrington Forestry **Research Center at Mora**

- 5- Greenhouse North 334E
- 6- Pesticide Storage 334D
- 7- Pump House 334F
- 8- South Pump House 334H

![](_page_20_Picture_8.jpeg)

![](_page_20_Picture_9.jpeg)

Кеу Мар

![](_page_20_Picture_11.jpeg)

![](_page_20_Picture_12.jpeg)

**NINE DEGREES** Architecture + Design, Inc.

## John T. Harrington Forestry **Research Center at Mora -**CANDIDATES FOR DEMOLITION

![](_page_21_Picture_1.jpeg)

# NO CANDIDATES FOR DEMOLITION

## John T. Harrington Forestry **Research Center at Mora -**INVENTORY COMPARISON

![](_page_23_Picture_1.jpeg)

#### NMSU AG CENTERS FACILITY INVENTORY ANALYSIS BASED ON FIELD VISITS

#### MORA

The following structures are not included in the current inventory for this site:

![](_page_24_Picture_3.jpeg)

Subirrigation house:

Needs: Paint all exposed wood jambs and frames, repaint steel columns, replace rotted wood perimeter grade beams and paint them.

#### NMSU AG CENTERS FACILITY INVENTORY ANALYSIS BASED ON FIELD VISITS

![](_page_25_Picture_1.jpeg)

Storage cluster A :

Needs: Repaint all storage containers, replace broken swing gate hinges, paint steel columns and roof structure, regrade back sides.

#### NMSU AG CENTERS FACILITY INVENTORY ANALYSIS BASED ON FIELD VISITS

![](_page_26_Picture_1.jpeg)

Storage cluster B :

Needs: Repaint all storage containers, replace broken turbine exhaust fan, paint steel columns and roof structure.

## John T. Harrington Forestry **Research Center at Mora -UTILITY OVERVIEW**

![](_page_27_Picture_1.jpeg)

# John T. Harrington Forestry Research Center at Mora

Address: 3021 Highway 518, Mora, New Mexico, 87732

*Contact:* Dr. Owen Burney, Superintendent – (575) 387-2319 oburney@nmsu.edu

![](_page_28_Picture_3.jpeg)

#### Description:

As described by the NMSU System, the center's focus is to advance the understanding of restoration activities in forested areas in New Mexico through multidisciplinary research, education, and stakeholder collaborations. The Forestry Research Center also provides science-based solutions for private, tribal, state, and federal forest managers who face the threat of catastrophic fires due to overgrown forests and the inability of post-fire forest communities and ecosystems to regenerate naturally after such fires. Successful establishment of planted forest seedlings in the southwestern United States is often hindered by harsh site conditions related to drought and severe disturbances such as wildfire and mining operations. Additionally, future climate changes are predicted to be warmer and drier further complicating forest restoration success. Producing high-quality seedlings for out planting in these stressful environments is essential. However, more is needed to know about how to produce quality seedlings that will be successful in these environments. The John T. Harrington Forestry Research Center is the only southwestern US research program focusing on forest nursery technologies, tree improvement, and eco-physiology of young forest trees to facilitate ecological restoration and/or commercial reforestation. These research interests are critical for establishing future forests in the region. We are the largest producer of forest seedlings for the state of NM, with a current capacity of 300,000 annually. These trees are primarily used to restore disturbed forests after severe forest fires and mining operations within the state. Additionally, portions of these seedlings are distributed to the general public through New Mexico's State Forestry Conservation Seedling Program. Funds generated from this program cover all production costs and support additional research projects.

#### Findings

#### Water System:

Based on the information provided, this facility receives its water from the water lines of the Town of Mora and serves the buildings in the center. In contrast, water for irrigation and greenhouses is provided by their existing well. On occasions, when access to water from the well, the center diverts its water to the main City water system. The NM Office of the State Engineer manages and regulates their well. According to the information we received, their well is adequate for their current needs.

In addition, this facility has no plans for any additional wells. If one of their livestock or irrigation wells begins to fail, they will reconsider their present decision of no new wells.

#### **Electrical System:**

Based on the information provided, this facility has a singular electrical connection that supplies power to the facility. The Facility Buildings receive its power from the Mora-San Miguel Electric Cooperative (MSMEC) Energy. Their existing power supply is old and in need of repairs. Occasionally, they are affected by brownouts, power blackouts, or just disruption in the service, which in turn impacts their access to the water system to service the greenhouse and for irrigation. As such, the facility is in the process of installing generators to help them maintain continuous service to their access to power and pumps at the well. Currently, this campus appears to have no future plans to expand the power requirements, and they don't have plans to expand their facilities.

#### Waste Water System:

Based on the information provided, this facility's sewer needs have been handled by an existing septic system that has the capacity of servicing all buildings. The system is being monitored regularly to ensure that their capacity is not impaired and that they stay within off-gas production as required by the state.

The current septic tank is working properly, and they don't expect any additional repairs or expansion in the near future.

M John T. Harrington Forestry Research Center at Mora							
All domestic water needs are supplied by the Town of Mora Water Infrastructure							
Well Number 1	CR00395	Well declared by Mora Research Center, no data available if NMSU listed	35°58'29.3"N	105°20'52.0"W			

## John T. Harrington Forestry **Research Center at Mora -INFORMATION TECHNOLOGY**

![](_page_30_Picture_1.jpeg)

## John T. Harrington Forestry Research Center at Mora Information Technology

#### Network and Wireless LAN

Wireless Network Coverage	Main Building			
Condition of Physical Cabling	Unknown			
Distribution Closet	No			
Central Tower	No			
Monthly Estimates				
Registered Devices	61			
Upload	116.57 GB			
Download	66.17 GB			

Mora operates differently from other ASC. Requests for IT support is minimal and completed only upon request, therefore equipment is minimal. From our last report, the building doesn't have a distribution closet and needs to be rewire.

![](_page_31_Picture_4.jpeg)

#### IT Spaces/Network Closets

#### Recommended:

Network space is needed at this ASC and needs to meet standards. It is our recommendation to build out an IT/network space for this ASC. If there is no room that can be modified into this space, it is our recommendation to build a separate IT/network space outside, close to the existing DMARC, that is cooled, isolated only for IT needs, has proper lighting, floor loading, power, network racks and equipment, airflow, and meets standards.

#### UPS

#### Recommended:

Multiple, 2 minimum, network UPS's are needed for the network equipment at the Mora ASC.

#### Network Tower

#### Recommended:

70 – 80 ft network tower erected to provide broadband INTERNET to different parts of the center. This network tower would also need to be installed with power to provide power to the network devices on the tower.

## John T. Harrington Forestry **Research Center at Mora** Information **Technology**

The location of the tower can be close to the main building on the site where the DMARC is to allow the easier network access to be broadcast. If that is not possible, another location can be determined by the availability of line of site from the main building to the tower.

#### POP/PtMP

#### Recommended:

Mora ASC needs one PtMP, point to multi point, and at the minimum three to four POPs, point of presence, to help saturate different parts of the center with wireless. The POPs are mobile and can be moved and adjusted as needed.

#### Cable Plan

#### Recommended:

Existing cabling, jacks, ports, patch cables and patch panels be upgraded to Category 6, at minimum. Connectivity between buildings can be accomplished by trenching and laying conduit, or to create wireless bridges through line of sign wireless broadband devices.

#### VolP

#### Recommended:

It is recommend replacing antiquated phone systems and currently, the standard is VoIP. VoIP phones will tie into the network infrastructure and allow us to control the phones off of one system, and gives us the availability to manage the phone systems from each ASC remotely.

#### Conference Room/Collaboration Spaces

#### Recommended:

Smart screens, interactive touch displays, conference room cameras, speakers and mics, etc. can all be implemented to help bring these conference room spaces into the modern era and allow them to be utilized on a moments notice.

This conference room should include one smart interactive display, either Dell or Samsung, laptop or mini computer to be mounted on the display, a wall mount or portable mount, at least one Stem wall speaker/ mic and Stem Hub, one Huddly camera, a Logitech Swytch for BYOD (bring your own device), a PoE Ethernet switch, and an AV station/equipment rack.

#### Security & Surveillance Systems

#### Recommended:

This ASC should have a minimum of two cameras, one showing the entrance/exit when vehicles arrive, and one on the main office building. This ASC would benefit from multiple cameras across the center to deter theft and increase visibility. Different locations at the center would allow for cameras to be installed and configured.

## John T. Harrington Forestry Research Center at Mora Information Technology

![](_page_33_Picture_1.jpeg)

![](_page_33_Picture_2.jpeg)

UBIQUITI ROCKET 5AC PTMP (2) Installation height: 8 m (26 FT) OUTPUT POWER: 28 DBM CHANNEL WIDTH: 40 MHz ANTENNA GAIN: 22 DBI

#### UBIQUITI ROCKET 5AC

SPECS: - 56HZ WIDE BAND OPERATING FREQUENCY - Point-to-Multipoint Links (PTMP) - dedicated Management Radio

![](_page_33_Picture_6.jpeg)

![](_page_33_Picture_7.jpeg)

OUTPUT POWER: 25 DBM

**CHANNEL WIDTH: 40 MHz** 

UBIQUITI ISOSTATION 5AC Installation Height: 3 m (10 ft)

SPECS: - 45' ISOLATION ANTENNA - Superior Throughput up to 450 MBPS - High Capacity Ang Scalability - Capable of High-Speeds

UBIQUITI MESH PRO INSTALLATION HEIGHT: 2 M (6 FT) Maximum Power: 20 dbm Power Supply: 24 V, 0.5A ANTENNAS: 2.4 GHz, 5 GHz

UBIQUITI MESH PRO ACCESS POINT

SPECS:

P

SPECS: - Immunectional 380° coverabe - Long Range Symmetrical transmission up to 183 meters - 802: 1140 Wave I Wiff - 24 042 (262: 110 Band With A 450 Mbps throughput Rate - 5 GHZ (3X3 Mimd) Band With A 1.3 GBPS throughput Rate

![](_page_33_Picture_13.jpeg)

# John T. Harrington Forestry **Research Center at Mora Energy Report**

![](_page_34_Picture_1.jpeg)

## John T. Harrington Forestry **Research Center at Mora Energy Report**

Energy Audit:

*For detail information regarding conservation strategies for the John. T. Harrington Agricultural Center please refer and review the AAE Energy Master Plan study.*