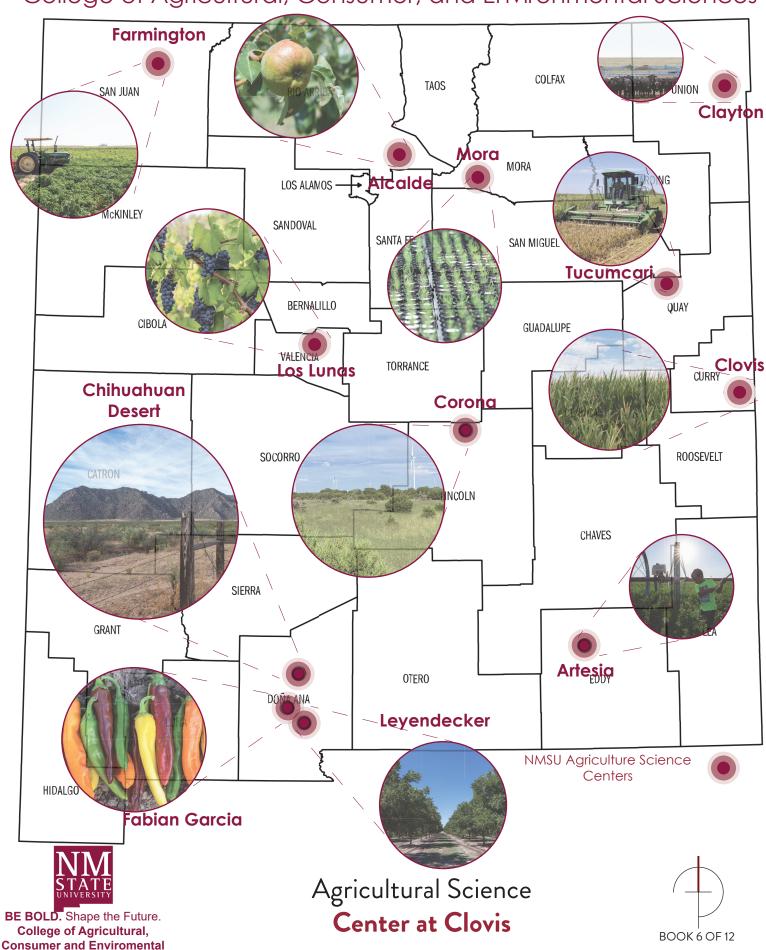
New Mexico State University

College of Agricultural, Consumer, and Environmental Sciences



Sciences.

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ACKNOWLEDGMENTS

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FACILITIES MASTER PLAN REPORT

Executive Summary | July 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 DEFICIENCY COST - PRESENT \$17,604,854.00

5-YEAR LIFE CYCLE FORECAST- ESCALATION \$6,402,251.14

TOTAL 5-YEAR NEEDED - 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 infrastructureimprovements. Furthermore, an addis 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

AGRICULTURAL SCIENCE CENTER AT CLOVIS

2346 State Road 288, Clovis, New Mexico, 88101

The research mission of the Agricultural Science Center at Clovis is to conduct crop research and disseminate viable strategies that benefit New Mexico's Citizens and agricultural production. The center conducts agricultural research and producer outreach (Extension) activities aimed at efficiently managing the area's limited water resources and increasing the economic viability and sustainability of agricultural and dairy productions.

Future research efforts – continuation of current research efforts.

Agricultural Science Center at Clovis - WAYFINDING



Agricultural Science Center at Clovis- WAYFINDING





Agricultural Science Center at Clovis



Agricultural Science Center at Clovis - LOCATIONS



Agricultural Science Center at Clovis - LOCATIONS



Property Boundary





Agricultural Science Center at Clovis

- 1. Shop (Old Alcohol Facility) 340B (FCI Score 0.026)
- 2. Hazardous Storage (Old Grainery) 3401 (FCI Score 0.954)
- 3. Crop/Feed Storage (N. Quonset) 340H (FCI Score 0.280)
- 4. Guest Trailer 340J (FCI Score 0.130)
- 5. Greenhouse 340F (FCI Score 0.021)
- 6. Pesticide Shed 340A
- 7. Storage (S. Quonset) 340G (FCI Score 0.280)
- 8. Office, Lab & Greenhouse 340E (FCI Score 0.048)
- 9. Garage 340C (FCI Score 1.249)
- 10. Residence 340D (FCI Score 0.089)



NMSU Agriculture Centers Facilities Master Plan

Agricultural Science Center at Clovis - DEFICIENCIES LIST





CROP- FEED STORAGE 340H

Building need all corrugated metal panels to be replace due to the majority are rusted and leaking. Need to replace skylight Lexan panels and repaint interior wood walls and doors. Replace windows with double pane and screens and replace both barn doors. Install a concrete apron all around the building and regrade the site for positive flow away from building.



HAZARDOUS STORAGE 340I

The building requires a continuous concrete landing at all 3 front doors and the addition of ADA lockset at each door. Addition of gutters and downleaders at back of the building will help with roof drainage. The building could benefit from a concrete apron on three sides with regrading the site for positive flow away from building. General, metal panels need to be repaired and replaced, repair rotted wood outriggers and soffit.



OFFICE LAB AND GREENHOUSE 340E

The building requires that the EIF's seal the upper edge gap where it meets metal fascia, additional repair to the brick holes at Southwest corner, repair concrete spalling at West entry and add missing handrails at west entry stairs. The brick needs sealant along west facade, the stucco cracks at old openings need to be resealed and repainted, and the connection from the modular building to main building needs crack repairs and corner soffit repairs at NW corner. Repaint North columns and adjacent areas at the entry door and frames, and the Northeast corner of modular building needs the rotted wood to be repaired. Metal caps at brick column at East entry are needed, repaint East entry door and railings, and the East door needs an ADA landing of the right size at door. This door needs an ADA lockset and hardware. Spalling concrete grade beam along east entry needs to be repaired, repaint East entry door by the electrical service and add ADA lockset, all exterior doors need their weatherstripping redone. The building needs an ADA restroom and upgrades, the interior ramp needs handrails, and the entry door and sidelite need to be repainted and refinish. The building could use a concrete apron around facility and grade site away from building for positive flow, remove landscaping next to building all sides to improve moisture damage and the building needs a ADA parking spot with striping and signage including an accessible concrete access to front door.



GARAGE 340C

The building need to repair and repaint entry door and add the necessary ADA lockset. The garage overhead door needs to be replaced along with the rotted wood door jambs and head at garage and refinish. The roof needs new shingles, gutters and downleaders. The building needs a concrete apron around two sides and required grading for positive flow away from foundation. Replace rotted wood soffit and fascia and repaint, the carport columns need repair and repaint.



STORAGE 340G

Replace all corrugated metal panels (majority are rusted, leaking), replace skylight Lexan panels, replace windows with double pane and screens, replace both barn doors, concrete apron all around, regrade for positive flow away from building, remove landscaping from East side of building.



SHOP 340B

Needs new hollow metal entry door with ADA hardware and frame, repaint exterior walls, rear door needs repainting and concrete landing and ADA lockset, concrete apron all around where missing, regrade exterior to create positive flow away from building, need roof gutters and downleaders, reseal and weatherstrip the overhead doors and repaint, refasten all loose metal wall panel screws, and repair roof leaks.



GREENHOUSE 340F

The roof leak need to be repaired at headhouse. A new paint effort at headhouse by the entry doors, add a Concrete landing and apron along corrugated metal panels for drainage management. The sidewalk at South entry needs replacing, needs gutters and downleaders, regrade site away from building at headhouse and new ADA lockset at double doors are also required.



PESTICIDE SHED 340A

Needs gutter and downleader for roof drain management, add concrete apron at West and North side, regrade these two sides for positive flow away from building, repair rusted metal wall panels, repaint entry doors, add ADA lockset at entry doors, and add missing downleader at Southwest corner.



RESIDENCE 340D

Needs ADA access ramps front and rear door, repaint wood trim at windows, soffit repairs and repaint, cracks in mortar joints, cleanout storm cellar window access pits, gutters and downleaders, need repair of wood fascia and repaint, needs concrete apron around house, regrade for positive flow away from house, remove all landscaping away from house, need ADA lockset at entry doors, remove tree at North side branches are hitting house, seal edge of stucco to brick.

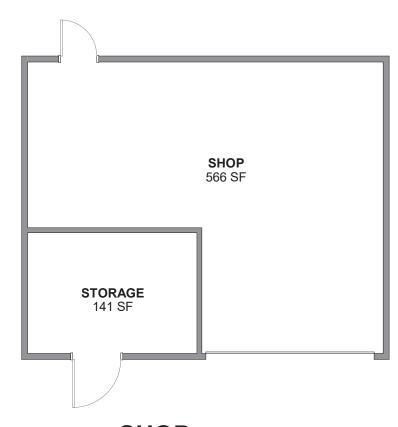
Agricultural Science Center at Clovis-FLOOR PLANS





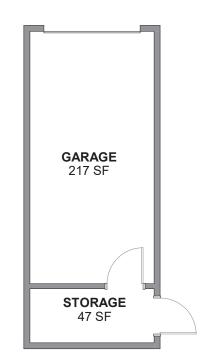
340A PESTICIDE SHED SCALE 1/16" = 1'-0"

0 8' 16' 32'



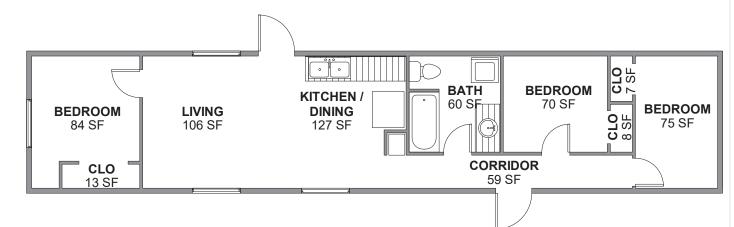
340B SHOP SCALE 1/8" = 1'-0"





340C GARAGE SCALE 1/8" = 1'-0"





340J GUEST TRAILER SCALE 1/8" = 1'-0"





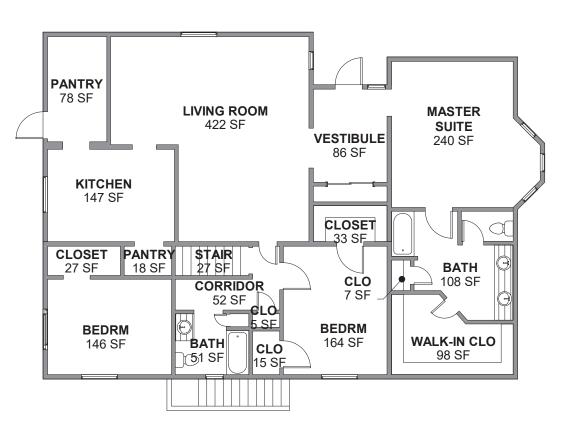
Agricultural Science Center at Clovis

- 1- Shop 340B
- 4- Guest Trailer 340J
- 6- Pesticide Shed 340A
- 9- Garage 340C



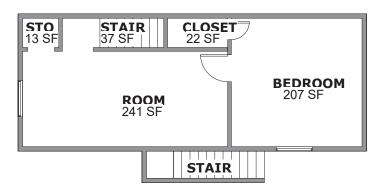
Key Map





RESIDENCE FIRST FLOOR SCALE 3/32" = 1'-0"

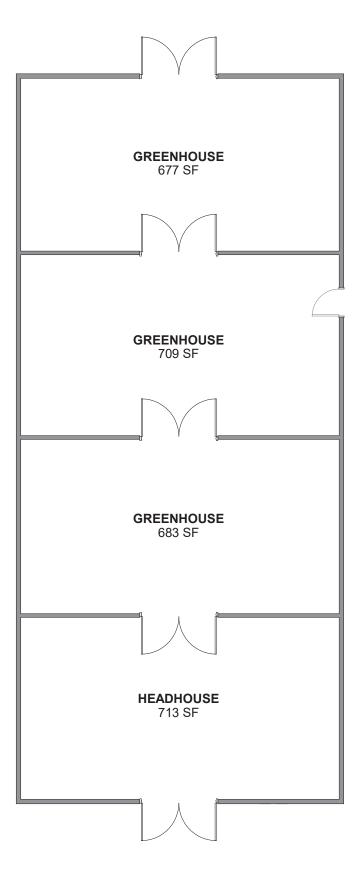




RESIDENCE BASEMENT

SCALE 3/32" = 1'-0"





340F GREENHOUSE SCALE 3/32" = 1'-0" NO 16' 24'



Agricultural Science Center at Clovis

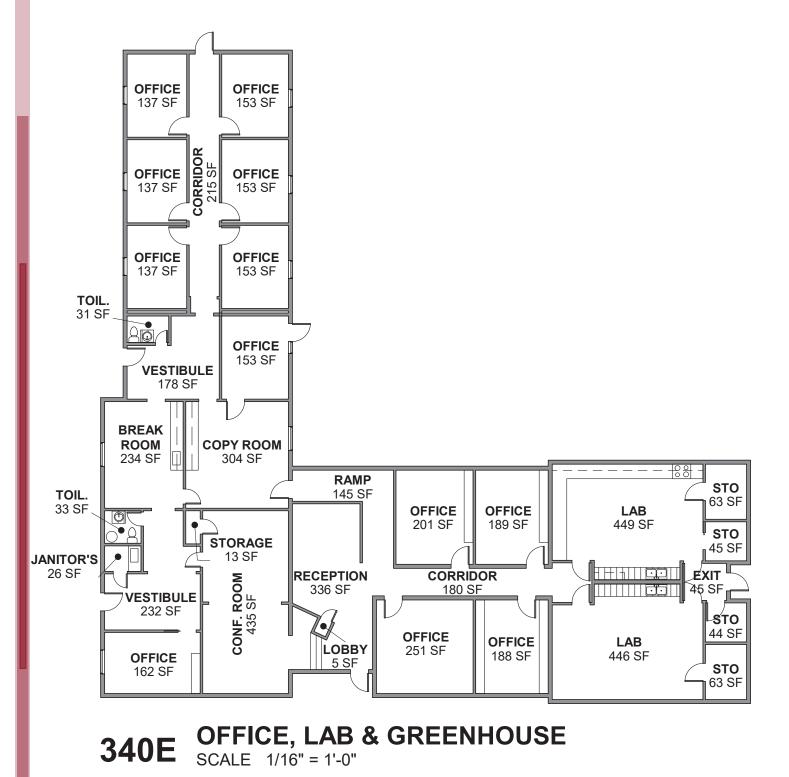
Residence First Floor 340D Residence Basement 340

Greenhouse 340F



Key Map









Agricultural Science Center at Clovis

8- Office, Lab, Greenhouse 340E



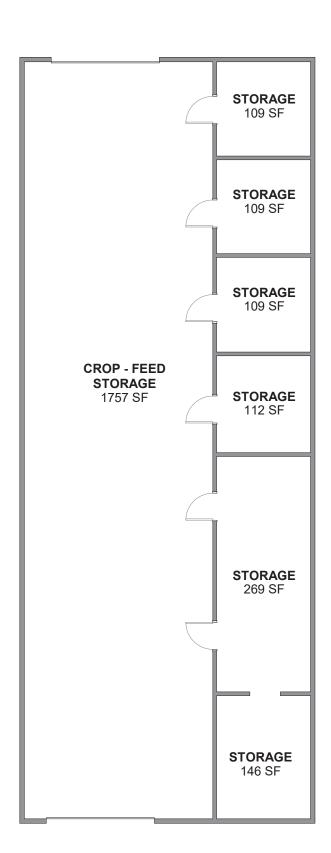
Key Map





340G STORAGE (S. QUANSET) SCALE 3/32" = 1'-0"





340H CROP/FEED STORAGE SCALE 3/32" = 1'-0"





Agricultural Science Center at Clovis

3- Crop/Feed Storage 340H

7- Storage (S. Quanset) 340G



Key Map



Agricultural Science Center at Clovis - CANDIDATES FOR DEMOLITION



NO CANDIDATES FOR DEMOLITION

Agricultural Science Center at Clovis - INVENTORY COMPARISON



NMSU AG CENTERS FACILITY INVENTORY ANALYSIS BASED ON FIELD VISITS

CLOVIS

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



Horse barn and Storage:

Needs: Rain gutter and down leader, regrade to provide positive drainage.

NMSU AG CENTERS FACILITY INVENTORY ANALYSIS BASED ON FIELD VISITS



Pump House:

Needs: Concrete entry stoop, Ada door lockset, concrete apron all around, rain gutters and down leaders, regrade all around, appropriate integrated heating unit.

NMSU AG CENTERS FACILITY INVENTORY ANALYSIS BASED ON FIELD VISITS



Tractor barn:

Needs: Rain gutter and down leaders, regrade all back side, concrete apron along back side, replace/repair damaged wall panels, concrete bollards around front columns.

Agricultural Science Center at Clovis - UTILITY OVERVIEW

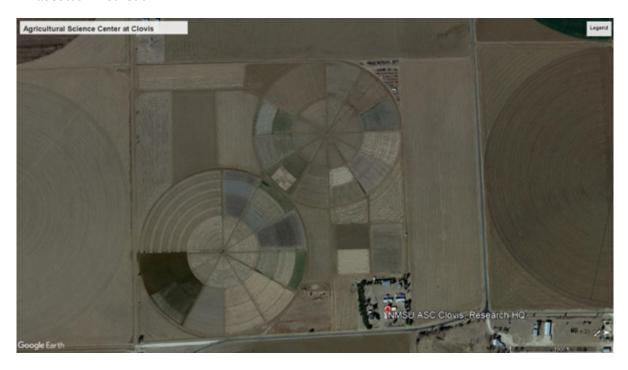


Agricultural Science Center at Clovis

Address: 2346 State Road 288 Clovis, New Mexico, 88101

Contact: Earon Scott, Superintendent - (575) 985-2292

ascott@nmsu.edu



Description:

As described by the NMSU System, the NMSU Agricultural Science Center at Clovis is centrally located in the largest crop production area of New Mexico and is uniquely qualified to conduct agricultural research and producer outreach (Extension) activities aimed at efficiently managing the area's limited water resources and increasing the economic viability and sustainability of agricultural production. Research at the Center began in 1948, originally as dry land field research. Irrigation studies were initiated in 1960 when an irrigation well was developed at the Center. Water for irrigation is derived from the Ogallala Aquifer. Since 2004, the Center has improved its irrigation delivery by developing two center pivot irrigation systems (88 acres), subsurface drip irrigation systems (6.5 acres), and surface drip irrigation systems (10 acres). An Advisory Committee comprised of agricultural producers and business leaders from the area guides most of the research and extension program at the Agricultural Science Center at Clovis.

Findings

Water System:

Based on the information provided, this facility has two wells that supply water for various functions in their daily use. One of the wells is dedicated to domestic and irrigation needs, while the second is fully dedicated to irrigation purposes. Regarding future needs, this facility intends to use the water supplied by the wells for both domestic and irrigation needs.

In addition, this facility, at this time, 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 its main electrical connection thru the Farmers Electric Cooperative. In addition, this facility currently has no plans for any additional increase or expansion of its power needs.

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-existing buildings. The system is being monitored annually to ensure that their capacity is not impaired and that they stay within what the state requires. The facility does not expect any additional repairs or expansion in the near future.

Agricultural Science Center at Clovis

Well Number 1 No information regarding the wells was provided by the New Mexico Office of State Engineer. Well Number 2

Agricultural Science Center at Clovis - INFORMATION TECHNOLOGY



Agricultural Science Center at Clovis Information Technology

Network and Wireless LAN

Wireless Network Coverage	Main Building	
Condition of Physical Cabling	Good Condition	
Distribution Closet	Enclosed in Open Space	
Central Tower	No	
Monthly Estimates		
Registered Devices	97	
Upload	1070 GB	
Download	738.36 GB	

The DMARC enters from the west side of the Main Office, then runs to the center of the building where the network equipment is located in an enclosure. The building was wired in 2015 using Cat6. Wireless coverage is good throughout the Main Office and Auxiliary Buildings.



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 Clovis 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.

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.

Agricultural Science Center at Clovis Information Technology

POP/PtMP

Recommended:

Clovis 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.

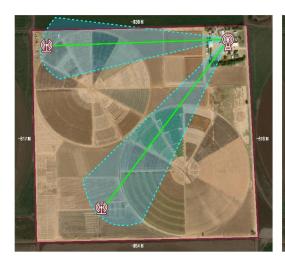
This conference room should include one smart interactive display, either Dell or Samsung, laptop or mini computer to be mounted on the display, a wall mount or portable mount, at least one Stem wall speaker/mic and Stem Hub, one Huddly camera, a Logitech Swytch for BYOD (bring your own device), a PoE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

Agricultural Science Center at Clovis Information Technology







UBIQUITI ROCKET 5AC PTMP (2) INSTALLATION HEIGHT: 8 M (26 FT) OUTPUT POWER: 28 DBM Channel Width: 40 MHz ANTENNA GAIN: 22 DBI



UBIQUITI ISOSTATION 5AC INSTALLATION HEIGHT: 3 M (10 FT) Output Power: 25 DBM CHANNEL WIDTH: 40 MHz ANTENNA GAIN: 15.5 dBi



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 ROCKET 5AC



SPECS:
- 56HZ WIDE BAND OPERATING FREQUENCY
- POINT-TO-MULTIPOINT LINKS (PTMP)
- DEDICATED MANAGEMENT RADIO





SPECS:
- 45' ISOLATION ANTENNA
- SUPERIOR THROUGHPUT UP TO 450 MBPS
- HIGH CAPACITY AND SCALABILITY
- CAPABLE OF HIGH-SPEEDS

UBIQUITI MESH PRO ACCESS POINT



SPECS:
- IMMUDIBECTIONAL 380" COVERAGE
- LONG BANGE SYMMETRICAL TRANSMISSION UP TO 183 METERS
- 802.11 ALG WARE 1 WIT - 24.0472 (002.11N) BANG WITH A 450 MBPS THROUGHPUT RATE
- 5 GHZ (3X3 MIMO) BANG WITH A 1.3 GBPS THROUGHPUT RATE

Agricultural Science Center at Clovis Energy Report



Agricultural Science Center at Clovis Energy Report



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