



CFAES

2021 Master Plan



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES





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01 EXECUTIVE SUMMARY

Purpose

A master plan aligns the physical campus environment with the mission and vision of an institution. The Ohio State University College of Food, Agricultural, and Environmental Sciences (CFAES) has a succinct mission statement – *we sustain life* – that unites a community of individuals pursuing an extraordinarily diverse range of inquiry. The college’s natural resources, landholdings, and facilities are equally diverse, and they simultaneously support teaching, research, and extension. The CFAES Master Plan includes themes and planning principles that guide decision making for all facilities on its three campuses: Columbus, Wooster, and statewide. The process explored the Waterman Agricultural and Natural Resources Laboratory, the Columbus Midwest campus, and the CFAES Wooster campus experiences in more detail, holistically addressing these campus environments, and engaged hundreds of individuals from the college community. As a result, the plan illustrates a shared vision for the future and provides a road map for implementation.

Facilities Planning Principles

Planning principles communicate shared values and guide decision making. The CFAES planning principles apply to facilities across the state. They were used to guide development of the master plan, and they will continue to influence future facilities decisions that the plan does not directly address.

1. Support the diversity and breadth of the college’s endeavors by investing to create space that is consistently high quality, utilized well, and appropriate for the activity.
2. Act as one college with three campuses: Columbus, Wooster, and statewide.
3. Prioritize opportunities to advance and showcase innovative teaching, research, and extension activities; interdepartmental and interdisciplinary collaboration; and experiential learning ethos.
4. Create inspiring and functional places that:
 - build community and encourage collaboration,
 - are easy to access and navigate,
 - promote engagement while maintaining secure environments,
 - support world class scholarship, and
 - demonstrate leadership in sustainability.

Waterman Agricultural and Natural Resources Laboratory

CFAES' facilities planning principles articulate the priority that the college and the master plan place on investing in facilities to support and showcase programs that are innovative, interdepartmental and interdisciplinary, and that emphasize experiential learning. The Waterman Agricultural and Natural Resources Laboratory is the college's preeminent opportunity in this area, and taking the next steps in its transformation into a university hub for innovative science and public engagement is a leading priority of the master plan.

Waterman serves as a core for teaching, research, and community engagement and a university hub for leading innovative science and public engagement in the food, agricultural, and environmental sciences. Across Lane Avenue from the West Campus Innovation District, its myriad ecosystems, facilities, and programs contribute to the university's comprehensive focus on understanding and solving seemingly insurmountable problems – from food security to cancer to climate change. It's where thinkers and doers from Ohio State, private industry, and the surrounding communities work together to find pragmatic solutions that fuel a more optimistic future and improve people's lives. Waterman is where many partners advance knowledge and industry, communicate science, and prepare future leaders. Along with the West Campus Innovation District, the Wilma H. Schiermeier Olentangy River Wetland Research Park (ORWRP), and the Chadwick Arboretum, Waterman is a key component of the Columbus-based CFAES system supporting work on the grand challenges.

The master plan establishes a land use framework with stream corridors and Carmack Road as the major, fixed organizing elements and land use zones for plot-based research, garden-based programs, crop production, and pastures. Each of these zones accommodates associated built facilities and support infrastructure, and they are carefully planned so that each zone has the appropriate elements and levels of public engagement. Those publicly facing elements are all oriented around Carmack Road, creating a vibrant and connected hub where the full breadth of the work of the college comes together.

The land use framework is intended as a guide. Some aspects are consistent with the layout and operation of the site today, while others represent considerable change. Continuity of research activity from the beginning of a project to its completion is critical, and all changes will need to plan for relocation of current functions or to allow them to remain in place for the duration of their term where relocation is not feasible.



WATERMAN AERIAL ILLUSTRATION

Waterman Proposed Projects

NEAR TERM (0-5 YEARS)

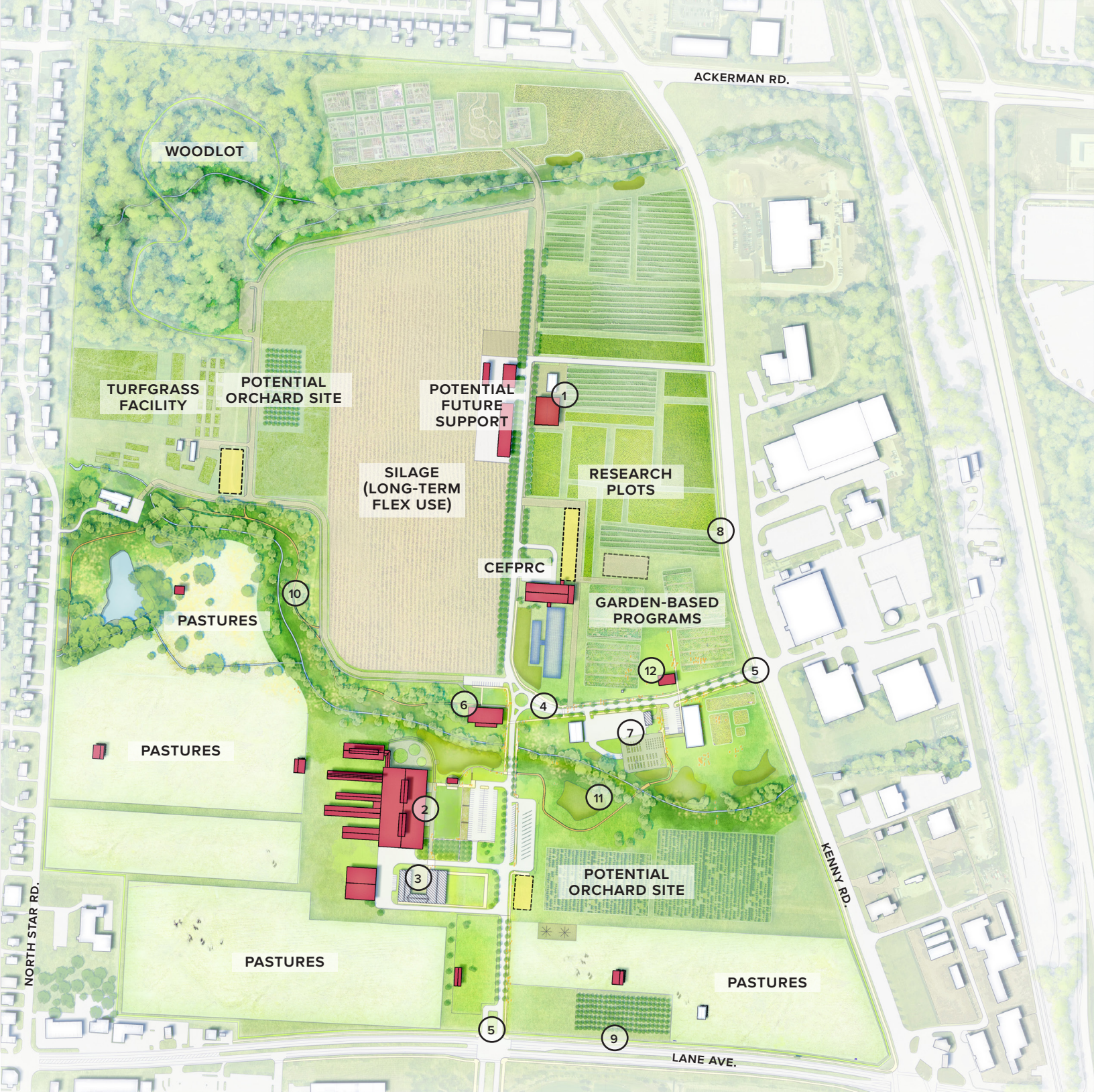
- ① **Chemical Storage and Handling Facility** centrally located within the area planned for research plots
- ② **Multispecies Animal Learning Center** and associated pastures along Lane Avenue, bringing together teaching and extension activities for the equine, swine, poultry, beef, and small ruminant operations adjacent to the Waterman Dairy
- ③ **Waterman Dairy improvements** to transition to new technologies including a robotic milking system, feeding robot, and manure scraping robot
- ④ **Carmack Road and interior path improvements** to promote pedestrian safety through the hub area
- ⑤ **Gateway signage along Lane Avenue and Kenny Road** to clarify entry and arrival and increase awareness of the work taking place at Waterman
- ⑥ **Welcome center facility** serving as a destination for student and public engagement and incorporating demonstration research space, meeting rooms, and visitor amenities
- ⑦ **Enhancements to the area designated for garden-based programs** including reconfiguration of community gardens, associated landscape and fencing improvements, and potential renovation of the White Building for storage
- ⑧ **Multi-use path and fencing along Kenny Road**, in collaboration with the university and the City of Columbus

MID TERM (5-10 YEARS)

- ⑨ **Lane Avenue streetscape** including sidewalks and plantings along the northern side of the street
- ⑩ **Multi-use trail** through the southern stream corridor, connecting North Star Road to the west to Carmack Road to the east, including stream crossings and interpretive signage along the trail
- ⑪ **Enhancements to the southern stream corridor** to research and demonstrate best practices related to the adjacencies of natural resources and agricultural land uses, including stormwater management strategies incorporating wetlands
- ⑫ **Three season pavilion** providing event space, storage, and other support infrastructure for outdoor gatherings associated with the garden-based program area







LONG TERM (MORE THAN 10 YEARS)

The CFAES Master Plan illustrates opportunities to improve vehicular circulation north of the Controlled Environment Food Production Research Complex (CEFPRC) and formalize access to the woodlot, both through vehicular access and trail improvements. Potential future building projects include further expansion of the CEFPRC and buildout of sites in the central hub and adjacent to the turfgrass facility for flex uses to be determined.



WATERMAN ILLUSTRATIVE PLAN

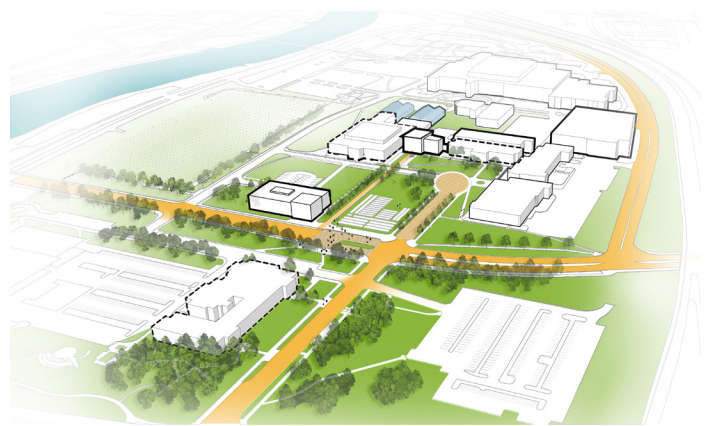
KEY

- | | |
|---|---|
|  Existing Building |  Renovation |
|  New Building |  New Greenhouse |
|  Future New Building Opportunity |  Potential Stormwater Management |

Columbus Midwest Campus

The Columbus Midwest campus is often perceived as a peripheral area of the core campus. However, as the university continues to grow and develop, and particularly as it builds out the West Campus Innovation District, the environment surrounding CFAES' facilities is maturing and urbanizing.

The CFAES Master Plan envisions the Midwest campus renewed and activated to nurture and showcase the college community in concert with broader university development initiatives. This includes renovation and demolition of buildings in poor condition and the creation of new collaboration space and other amenities. It also includes continued investment in distinctive landscape experiences.



MIDWEST CAMPUS AERIAL ILLUSTRATION

Proposed Projects

Each individual investment proposed as part of the master plan is considered holistically and contributes to the larger vision for campus.

NEAR TERM (0-5 YEARS)

- ① **Kottman addition** of two stories plus a greenhouse, which together replace those functional aspects of the Howlett Greenhouses that must be maintained at the Midwest campus while also expanding the college's laboratory and office capacity
- ② **New Interdepartmental Building on Woody Hayes Drive** which meets identified need for laboratories and classrooms, replaces space in Plumb Hall so it can be removed, and adds activity in a highly visible location
- ③ **Targeted renovations and moves in the Animal Sciences Building** to vacate space used by Animal Sciences as well as general purpose space remaining in Plumb Hall

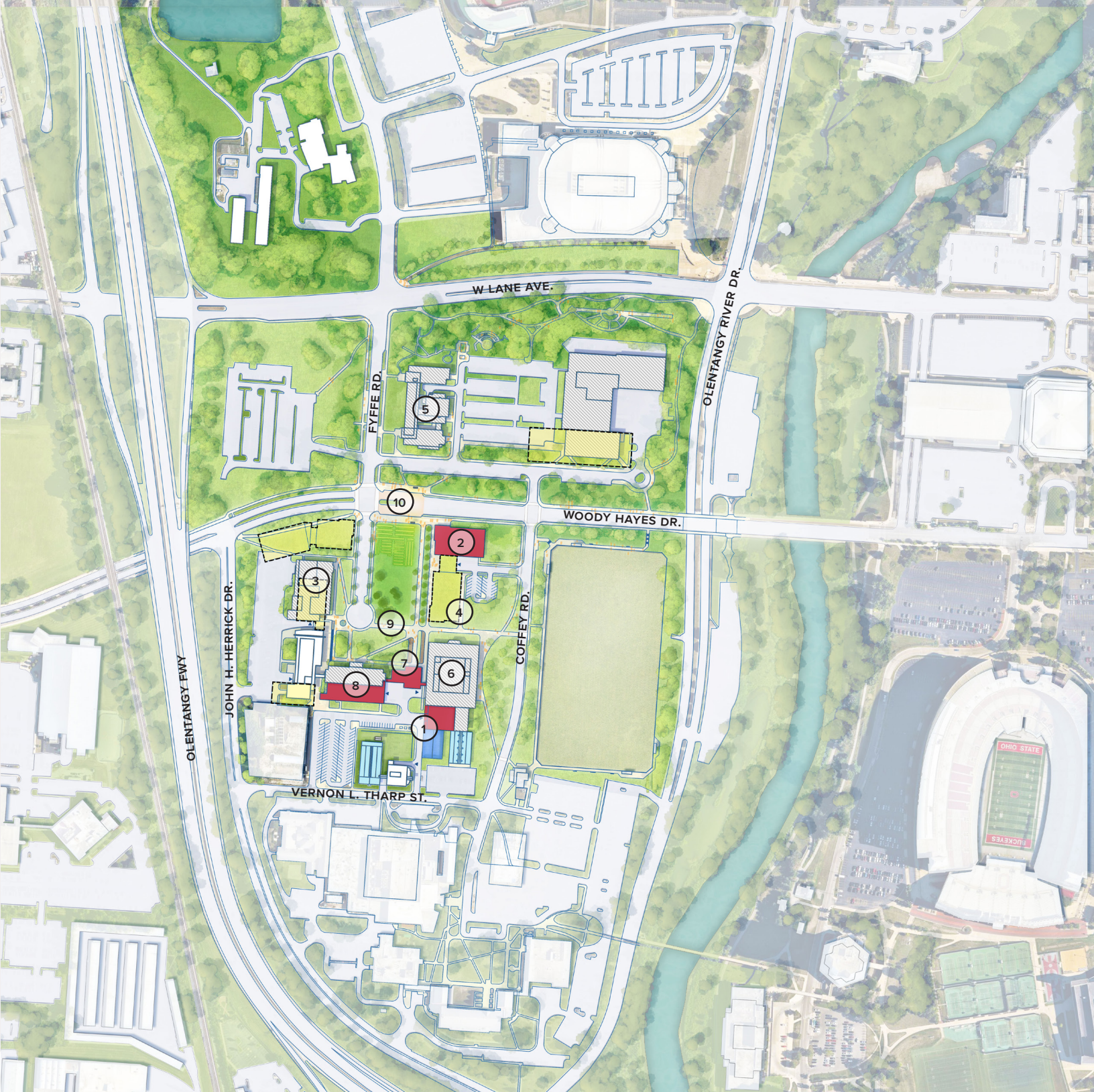
MID TERM (5-10 YEARS)

- ④ **Plumb Hall demolition**
- ⑤ **Additional renovations in the Agricultural Administration Building** to address the ground floor, western wing of the second floor, and the third floor, which have not been recently upgraded
- ⑥ **Kottman Hall renovation** to comprehensively address deferred maintenance, add collaboration and social spaces, and provide more widespread access to natural light

- ⑦ **Howlett-Kottman connector addition** to enhance connectivity between buildings, create a hub of new collaboration and gathering space, and conceal service and loading
- ⑧ **Howlett Hall addition and renovation** to address deferred maintenance issues and expand laboratory capacity
- ⑨ **Quad landscape enhancements** to create more active community spaces and improve pedestrian safety while showcasing unique programs like the cultivar trials
- ⑩ **Woody Hayes Drive improvements** including enhanced sidewalks and plantings that connect to the Chadwick Arboretum





LONG TERM (MORE THAN 10 YEARS)

The Midwest campus has capacity for new buildings and additions that would increase the capacity of this area beyond what is indicated by the current space needs assessment. These are long-term opportunities for needs that may not be anticipated today. They include new building sites such as the site of the demolished Plumb Hall, a replacement of the Animal Sciences Building, and/or a second new CFAES Interdepartmental Building on Woody Hayes Drive. There are also opportunities for potential building additions to Parker and the Agricultural Engineering Building and the potential for additional landscape enhancements to the parking lot north of Woody Hayes Drive.



MIDWEST CAMPUS ILLUSTRATIVE PLAN

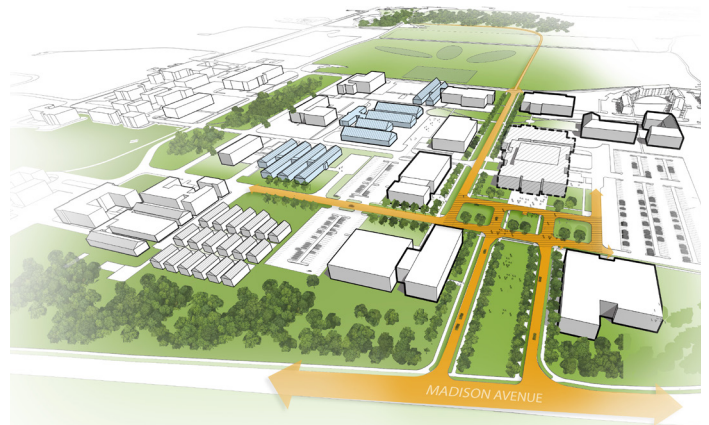
KEY

-  Existing Building
-  New Building
-  Future New Building Opportunity
-  Renovation

CFAES Wooster Campus

The CFAES Wooster campus consists of three primary landholdings: central campus, Grace Drake Agricultural Laboratory, and Fredericksburg Road. Together with several other further outlying and smaller properties that have been added incrementally over time, the college controls more than 4,000 acres. The Wooster campus unites two formerly separate institutions: Ohio Agricultural Research and Development Center (OARDC) and the Agricultural Technical Institute (ATI).

In the one college spirit, the master plan envisions a vibrant, singular heart of campus, supported by surrounding landholdings with clearly defined and streamlined programmatic uses.



WOOSTER CAMPUS AERIAL ILLUSTRATION

Proposed Projects

Each individual investment proposed as part of the master plan is considered holistically and contributes to the larger vision for campus.

NEAR TERM (0-5 YEARS)

- ① **Renovation of the Fisher Auditorium Building** to refresh event space and provide a mix of uses that may include new classrooms, library and study, dining, and collaboration space to serve the entire Wooster community
- ② **Traditional residence hall** to house approximately 260 students, freeing up capacity in the existing townhouses for graduate student housing
- ③ **Bike trails** to connect to various locations on campus and in the Wooster area, alongside the creation of a bike repair hub near Secrest Arboretum
- ④ **Pedestrian path enhancements** in the core of campus to promote safety, connectivity, and a vibrant heart of campus
- ⑤ **Turfgrass teaching amenities** (e.g. golf holes and/or soccer pitch, etc.) to also serve as a recreational resource for the college community

MID TERM (5-10 YEARS)

- ⑥ **New heart of the campus** to include dining, recreation, social, and other amenity space serving the entire campus community
- ⑦ **New interdepartmental academic building** to replace poor condition and outdated facilities with modern teaching, research, and extension environments
- ⑧ **Greenhouse replacement** for poor condition greenhouses west of Gerlaugh Road by expanding the Williams Greenhouse complex with new greenhouses to be served by an expanded headhouse and infrastructure
 - **Demolition of poor condition and underutilized buildings, ag facilities, and greenhouses**, including Thorne, Japanese Beetle, Halterman, Skou, and other facilities to be identified in the future







LONG TERM (MORE THAN 10 YEARS)

The master plan represents a potential full buildout of the campus and identifies long-term opportunities for further animal facility consolidation and modernization (swine, poultry), building renovations, additional turfgrass teaching amenities (e.g. golf holes and/or soccer pitch, etc.) to also serve as a recreational resource for the college community, and buildout of future flex sites.



WOOSTER CAMPUS ILLUSTRATIVE PLAN

KEY

- | | |
|---|---|
|  Existing Building |  Renovation |
|  New Building |  Existing Greenhouse |
|  Future New Building Opportunity |  Proposed Greenhouse |





02 PLAN OVERVIEW

Introduction

Planning Process and Engagement

Introduction

The Ohio State University College of Food, Agricultural, and Environmental Sciences (CFAES) is one college with three campuses: Columbus, Wooster, and statewide. The CFAES statewide campus encompasses agricultural research stations, county extension offices, and other landholdings. A succinct mission statement – *we sustain life* – encompasses an extraordinarily diverse range of inquiry in the areas of food, agricultural, and environmental sciences. The work of the college maintains a direct connection to The Ohio State University's land grant mission, and the CFAES community is actively engaged in the university's grand challenges.

The college's natural resources, landholdings, and facilities are equally diverse, and they simultaneously support teaching, research, and extension. Specialized laboratories where researchers investigate everything from bees to agricultural equipment, food production facilities, natural resources spanning hundreds of acres, animal facilities, extension offices, greenhouses, storage barns, silage fields, an island field lab, and arboretum landscapes each play a critical role in advancing the mission.

The college's physical assets are also extensive. The college stewards more than 11,000 acres across the state of Ohio including: 380 acres in Columbus, including 261 acres at the Waterman Agricultural and Natural Resources Laboratory, and more than 4,000 acres in Wooster. Managing and operating these assets in alignment with college priorities requires significant investments of time and money. In a competitive and resource-constrained environment, the college must focus on sustainable operations.

The CFAES Master Plan aligns its physical campus environments with the college's distinct mission and vision. The planning process offered an opportunity to consider the Waterman, Midwest campus, and Wooster campus experiences holistically, rather than on a project-by-project basis, and it engaged hundreds of individuals from the college community. As a result, the plan illustrates a shared vision for the future and provides a road map for implementation.

Planning Process and Engagement

Project Scope and Timeline

The CFAES Master Plan focuses on the places and spaces that support the CFAES community in Columbus and Wooster – locations that require integrated planning because the college has large clusters of natural resources, landholdings, and facilities within developing urban areas. Planning for the future of Waterman is a leading priority of the plan and an area of detailed focus. The plan addresses the CFAES statewide campus at a high level through planning principles to guide decision making and integration of ongoing studies for facilities improvements in these locations.

CFAES and Ohio State's Planning, Architecture and Real Estate (PARE) unit worked together to develop the plan. They engaged an interdisciplinary consultant team, led by Ayers Saint Gross and Erdy McHenry, to support the process.

The planning process began in the Summer of 2019 with tours and data gathering. A collegewide engagement process in Fall 2019 provided the foundation for several months of iterative scenario planning exercises for Waterman, the Midwest campus, and the Wooster campus. In the Spring of 2020, CFAES paused work on the master plan to focus on their response to the COVID-19 pandemic. The planning team revisited the proposals and solicited input from the CFAES community in Spring 2021 before developing final recommendations.



Planning Process and Engagement

Engagement and Outreach

CFAES leadership convened a Steering Committee to guide the development of the plan. The Steering Committee included faculty and staff representing a cross-section of the CFAES community. They met approximately every four to six weeks to review analysis and proposals. The CFAES VP Cabinet and Department Chairs reviewed proposals at several milestones during the process, providing key strategic direction.

Broad input from the CFAES community was critical to ensure that the recommendations in the plan are broadly representative. The planning team facilitated a variety of virtual and in-person sessions.

Initial engagement in Fall 2019 focused on understanding the college's facilities needs:

- **14 departmental interviews** were conducted over the course of several workshops on both the Wooster campus and Columbus campus. The chair of each department discussed facilities, staffing, enrollment, future growth, and other factors that influence current and future space needs. These interviews, along with verified enrollment and staffing projections, were used to establish current baseline facilities needs and estimate future needs for CFAES as a whole.
- **20 focus group meetings** addressed topics including Waterman operations, animal operations, undergraduate and graduate student experience in both Wooster and Columbus, Columbus physical planning, and Wooster housing and dining, among others.
- **150+ open forum participants** attended sessions held at both the Midwest campus and the Wooster campus, with an open invitation to all CFAES faculty and staff. After an introductory presentation, attendees were invited to interact and respond to questions on a series of stations around the room.
- **572 online survey responses** were provided by faculty, staff, and students, who were invited to participate in an online survey, which was open for responses for a week in September 2019. This amounts to a 10% response rate with a +/- 3.9% margin of error.

Spring 2021 engagement sessions provided opportunities for the CFAES community to review the Draft Plan and provide feedback:

- **100+ webinar attendees** joined a live presentation of the Draft Plan. This session was recorded and posted online for additional asynchronous viewing.
- **80+ virtual discussion forum participants** attended two facilitated sessions that included an overview of Draft Plan proposals for a specific site and opportunities to provide comments in small groups. One session focused on Waterman and another session focused on the Wooster campus.
- **79 comment portal responses** were submitted. Participants could share open-ended feedback and rank their top priority projects.







03 COLLEGEWIDE PLANNING

Themes

Facilities Planning Principles

Themes

The master plan process blended quantitative and qualitative analysis to understand the college's opportunities and challenges related to its physical environment. Viewed together, the specific observations, needs, and experiences of individuals reflect shared collegewide themes.



Customized environments in support of a unique mission

The blend of natural resources and agricultural landholdings, and their proximity and interrelationship to a comprehensive land grant university in a major metropolitan area, is truly distinctive. Individual facilities are unique and have been customized over the years to support specific research, teaching, and extension programs.



Engaging students and community through hands-on experience

Learners retain more information through hands-on experience, and providing these opportunities is a particularly distinctive strength of the College of Food, Agricultural, and Environmental Sciences. Engaging facilities and landscapes enable these experiences. After months of primarily virtual instruction and operations due to the COVID-19 pandemic, the impact of hands-on learning is even more clear.



Link between poor quality space and inefficient use

Many facilities are outdated, nearing the end of their useful lifespan, and/or in need of upgrades to meet the demands of modern teaching, research, and extension programs. Poor quality space often leads to low utilization as users may require more space to effectively conduct their work.



Increasing need to work together as one college

As the strategic vision of CFAES is to be one college across disciplines and across the state, there is a need for the facilities to reflect and encourage unity and collaboration. Before the COVID-19 pandemic, the CFAES community was a leader in using virtual platforms to stay connected across the state. The period of remote operations in response to the pandemic created new and different opportunities to break down boundaries and further accelerated the one college approach.



Need more ways to connect

Each location faces connectivity and transportation challenges. In Wooster, the north and south ends of campus are within walking/biking distance but without any clear biking route and few walking routes. In Columbus, it is challenging to get back and forth to the core campus as well as to Waterman and the Wilma H. Schiermeier Olentangy River Wetland Research Park (ORWRP). Statewide, many of the outlying facilities are isolated and rely on video conference technology to stay connected with each other and the college, but with inconsistent technology and facility quality. This is partly due to the blend of leased and owned facilities and county-provided local extension offices.



Campus communities are underserved by amenities

Another consistent theme is that CFAES communities are underserved by amenities. Through the open houses, focus groups, and online survey, for both the Midwest and Wooster campuses, there was a resounding voice for increased dining options and more common space to gather and collaborate.



Inconsistent process for establishing secure environments

Across the college there is an inconsistent approach to establishing secure environments. Security of building access, research facilities and plots, and biosecurity of animal facilities are each approached in different ways at different locations. There is a need for a clear vision for secure environments and management to reach those security goals across the college.



Diverse coalition supporting sustainability advancements

College leadership, faculty, staff, and students are united in their desire to see CFAES leading the way in its commitment to sustainability advancements. These could be implemented both practically and programmatically, including building operations, transportation alternatives, stormwater innovations, animal operations, food science processing, and natural resources management, all coordinated with interdisciplinary college programs and research.



Facilities Planning Principles

Planning principles communicate shared values and guide decision making. The CFAES planning principles apply to facilities across the state. They were used to guide development of the master plan, and they will continue to influence future facilities decisions that are not directly addressed by the master plan.

1.

Support the diversity and breadth of the college's endeavors by investing to create space that is consistently high quality, utilized well, and appropriate for the activity.

2.

Act as one college with three campuses: Columbus, Wooster, and statewide.



Wooster Science Building

3.

Prioritize opportunities to advance and showcase innovative teaching, research, and extension activities; interdepartmental and interdisciplinary collaboration; and experiential learning ethos.

4.

Create inspiring and functional places that:

- build community and encourage collaboration,
- are easy to access and navigate,
- promote engagement while maintaining secure environments,
- support world class scholarship, and
- demonstrate leadership in sustainability.





04 PHYSICAL PLAN RECOMMENDATIONS

CFAES Columbus

Waterman Agricultural and Natural Resources Laboratory

Columbus Midwest Campus

CFAES Wooster Campus

CFAES Statewide Campus

CFAES Columbus

The CFAES footprint in Columbus consists of 388 acres of natural resources, agricultural land, and academic campus including Waterman, the Chadwick Arboretum, the Midwest campus, and the Wilma H. Schiermeier Olentangy River Wetland Research Park (ORWRP). These resources are proximate to the core of a premier land grant campus and located in a major city, which is distinctive for the college and for the university. Making connections between these assets is a critical part of unlocking their collective impact. Between these large parcels there are few defined paths for pedestrians and cyclists, and the online survey reinforced that many students, faculty, and staff drive to these sites and park. While CABS buses serve the Midwest campus, there are concerns about reliability and overcrowding. Waterman and ORWRP are not well served by bus, and university users are very interested in more transportation options to get to Waterman. Regional water systems, however, are one way that these parcels are connected: the two stream corridors that are part of the organizing framework for Waterman also flow near the Chadwick Arboretum and the ORWRP. Especially because water systems are an area of expertise and focus for the college, investing in improving the health of these natural resources, using them to support teaching, research, and extension activities, and featuring them as part of the visitor experience is a powerful opportunity.

The CFAES Master Plan establishes a plan for ten or more years of investments in CFAES facilities. It is critical that CFAES planning envision its campus surroundings as they will exist and function in the future when planning college investments. The Ohio State University's Framework 2.0 plan illustrates planned development with great significance for Waterman and the Midwest campus. The buildout of the West Campus Innovation District will create a mixed-use environment for research and entrepreneurship immediately adjacent to Waterman. It also illustrates many other development and redevelopment plans adjacent to CFAES facilities, including the construction of the Engie Combined Heat and Power (CHP) Plant, the new Frank Stanton Veterinary Spectrum of Care Clinic, and the first building associated with the West Campus Innovation District.



CFAES facilities in Columbus, Ohio.

Waterman Agricultural and Natural Resources Laboratory

CFAES' facilities planning principles articulate the priority that the college and the master plan place on investing in facilities to support and showcase programs that are innovative, interdepartmental and interdisciplinary, and that emphasize experiential learning. The Waterman Agricultural and Natural Resources Laboratory is the college's preeminent opportunity in this area, and taking the next steps in its transformation into a university hub for innovative science and public engagement is a leading priority of the master plan.

VISION STATEMENT

Waterman serves as a core for teaching, research, and community engagement, and a university hub for leading innovative science and public engagement in the food, agricultural, and environmental sciences. Across Lane Avenue from the West Campus Innovation District, its myriad ecosystems, facilities, and programs contribute to the university's comprehensive focus on understanding and solving seemingly insurmountable problems – from food security to cancer to climate change. It's where thinkers and doers from Ohio State, private industry, and the surrounding communities work together to find pragmatic solutions that fuel a more optimistic future and improve people's lives. Waterman is where many partners advance knowledge and industry, communicate science, and prepare future leaders. Along with the West Campus Innovation District, the ORWRP, and the Chadwick Arboretum, Waterman is a key component of the Columbus-based CFAES system supporting work on the grand challenges.



Kunz-Brundige Extension Building and adjacent gardens.

Existing Conditions

The planning team toured Waterman in July 2019, taking a wagon tour around the property to see the various gardens, pastures, research plots, and natural areas. Waterman furthers the CFAES mission through experiential teaching and learning, year-round community engagement, extension programming and outreach efforts, and research activities spanning multiple disciplines. Research activities include crop science, entomology, environment and natural resources, landscape architecture, nutrition, ornamental plant systems, turfgrass, animal agriculture, and more. The Waterman experience is powerful: students, faculty, staff, and visitors of all kinds are immersed in a landscape that includes natural resources and agricultural operations, while maintaining a sense of connection to the campus and the city.

Primary challenges facing the 261-acre site relate to connectivity, security, operations, and facilities condition. Relative to the scale of the core campus, Waterman feels quite large, but relative to the scale of typical agricultural operations the site is quite small. Balancing the needs of the many users and ensuring that the site operates smoothly and minimizes conflicts between divergent land uses is critical. Many of the facilities are nearing or past the end of their useful life and need to be replaced, and its land uses – specifically research plots, crop production, and pasture areas – change over a multi-year window, which gives the college flexibility in shifting how the site is used over time. As a result, natural resource areas such as the large contiguous woodlot in the northwest corner of the property and the two stream corridors running east-west through the site are some of the primary fixed elements in planning for the future.

It can be confusing to navigate to and through Waterman as a first-time visitor, and there are currently very limited options to access Waterman without a car. The site lacks signage, pathways, fencing, and other elements that guide both visitors and more frequent users in how to behave and interpret their experience.

Simultaneously, there are security concerns. Those who know where they are going can access nearly any part of the site and many outside community members use the site for walking and recreation. While the vision for Waterman is centered on engagement, it is also an agricultural and natural resources laboratory and as such, there are activities, equipment, and supplies supporting sensitive work that need to be secured.

On university land located just south of Waterman, there are plans in progress to develop the West Campus Innovation District south of Lane Avenue. The university is also building several new projects on the east side of Kenny Road. The City of Columbus and the university have plans for a multi-use bike path along the Waterman side of Kenny Road. These redevelopments create an opportunity to re-envision the edges of Waterman and how the college engages with the surrounding community.

Goals

Investments at Waterman should:

- Preserve Waterman as a lasting resource for innovative science and public engagement in the food, agricultural, and environmental sciences.
- Provide facilities that enhance experiential learning.
- Clarify and enhance the visitor experience.
- Improve connectivity and wayfinding.
- Increase control and reduce security risks while still encouraging engagement.
- Complement adjacent planned developments.
- Create a memorable image and identity.

Recommendations

The CFAES Master Plan establishes a land use framework to guide decisions about investments in major new facilities and implementation of smaller research projects over time. The stream corridors and Carmack Road are the major, fixed organizing elements. The framework establishes land use zones for plot-based research, garden-based programs, crop production, and pastures. By clustering these uses together, supporting facilities and infrastructure can be provided in locations that promote convenient access. Each of these zones accommodates associated built facilities, and the buildings and landscapes are carefully planned so that each zone has the appropriate elements of public engagement. Those publicly facing elements are all oriented around Carmack Road, creating a vibrant and connected hub where the full breadth of the work of the college comes together.

The land use framework is intended as a guide. Some aspects are consistent with the layout and operation of the site today, while others represent considerable change. Continuity of research activity from the beginning of a project to its completion is critical, and all changes will need to plan for relocation of current functions or to allow them to remain in place for the duration of their term where relocation is not feasible.



WATERMAN CONCEPT PLAN
A vibrant, connected hub that showcases each element

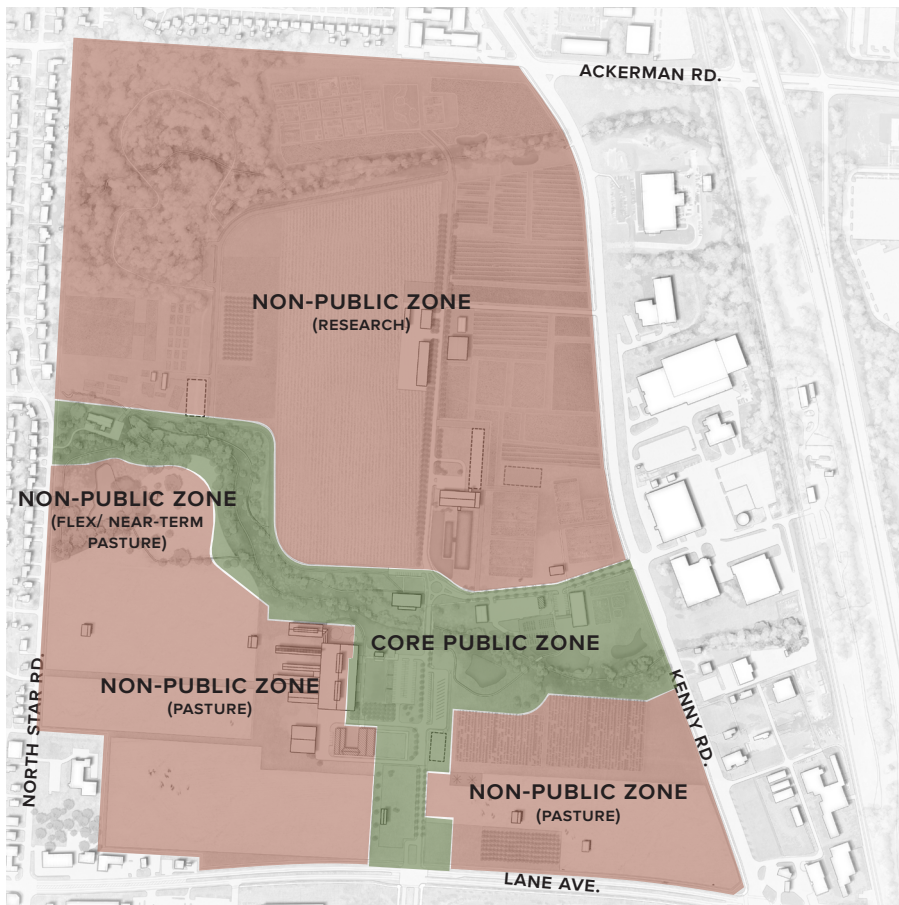
Security and Access

The access and security framework for Waterman acknowledges that there are many ways people use the site. Users can be grouped into four main categories:

- **Residents** are those individuals who work on site nearly every day.
- **Regular visitors** come as part of a formalized program, like a class, a research project, or an extension or outreach program.
- **Informal and/or sporadic visitors** might be stopping by to meet with someone, students coming for a self-guided visit, or community members visiting without a set agenda.
- **Event attendees** use the site in choreographed ways that may be quite different than daily operations for a limited duration.

Engagement is central to CFAES's mission and the vision for Waterman. As such, the master plan establishes a core public zone that includes the hub area, where the outreach and engagement focused elements of Waterman's program are located. It also includes portions of the southern stream corridor, creating a public zone connecting North Star Road to Kenny Road.

The public zone would be accessible to all visitors at any time that Waterman is open. Controlled access areas would not be accessible to the public. Through gates, fencing, and signage, access to these areas would be limited to specific times and uses. Residents and some regular visitors would have access to the controlled access areas needed to conduct their work, and informal visitors and event participants would be guided in their use of those spaces. This framework requires new operational strategies but significantly increases the college's control over the use of the site and the security for all who use it.



PUBLIC ACCESSIBILITY

Controlled public access should be limited to the core area of Waterman.

Consider securing (fencing) edges of research fields and pastures.

KEY

- Non-Public Zone
- Core / Public Zone

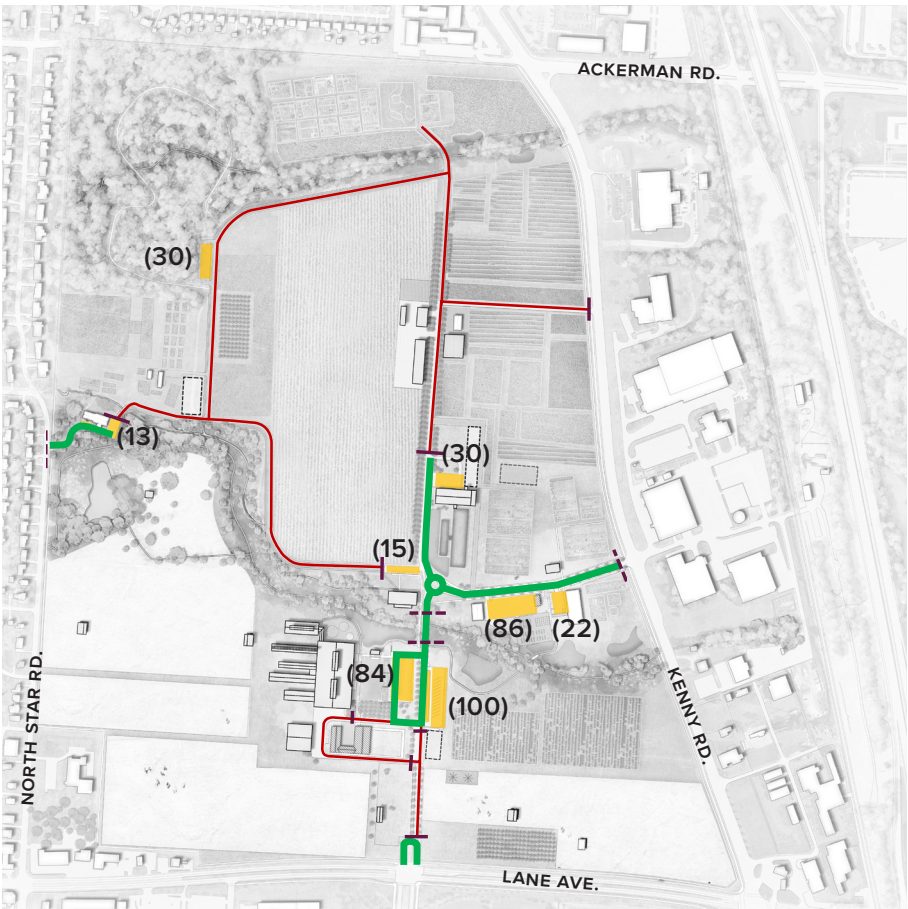
Circulation and Parking

To improve access to Waterman, CFAES should continue to work with the university and the City of Columbus to support investments in multimodal infrastructure including cycling routes and pedestrian paths. Bus access would be a great asset, and in the near-term, on-demand ride hailing programs can help Ohio State users access the site for classes, jobs, and programs.

The installation of a traffic light on Lane Avenue at Carmack Road has increased cut-through traffic and raises concern for pedestrian safety. To alleviate this issue, the master plan proposes a circulation system with gates that can be opened and closed to navigate the site in different ways depending on what is taking place on site at the time. On a regular basis, the main entrance to Waterman would be from Kenny Road, and all major facilities would be accessible from that entry. Lane Avenue

vehicular access would be limited. The circulation framework of gates and paths is also flexible. If for any reason the site needed to be closed entirely, that would be possible. There are several different ways this infrastructure could be managed by opening and closing gates to operate the site differently for special events.

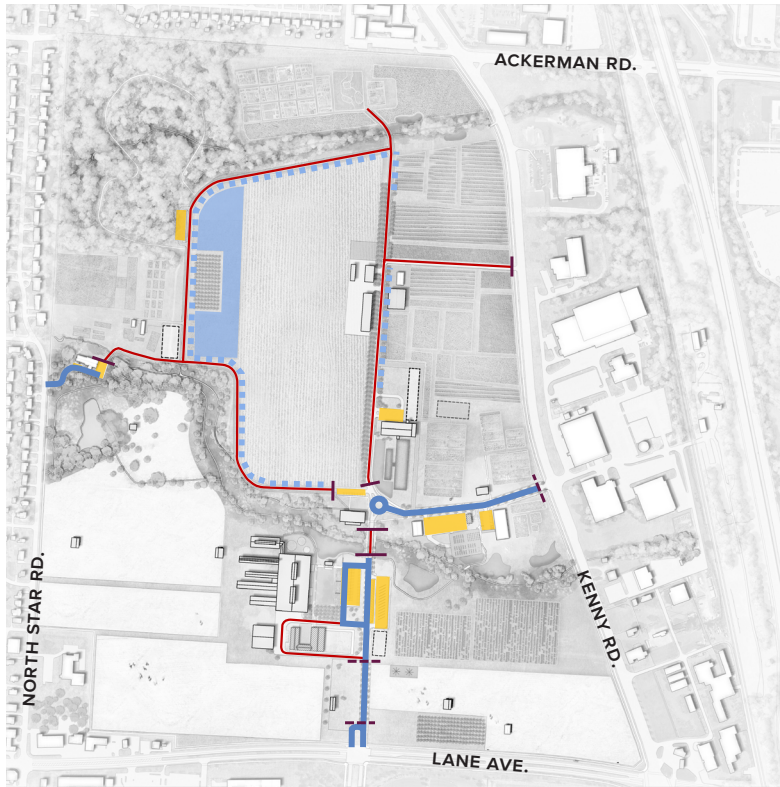
Daily parking demands at Waterman are estimated at around 300 spaces, and the master plan framework provides those spaces in a series of smaller lots distributed throughout the site. Event parking demand exceeds that capacity, and while there are some areas where informal event parking would be possible, for large events, off-site parking will be critical. There are several nearby locations where off-site event parking can be accommodated.



VEHICULAR CIRCULATION
A total of 308 total parking spaces are identified on the map at left.

Informal and/or sporadic visitors to Waterman would typically enter and exit from Kenny Road at Carmack.

- KEY**
- Vehicular Flow (Controlled Access)
 - Vehicular Flow (Public)
 - Gate – Typically Closed
 - Gate – Typically Open
 - Parking Lot (Approx. Non-Event Average)



VEHICULAR CIRCULATION FOR EVENTS

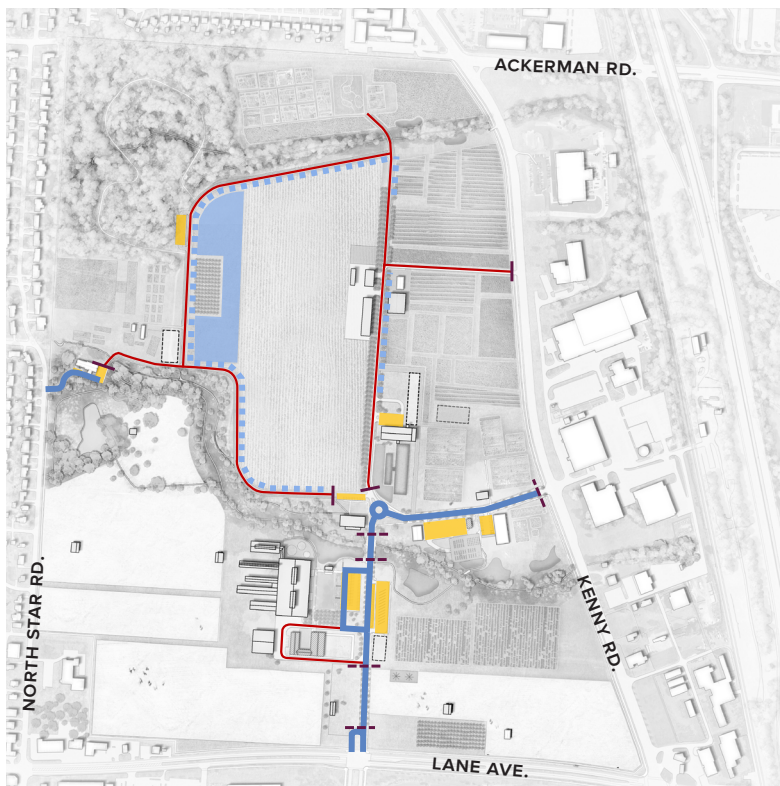
OPTION 1

Circulation through the site can be restricted to isolate events at the MALC from the rest of the site.

Additional parking on the controlled access drives can expand capacity. It could be valet, directed, or self parking.

KEY

- Vehicular Flow (Controlled Access)
- Vehicular Flow (Event)
- Gate – Closed
- - Gate – Open
- Parking Lot
- - Potential Event Parking (Partially on Grass)
- Potential Event Parking



VEHICULAR CIRCULATION FOR EVENTS

OPTION 2

The circulation loop can be fully opened if needed for events.

Additional parking on the controlled access drives can expand capacity. It could be valet, directed, or self parking.

KEY

- Vehicular Flow (Controlled Access)
- Vehicular Flow (Event)
- Gate – Closed
- - Gate – Open
- Parking Lot
- - Potential Event Parking (Partially on Grass)
- Potential Event Parking

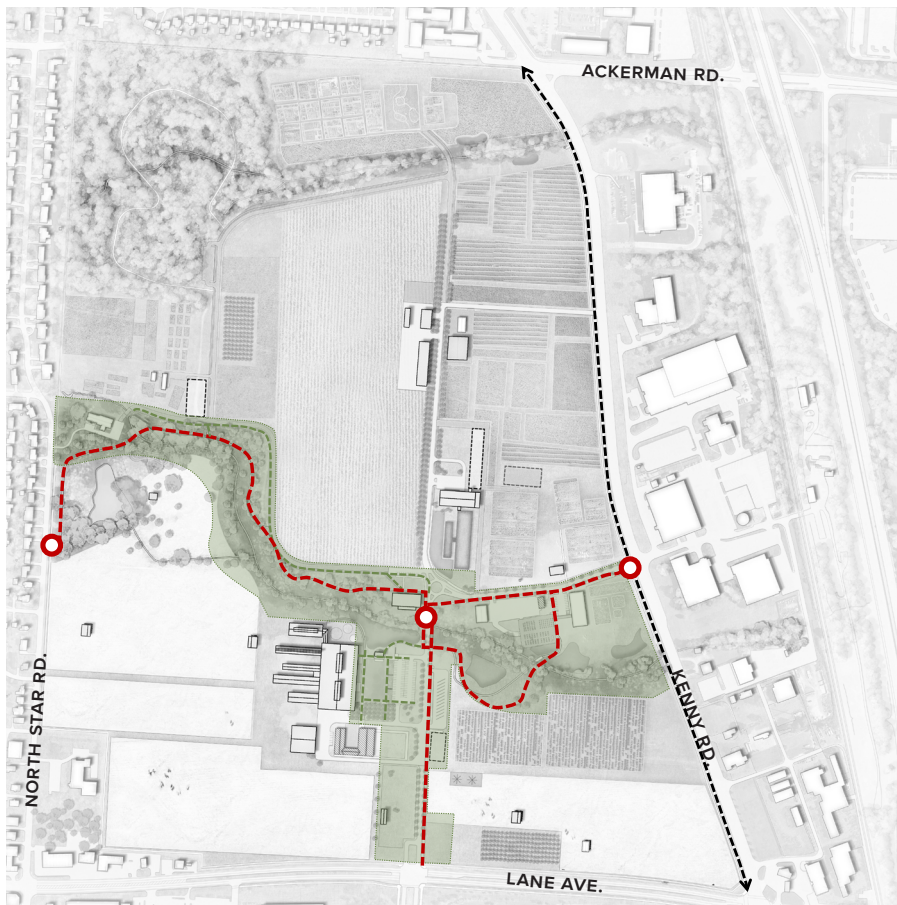
Pathways, Gateways, and Fencing

As a means of better managing and controlling public access to Waterman, the CFAES Master Plan recommends establishing a core, public zone along Carmack Road and along the existing east-west stream corridor. This can be accomplished by creating primary and secondary gateway access points for both vehicles and pedestrians, designating controlled access paths for visitors, and securing research fields and other non-public areas through boundary fencing and gates.

Three gateways have been identified for Waterman. The first, a controlled access point at Kenny Road and Carmack Road, serves as the primary gateway and visitor entry point for the campus. This provides visitors access to the new Franklin County Extension building, the Waterman Lab Headquarters building, and to recommended east-west pathways through the core of Waterman. The second identified gateway, at the intersection of Carmack Road and Lane Avenue, serves as a secondary gateway and access point for service and visitors. This entry should have the ability to be gated when not in use. Both entry gateways should contain significant vehicular and pedestrian-scale

signage that meets university standards. Lastly, a secondary gateway point has been identified at the northwest corner of the Lane Avenue and Kenny Road intersection to serve as a visual representation of Waterman.

In addition to the identified gateways and security, the master plan recommends a formalized edge condition around the south and east edges of Waterman. This can be achieved through a double fence treatment along Lane Avenue and Kenny Road between the primary entry at Carmack Road and Lane Avenue. A double fence delineates the primary edges of Waterman and allows for a controlled access buffer zone. This separates visitors from the animals in the pastures and provides redundancy to protect the animals in case one fence is compromised. Along Lane Avenue, a public sidewalk and informal tree row should be considered on the exterior of the new fence to provide improved access to regular users coming from the core campus and for visitors. Along Kenny Road, a fence setback (approximately 26') should be considered to accommodate a formal tree lawn and a City of Columbus multi-use path.



PEDESTRIAN CIRCULATION

*Controlled access paths
east/west along stream corridor
(with limited crossings)*

*Public sidewalk along
Lane Avenue (outside of
boundary fencing)*

*Multi-use path (City) along
Kenny Road (outside of
boundary fencing)*

KEY

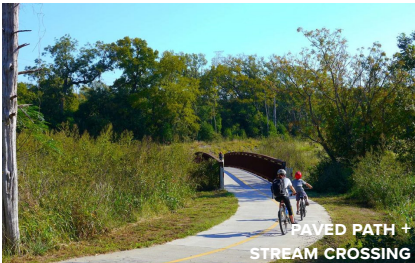
- Controlled Pedestrian Access Point
- Primary Controlled Access Pedestrian Path
- Secondary Pedestrian Path
- Public Sidewalk (Lane Avenue)
- Multi-use Path (Kenny Road)



MOWN PATH



PAVED + GRAVEL PATHS



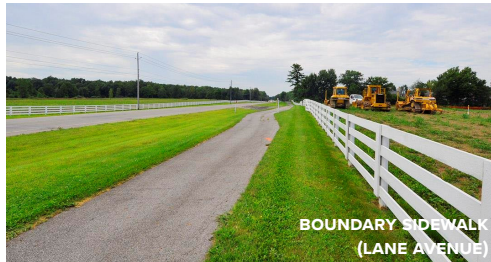
PAVED PATH +
STREAM CROSSING



PAVED PATHS



GRAVEL PATH



BOUNDARY SIDEWALK
(LANE AVENUE)



GUIDED SIGNAGE +
EDUCATIONAL OPPORTUNITIES

PEDESTRIAN PATH TYPOLOGIES



CONTROLLED ACCESS
(PEDESTRIAN PATHS)



PRIMARY BOUNDARY FENCING



PRIMARY BOUNDARY FENCING
(CONTINUOUS METAL FENCE)



CONTROLLED ACCESS
(VEHICULAR)



HIGH-TENSILE WIRE (INTERIOR) FENCING

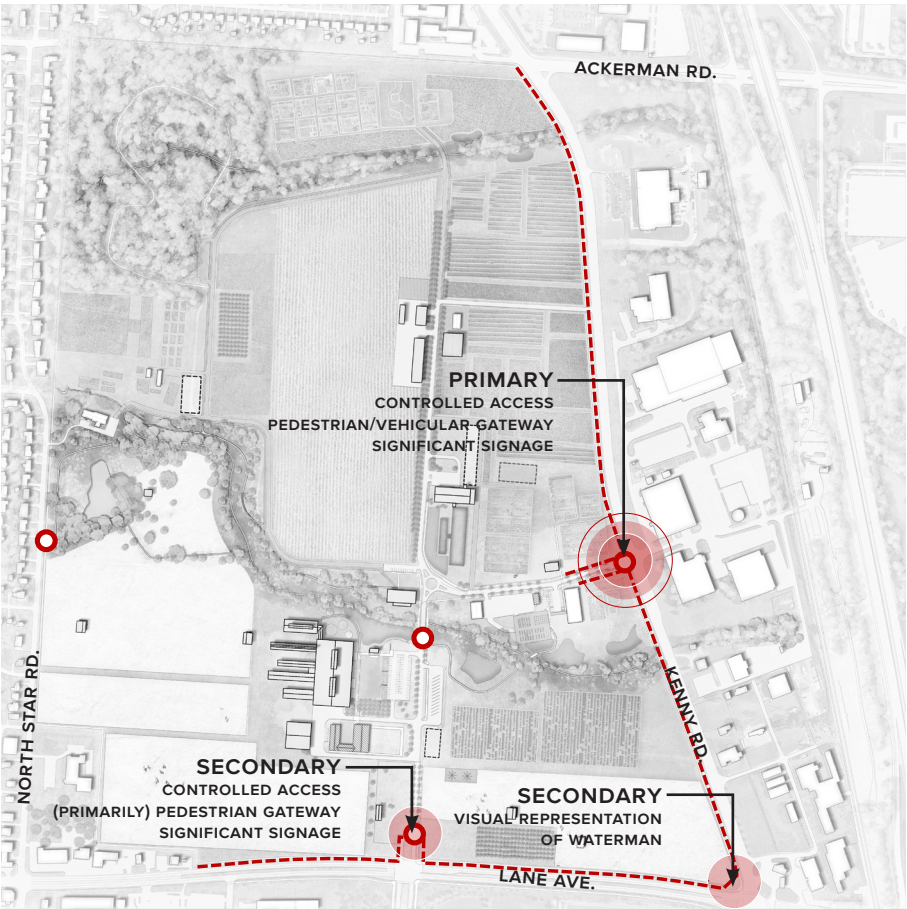


FORMALIZED BOUNDARY
FENCING (STAINED WOOD)

FENCING AND CONTROLLED ACCESS TYPOLOGIES



GATEWAY PRECEDENTS

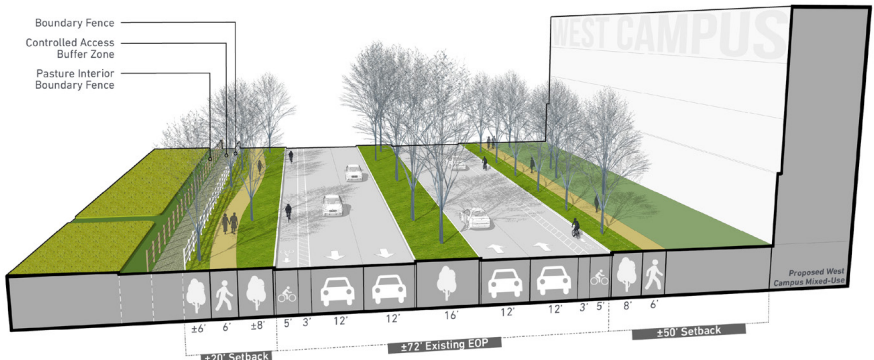


WATERMAN GATEWAYS
University standards will inform building signage and gateways.

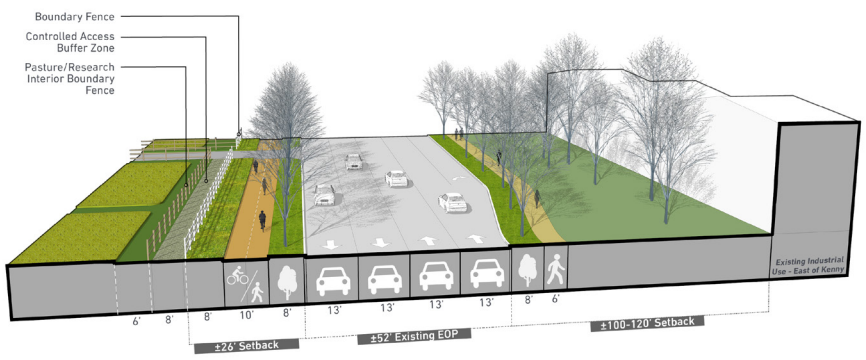
Primary gateway: Kenny Rd / Carmack with controlled access entry for pedestrians and vehicles.

Secondary gateways: Lane Ave / Carmack with controlled access entry for (primarily) pedestrians and the southeast corner of Waterman (Lane / Kenny) should visually represent research and programming at Waterman.

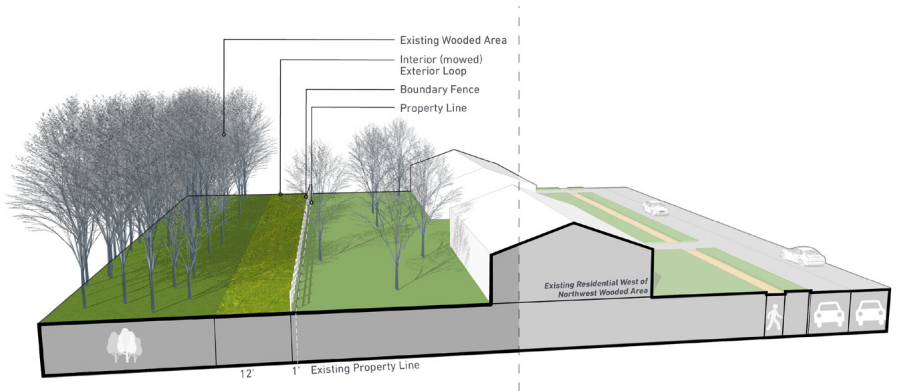
- KEY**
- Primary Boundary Fence
 - Controlled Access Point (Vehicular/Pedestrian)
 - ⊙ Waterman Gateway



LANE AVENUE EDGE CONDITION



KENNY ROAD EDGE CONDITION



WEST AND NORTH NEIGHBORHOOD EDGE CONDITION



Natural Resources and Stormwater Management

Two tributaries of the Olentangy River transect Waterman from east to west. These are important natural resources for the site and the broader region and, as such, must be protected and enhanced. The City of Columbus has designated the areas encompassing the streams and their riparian buffers as Stream Corridor Protection Zones (SCPZ). The riparian buffer plays an important role in slowing and filtering stormwater runoff, minimizing streambank erosion, and providing critical habitat.

The SCPZ width for Waterman's streams ranges from a minimum of 50' to 95' at the widest. Prohibited activities within the SCPZ include mowing, the use of herbicides/pesticides, the removal of native vegetation, and farming/gardening. Facilities, such as fences and signs are also prohibited within the SCPZ.

The stormwater management strategies for Waterman consist of a mix of dry detention and wet retention wetland areas. The proposed MALC development will be served by a combination of bioretention areas and a detention facility adjacent to the stream channel. Bioretention areas will be placed in the grassed areas between parking lots and access roads to provide water quality treatment. A proposed detention area located north of the MALC parking lot would provide water quantity treatment. A separate retention area will be located adjacent to the southern stream and east of Carmack Road to manage runoff from the hub area. The wetland portion of the facility will handle the first flush from impervious areas and provide water quality treatment. Quantity management will be provided for critical storm and 100-year storm events.

North of the stream, the stormwater management approach deploys several smaller basins, both dry detention and wet retention. They are located across the site and will generally serve the area close to the facility. These smaller ponds throughout the site enable stormwater management for each discrete part of the site without requiring extensive storm sewer trunk line piping to bring stormwater to the on-site stormwater management areas. Locations for proposed future stormwater mitigation features have been identified adjacent to the garden-based program area and along the northern stream channel. Some small pond sites may integrate wetland areas. If there are existing wetlands present, proposed retention areas will incorporate these wetlands as part of the retention function of the basin.

The stormwater management systems can be equipped with monitoring systems to provide research opportunities for CFAES faculty, and this should be explored as individual projects are developed.



ECOLOGICAL CORRIDORS




The northern corridor that connects to the Wetland Research Center is degraded. This is an opportunity to showcase interventions to restore riparian corridors.

The southern corridor travels through the hub and connects to the Arboretum when it leaves Waterman and will have a variety of agricultural uses along its edges. It offers an opportunity to showcase best practices and research around water quality on agricultural lands.



STORMWATER MANAGEMENT

KEY

-  Existing Wet Basin
-  Future Potential Basin
-  Existing Stream Corridor Zone (SCPZ)

Drainage, Water Supply, and Irrigation Infrastructure

Existing drainage, water supply, and irrigation infrastructure can be modified and expanded to accommodate new buildings and roads. The subsurface agricultural drainage on-site is predominantly antiquated clay tile with some catch basins located near internal roads and buildings. Most of the clay tile can remain intact as the site will remain an active agricultural site. Some tile networks will be disrupted during new construction and will be addressed as part of each facility stormwater plan. If CFAES decides to showcase certain water management strategies, one option could be to replace some clay tile with plastic drainage pipe and reroute to reach a stormwater management wetland area or to carry water around a proposed structure. Site drainage in the newly developed areas could be collected in catch basins placed in the grassed areas adjacent to roadways and parking areas. These stormwater basins could be directed to an on-site stormwater basin or basins for treatment of the first flush and stormwater quantity management.

Waterman has a well-developed water supply system with the primary water source consisting of a 12" diameter PVC water pipe located along the existing Carmack Road alignment. The bulk of the work with water lines on-site is adjusting the existing network to serve relocated buildings and providing new supply lines to new structures. The existing network south of the stream provides a number of supply lines to the main dairy barn, heifer barn, dairy calf barn, and the Headquarters building. The new layout of these structures requires reconfiguring the supply lines off of the 12" main line to adequately serve all new buildings. A future welcome center will require rerouting a 3" ductile line around the new foundation and provision of a supply line to the building. This 3" line runs under the proposed road north of the proposed welcome center location. New structures north of the welcome center will need short supply connections to the 3" line.

The irrigation system in the southeast quadrant of the site will continue to operate as it exists now in the short term. Further evaluation is needed to determine status of the system and if future expansion to the north can be supported by this infrastructure. This evaluation will be critical to support the garden-based programs, transitioning to be centralized near the Kunz-Brundige Franklin County Extension Building. One potential solution in the long term, is addition of a new irrigation well.

Manure Management

Existing waste management operations at Waterman employ a flush system using large quantities of water to push manure into a central waste collection tank at the Dairy Barn. In turn, this tank is periodically pumped into the City of Columbus sanitary sewer through an existing connection to dispose of liquid (slurry) waste while raw solids and bedding are scraped, collected, and hauled off-site or applied to fields directly. However, several planned projects at Waterman provide a unique opportunity to rethink existing waste management operations. The design and construction of the Multispecies Animal Learning Center (MALC) will increase the number of species housed at Waterman, while the installation of robotic milkers at the existing Dairy Barn will ultimately reduce the total number of animals housed in that facility and reduce the total daily amount of combined waste volume generated at Waterman by half (-50%).

Given the significant impacts of these projects, the college decided to undertake a manure management planning study to determine how best to shift away from current operations towards a long-term, multispecies operational model that supports near-term and future CFAES facilities at Waterman. Alternative future scenarios were generated and discussed exploring different sets of regulatory conditions with varying associated costs for installation and operations, integrated sustainability practices, and degrees of flexibility for certain types of research activities. Ultimately, the primary or “backbone” system will be designed to operate safely and effectively at all times, mitigating the total volume of water entering the waste stream, reducing the total liquid waste volume entering the municipal sewer system. However, to the greatest extent possible, the system should also support the “valve concept” by preserving flexibility to collect point source waste samples for potential research and instructional opportunities while avoiding significant additional cost or operational complexity through new required infrastructure. Regardless of the final system implemented, the new operational model will position the college to advance a more operationally sustainable approach to best practices in manure management and will contribute to the positive environmental stewardship of Waterman.

Biosecurity Considerations

Waterman is complex due to multiple agricultural operations, user types, and wildlife populations in conjunction with research, teaching, and public outreach and education. Current operations can be maintained while incorporating specific and intentional biosecurity risk mitigation strategies in a step-wise, deliberate manner as phases are developed to protect human, animal, and environmental health and business continuity. Incorporating signage and transition points between public, monitored, controlled, and restricted access risk zones of Waterman would allow controlled access and mitigation of disease introduction and spread.

Structural and operational biosecurity for stormwater management facilities will mitigate impacts to the adjacent research plots and agricultural operations. Waterman is situated within the Atlantic flyway, and proactive mitigation of biosecurity risks and wetlands ecological management will reduce wildlife impact on agricultural and research enterprises.

Structural and operational biosecurity of each Waterman component will provide additive biosecurity benefits as Waterman develops through the proposed projects. In addition, transport biosecurity is an important bioexclusion and biocontainment consideration due to movement throughout the site and across the state. The goal of the biosecurity design elements is to prevent disease/pest introduction to facilities/fields, protect the surrounding environment, prevent spread of pathogens and pests, and allow a mechanism for control and elimination should introduction occur.

Food Systems

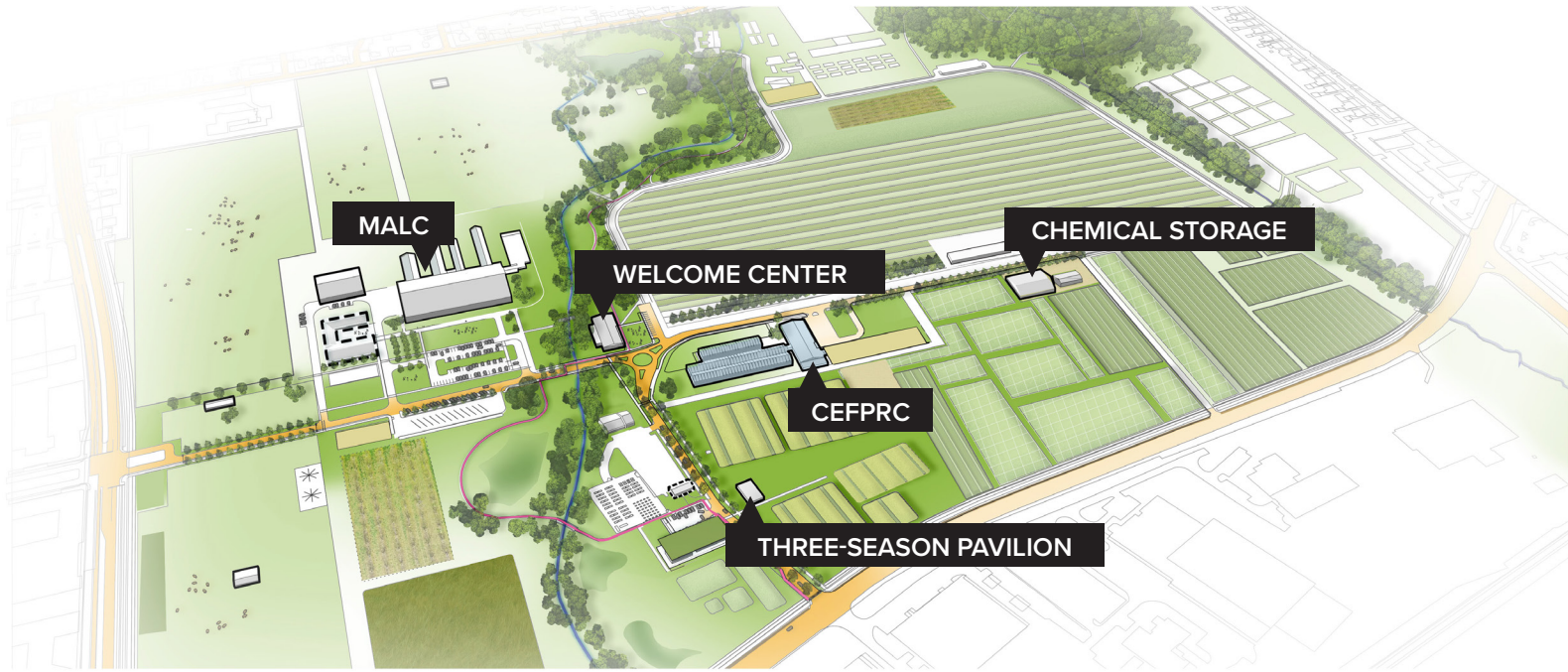
“Food systems” refer to the complex networks of activities that surround the flow of food across its life cycle. In its simplest form, this system encompasses agriculture/food production, processing, distribution, consumption, and food waste management. The emergence of food systems thinking over the past 20-30 years has led to increasingly integrated approaches to the food system in both the public and private sector. Rigorous systems thinking and creative, innovative solutions will be critical to navigating the challenges faced by our food system in the coming decades – challenges that are starkly illustrated by the COVID-19 pandemic and increasing climate volatility. CFAES is uniquely positioned as a college, where virtually every department at CFAES has robust intersection with food system topics. The CFAES Grand Challenges and the OSU Discovery Themes frameworks both offer fertile ground for cultivating robust food systems thinking and interdisciplinary approaches among CFAES students and faculty.



Waterman, as the only land grant university land lab located in the heart of a major United States city, presents a unique opportunity to highlight and showcase innovations and best practices across the full food system. Its colocation of cropping and animal production systems, community-based and education-oriented partnerships, and deep student engagement provide Waterman with the ingredients to become a flagship laboratory of innovation, showcasing food system sustainability and resilience across social, environmental, economic, and human health dimensions.

A few opportunities for highlighting food system issues and approaches at Waterman include:

- **Community Partnerships:** Collaborative relationships with organizations like Mid-Ohio Food Collective and through Franklin County Extension programs, and plots such as Hope Grows and Garden of Hope extend Waterman’s learning mission to the Columbus community.
- **Ohio State Dining Services:** On-site food production for Ohio State Dining Services can showcase how food is planned and produced for institutional meal service and can be creatively driven through partnership between culinary staff and Waterman staff.
- **Student Farm:** The planning, production, and marketing of food grown at the student farm provides students with a unique opportunity to experience the food system from seed to direct sale.
- **Demonstration Projects:** Projects that demonstrate cutting-edge approaches or new research can educate and engage both students and the general public. Demo project topics might include:
 - Plant-breeding for a range of objectives, including health, flavor, or drought-tolerance / climate-resilience
 - Production systems that prioritize climate mitigation and adaptation, such as regenerative agriculture and diversified systems
 - Advanced and evolving technologies such as precision agriculture and digital monitoring for animal health and/or food safety



WATERMAN AERIAL ILLUSTRATION

Waterman Proposed Projects

NEAR TERM (0-5 YEARS)

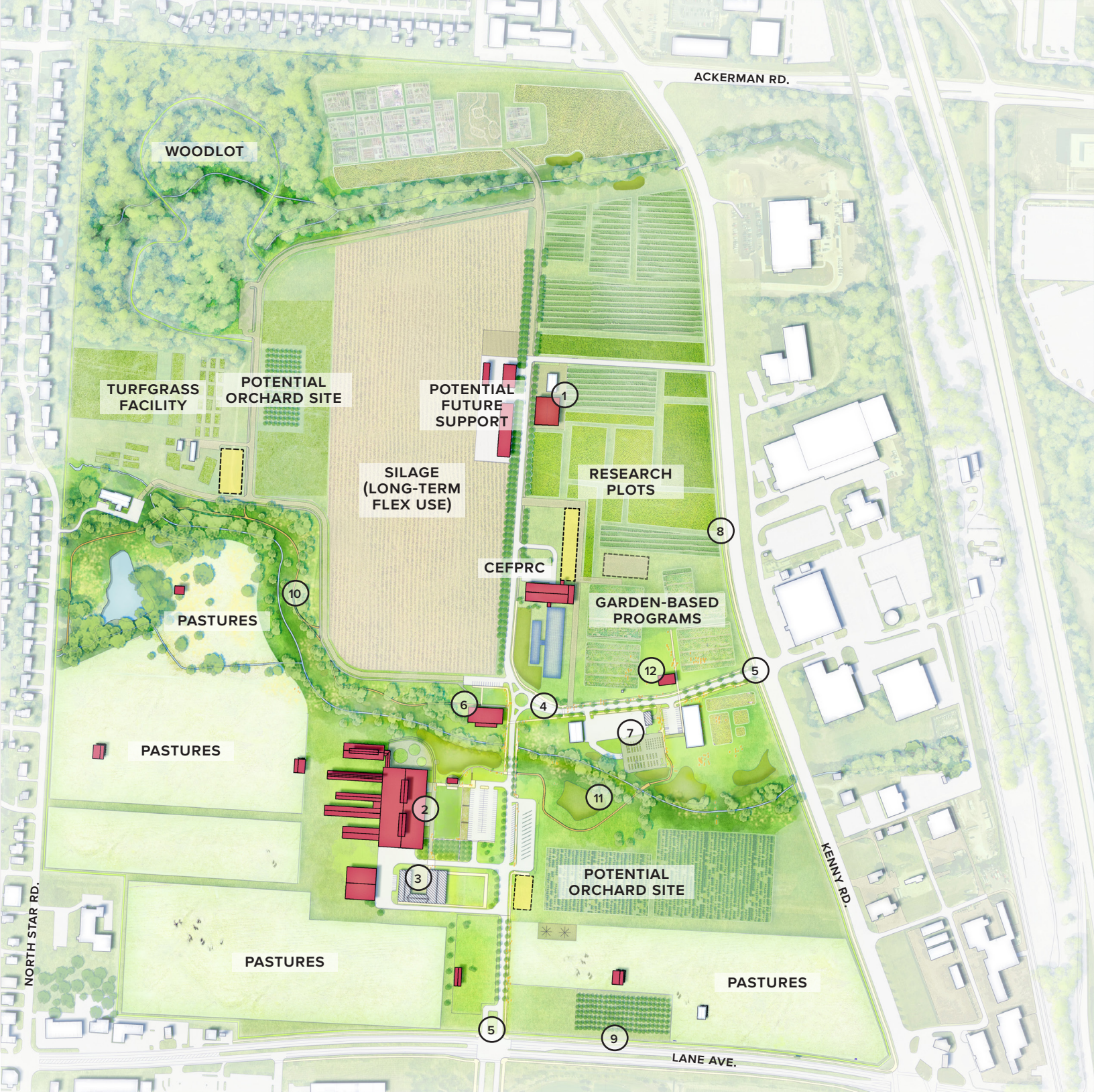
- ① **Chemical Storage and Handling Facility** centrally located within the area planned for research plots
- ② **Multispecies Animal Learning Center** and associated pastures along Lane Avenue, bringing together teaching and extension activities for the equine, swine, poultry, beef, and small ruminant operations adjacent to the Waterman Dairy
- ③ **Waterman Dairy improvements** to transition to new technologies including a robotic milking system, feeding robot, and manure scraping robot
- ④ **Carmack Road and interior path improvements** to promote pedestrian safety through the hub area
- ⑤ **Gateway signage along Lane Avenue and Kenny Road** to clarify entry and arrival and increase awareness of the work taking place at Waterman
- ⑥ **Welcome center facility** serving as a destination for student and public engagement and incorporating demonstration research space, meeting rooms, and visitor amenities
- ⑦ **Enhancements to the area designated for garden-based programs** including reconfiguration of community gardens, associated landscape and fencing improvements, and potential renovation of the White Building for storage
- ⑧ **Multi-use path and fencing along Kenny Road**, in collaboration with the university and the City of Columbus

MID TERM (5-10 YEARS)

- ⑨ **Lane Avenue streetscape** including sidewalks and plantings along the northern side of the street
- ⑩ **Multi-use trail** through the southern stream corridor, connecting North Star Road to the west to Carmack Road to the east, including stream crossings and interpretive signage along the trail
- ⑪ **Enhancements to the southern stream corridor** to research and demonstrate best practices related to the adjacencies of natural resources and agricultural land uses, including stormwater management strategies incorporating wetlands
- ⑫ **Three season pavilion** providing event space, storage, and other support infrastructure for outdoor gatherings associated with the garden-based program area

LONG TERM (MORE THAN 10 YEARS)

The CFAES Master Plan illustrates opportunities to improve vehicular circulation north of the Controlled Environment Food Production Research Complex (CEFPRC) and formalize access to the woodlot, both through vehicular access and trail improvements. Potential future building projects include further expansion of the CEFPRC and buildout of sites in the central hub and adjacent to the turfgrass facility for flex uses to be determined.



WATERMAN ILLUSTRATIVE PLAN

KEY

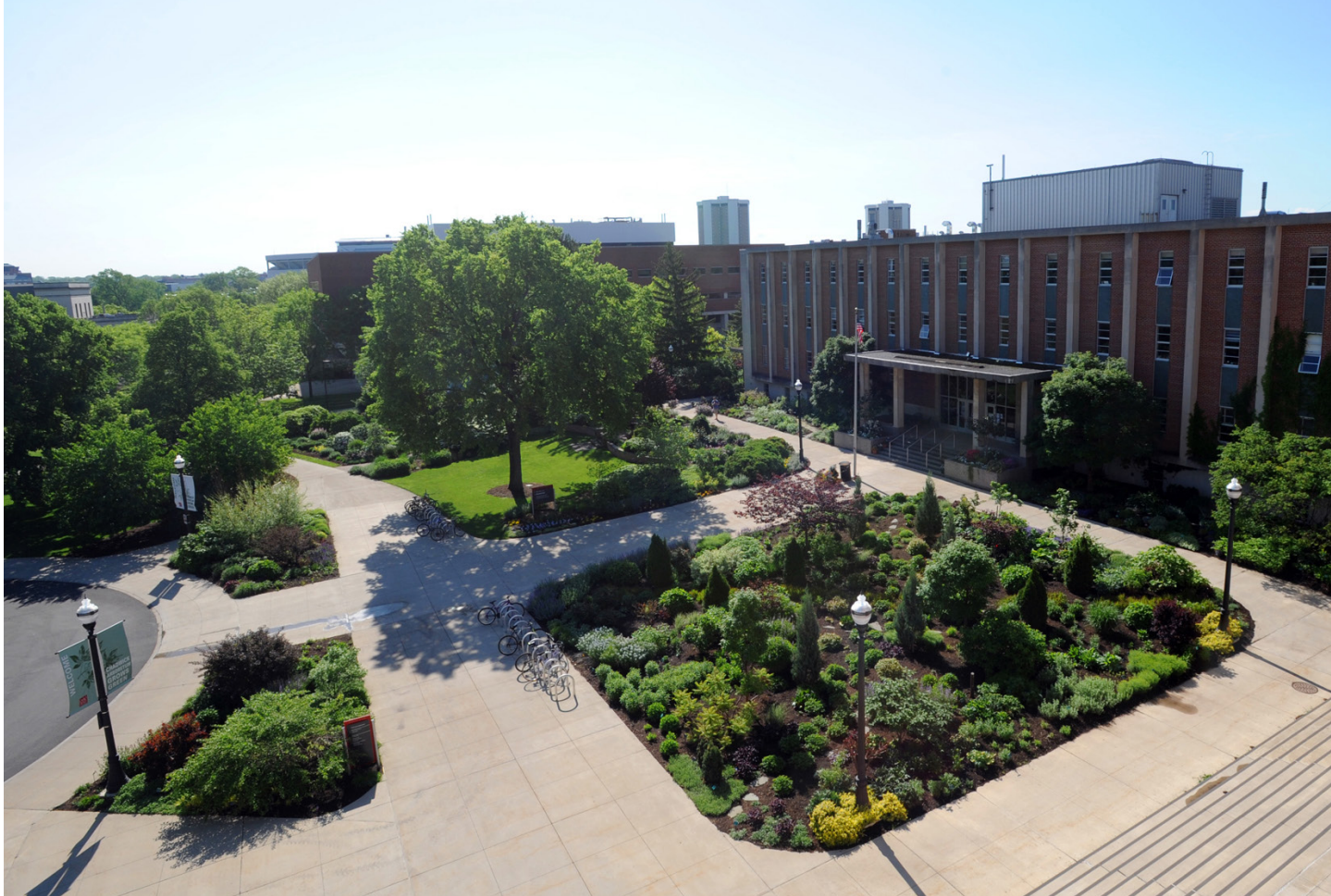
- | | |
|---|---|
|  Existing Building |  Renovation |
|  New Building |  New Greenhouse |
|  Future New Building Opportunity |  Potential Stormwater Management |

Columbus Midwest Campus

The Columbus Midwest campus is often perceived as a peripheral area of the core campus. However, as the university continues to grow and develop, and particularly as it builds out the West Campus Innovation District, the environment surrounding CFAES' facilities is maturing and urbanizing.

VISION STATEMENT

The CFAES Master Plan envisions the Midwest campus renewed and activated to nurture and showcase the college community in concert with broader university development initiatives.



Howlett Hall and Quad

Existing Conditions

In July of 2019, the planning team toured major Midwest campus facilities, including key spaces in each building and the exterior environments. They observed and discussed with facilities managers and CFAES staff how facilities are configured and used, as well as how accurately the university-provided Facilities Condition Index scores capture the environment. These firsthand observations supplemented data analysis and stakeholder experiences shared through focus groups and the online survey.

As compared to the core campus, this area has fewer amenities and more readily available parking. The college's research, teaching, and extension activities are tucked away and many members of the university community may not be exposed to CFAES if they do not visit and explore this area. However, there are distinctive landscapes where research, teaching, and extension activity extend beyond the building, and these landscapes provide experiences that are not replicated elsewhere on campus, including the Chadwick Arboretum, spaces to support cultivar trials, and outdoor growing areas associated with the Ornamental Germplasm Center. This is an asset to build upon.

There are many buildings in need of renovation and/or replacement, both to address deferred maintenance and to modernize the environments. These include Plumb Hall, Kottman Hall, Animal Sciences, and portions of the Agricultural Administration building. The Midwest campus also has limited community hubs, collaboration space, and food service. Focus group discussion and survey comments underscored the community's desire for more and different food options in the area and more places to collaborate and study, particularly for upper-division undergraduate and graduate students who frequently spend their entire day at the Midwest campus. Food service presents an opportunity to demonstrate CFAES' role as leaders in the food systems industry and unique offerings could be another way to establish the Midwest campus as a destination.

The construction of a new Engie CHP Plant south of the Parker Food Science and Technology Building will impact CFAES facilities and create a driver for near-term projects. Several small specialty CFAES structures were displaced by the location of this building, and several have not been replaced. The shading impact of the new Engie CHP Plant will render the Howlett Greenhouse unusable.

Space Needs Assessment

The space needs assessment for the Midwest campus addresses all assignable space. CFAES has more than 450,000 net assignable square feet of space at the Midwest campus. Net assignable square footage (NASF) includes all occupiable spaces with programmatic uses, and it excludes corridors, vertical circulation, mechanical space, and most restrooms. It brings together quantitative data from a variety of sources, including room use, current and projected enrollment and staff, course schedule, research activity, equipment needs, etc. Qualitative information gathered from interviews and tours plays an equally important role in determining the amount and types of space the college should ideally have to support its operations both now and in the future.

CURRENT AND FUTURE POPULATION

The assessment uses Fall 2018 as its baseline. 2,719 undergraduates and 476 graduate students were enrolled to major in Columbus-based programs, for a total student population of 3,195. There were 647 faculty, staff, and student employees assigned to the Midwest campus at that time. The Midwest campus facilities also accommodate partnerships with the United States Department of Agriculture, including four research teams.

The space assessment includes projections of needs for today's population as well as a potential future condition where there are up to 25 percent more students, faculty, and staff. Realizing those growth targets is not a certainty, and growth patterns will be determined by interrelated university-wide considerations around enrollment and hiring. However, exploring the growth scenario helps ensure that the physical framework of the campus is sufficiently flexible to support future change if growth occurs, either in a particular area or broadly across the college.

FINDINGS

The space needs assessment shows a modest shortage of space relative to today's population and programs. Shortages would increase in significance if enrollments and staff populations grew. The overall need reflects the net result of areas of surplus and deficit. Laboratories for both teaching and research, study space, and student-centered space are the types of spaces that are most needed, while offices and assembly and exhibit spaces are areas of surplus. The office space overage reflects the era in which many of the buildings were constructed and the way that contemporary workplace design has adopted more efficient metrics. The surplus here does not suggest that there are vacant offices or that office space can be repurposed into other types of spaces. However, major renovation projects may offer opportunities to increase the efficiency and utilization of office space by adapting building layouts to align with the university's current standards.

Many of the needs can be characterized as collegewide needs and the spaces that should be added to address the shortfalls must be viewed through a one college lens. There are also some academic units with particularly significant quantitative space deficiencies. Food Science and Technology has space needs driven by a shortage of research and office space for their growing faculty, and Entomology and Food Agricultural and Biological Engineering have slight current space needs that grow more significant if their programs grow in the future.

Deferred maintenance to upkeep and modernize building systems and finishes necessitates investments over and above those required to address quantitative needs. While some facilities can be renewed through renovation, and investments of this sort have sustainability benefits, other facilities have reached the end of their useful life, have limited renovation potential due to inflexible layouts, or do not achieve the highest and best use of the site.

Goals

Investments in the built environment should:

- Develop strategies to meet CFAES' needs within the context of the university's long-term plan,
- Prioritize building renovations,
- Strengthen connections between buildings and to the core campus, West Campus Innovation District, and other CFAES facilities,
- Add amenities in strategic locations to create hubs for the college and draw others to the Midwest campus,
- Showcase food, agricultural, and environmental sciences, and
- Ensure CFAES facilities have security strategies consistent with the rest of the Midwest campus.

CATEGORY	EXISTING		RIGHT-SIZED			PROJECTED		
	BUILDING CONDITION	NASF	% NEED/ OVERAGE	Δ FROM EXISTING	NASF	% NEED/ OVERAGE	Δ FROM EXISTING	NASF
Class Laboratories		36,194	-37%	(13,306)	49,500	-71%	(25,786)	61,980
Open Laboratories		12,252	-56%	(6,919)	19,171	-100%	(12,253)	24,505
Research		143,253	-47%	(67,083)	210,336	-65%	(92,567)	235,820
Greenhouses		56,041	-	0	56,041	0%	0	56,041
Offices		156,148	24%	38,206	117,942	14%	21,928	134,220
Library + Study Space		9,397	-98%	(9,170)	18,567	-141%	(13,289)	22,686
Other Departmental Space		21,223	-20%	(4,339)	25,562	-54%	(11,449)	32,672
Assembly + Exhibit Space		14,691	57%	8,342	6,349	57%	8,342	6,349
Student-Centered Space		8,599	-49%	(4,181)	12,780	-90%	(7,737)	16,336
GRAND TOTAL NASF		457,798	-13%	(58,450)	516,248	-29%	(132,811)	590,609

SPACE NEEDS BY CATEGORY

KEY

	Satisfactory
	Minor Rehab
	Rehab
	Major Rehab
	Physically Obsolete
	Not Applicable

	EXISTING		RIGHT-SIZED			PROJECTED		
	BUILDING CONDITION	NASF	% NEED/ OVERAGE	Δ FROM EXISTING	NASF	% NEED/ OVERAGE	Δ FROM EXISTING	NASF
ACEL		13,647	54%	7,361	6,286	35%	4,721	8,926
AEDE		16,127	60%	9,719	6,408	57%	9,194	6,933
Animal Sciences		55,282	-7%	(3,763)	59,045	-20%	(10,864)	66,146
Entomology		5,883	-51%	(3,020)	8,903	-73%	(4,267)	10,150
Food Science + Technology		56,626	-49%	(27,956)	84,582	-62%	(35,224)	91,850
FABE		60,533	-14%	(8,327)	68,860	-53%	(31,914)	92,447
Horticulture + Crop Science		82,782	-1%	(835)	83,617	-11%	(8,697)	91,479
Plant Pathology		27,509	3%	897	26,612	-8%	(2,173)	29,682
SENR		49,360	-6%	(2,964)	52,324	-23%	(11,376)	60,736
College-wide Needs		23,811	-171%	(40,607)	64,418	-220%	(52,386)	76,197
Administration		66,238	17%	11,045	55,193	15%	10,175	56,063
GRAND TOTAL NASF		457,798	-13%	(58,450)	516,248	-29%	(132,811)	590,609

SPACE NEEDS BY UNIT

KEY

	Satisfactory
	Minor Rehab
	Rehab
	Major Rehab
	Physically Obsolete
	Not Applicable

Recommendations

Several big ideas form the foundation of the CFAES Master Plan recommendations for the Midwest campus. First, building massing, axial relationships, and path alignments reinforce the existing grid. A new CFAES Interdepartmental Building along Woody Hayes Drive responds to the east-west elements of the grid, while a proposed connector building between Howlett and Kottman creates a new architectural feature with an axial relationship to the Agricultural Administration Building.

The Chadwick Arboretum and other programmed landscapes showcase the college's horticultural strength, and the plan suggests that those uses should be enhanced so that the Midwest campus is defined by a central open space unique to the college. Campus landscapes should continue to feature ornamental plants, horticulture, and Chadwick Arboretum programs. The siting of new buildings should reinforce the importance of the central quad, while landscape interventions should reduce the perceived scale of the quad by defining zones of different character and introducing plantings to create outdoor rooms. The landscape should also incorporate universal accessibility to all the buildings, well-defined entrances, and several different landscape experiences from entry courtyards, to horticultural plantings, to an open lawn with large existing trees.

The design reinforces a compact and connected loop between CFAES buildings by siting new facilities so they connect directly to existing assets. While there are many potential development sites, the master plan capitalizes on sites that extend this loop. This compact configuration increases flexibility to respond to shifts in space needs over time. Interconnected buildings allow departments to grow into adjacent buildings while maintaining direct access to their original location. This approach allows investments in the Howlett-Kottman connector and the Howlett addition to meet the identified space needs of many of the units with clusters of space in adjacent buildings.

Community hubs activate the loop, increase the amenities available to the Midwest campus community, and create gathering and collaboration spaces accessible to everyone in the college. These kinds of places increase the chance to build interdisciplinary ties as members of the whole community gather and cross paths in common areas.

Through multiple renovations and the strategic pursuit of new construction to allow for the ultimate demolition of Plumb Hall, the CFAES Master Plan significantly improves building quality and condition. New and renovated facilities should feature contemporary research, teaching, and extension environments as well as security and sustainability features on par with or exceeding the features adopted in other areas of campus.

The plan addresses the impacts of the new Engie CHP Plant in three phases:

- Repurpose the additional capacity of the Controlled Environments Food Production Research Complex (CEFPRC) research greenhouse to accommodate relocation of some campus greenhouse use to enable the Engie CHP Plant.
- Accommodate continued greenhouse uses that must be located at the Midwest campus by constructing a new greenhouse adjacent to Kottman Greenhouse and expanding headhouse functionality through an addition to Kottman Hall.
- Construct small greenhouse structures that were eliminated to enable construction of the Engie CHP Plant.



Transportation, Parking, and Connectivity

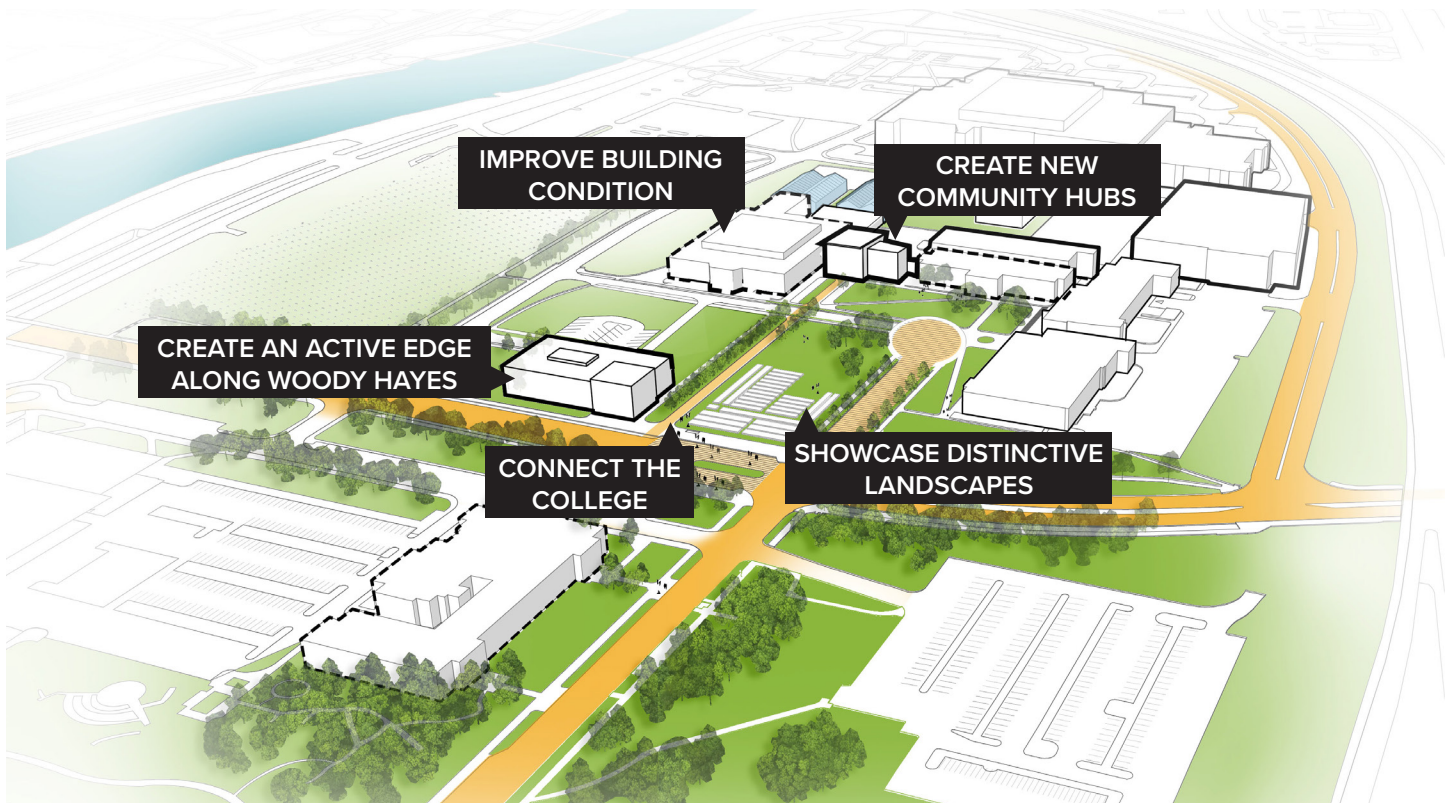
The Midwest campus should be compact, connected, and walkable. The master plan envisions the central quad as a primarily pedestrian environment. To achieve this, parking and service should be accommodated around the exterior loop. The plan maintains the number of surface parking spaces available in this area today. When new construction requires that parking spaces be removed, they must be replaced with surface parking spaces elsewhere in this area.

The plan also establishes a north-south axis from the FAES Library in the Agricultural Administration Building to the new hub in the addition connecting Howlett to Kottman. This path passes through the connector building and extends further south to the College of Veterinary Medicine and towards the existing and planned future pedestrian connections across the river to the core campus.

Improving pedestrian safety along Woody Hayes Drive is another university connectivity objective supported by the CFAES Master Plan. The plan suggests relocating the bus stop from its mid-block location to the intersection at Fyffe Road, adding a new building close to the street to activate and define the street edge, and enhancing the streetscape with new paving and planting. CFAES would further support any university initiatives to reduce the width of the street, add bicycle infrastructure, and slow traffic. A complete street environment on Woody Hayes Drive links the Midwest campus to Waterman, the West Campus Innovation District, and the core campus.

Biosecurity Considerations

The Midwest campus has academic and research links to Waterman and increased use of the CEFPRC will increase potential for pest and disease movements between the Midwest campus greenhouses and Waterman. Incorporating structural and operational biosecurity will reduce disease and pest risk to research.



MIDWEST CAMPUS AERIAL ILLUSTRATION

Midwest Campus Proposed Projects

Each individual investment proposed as part of the master plan is considered holistically and contributes to the larger vision for campus.

NEAR TERM (0-5 YEARS)

- ① **Kottman addition** of two stories plus a greenhouse, which together replace those functional aspects of the Howlett Greenhouses that must be maintained at the Midwest campus while also expanding the college's laboratory and office capacity
- ② **New Interdepartmental Building on Woody Hayes Drive** which meets identified need for laboratories and classrooms, replaces space in Plumb Hall so it can be removed, and adds activity in a highly visible location
- ③ **Targeted renovations and moves in the Animal Sciences Building** to vacate space used by Animal Sciences as well as general purpose space remaining in Plumb Hall

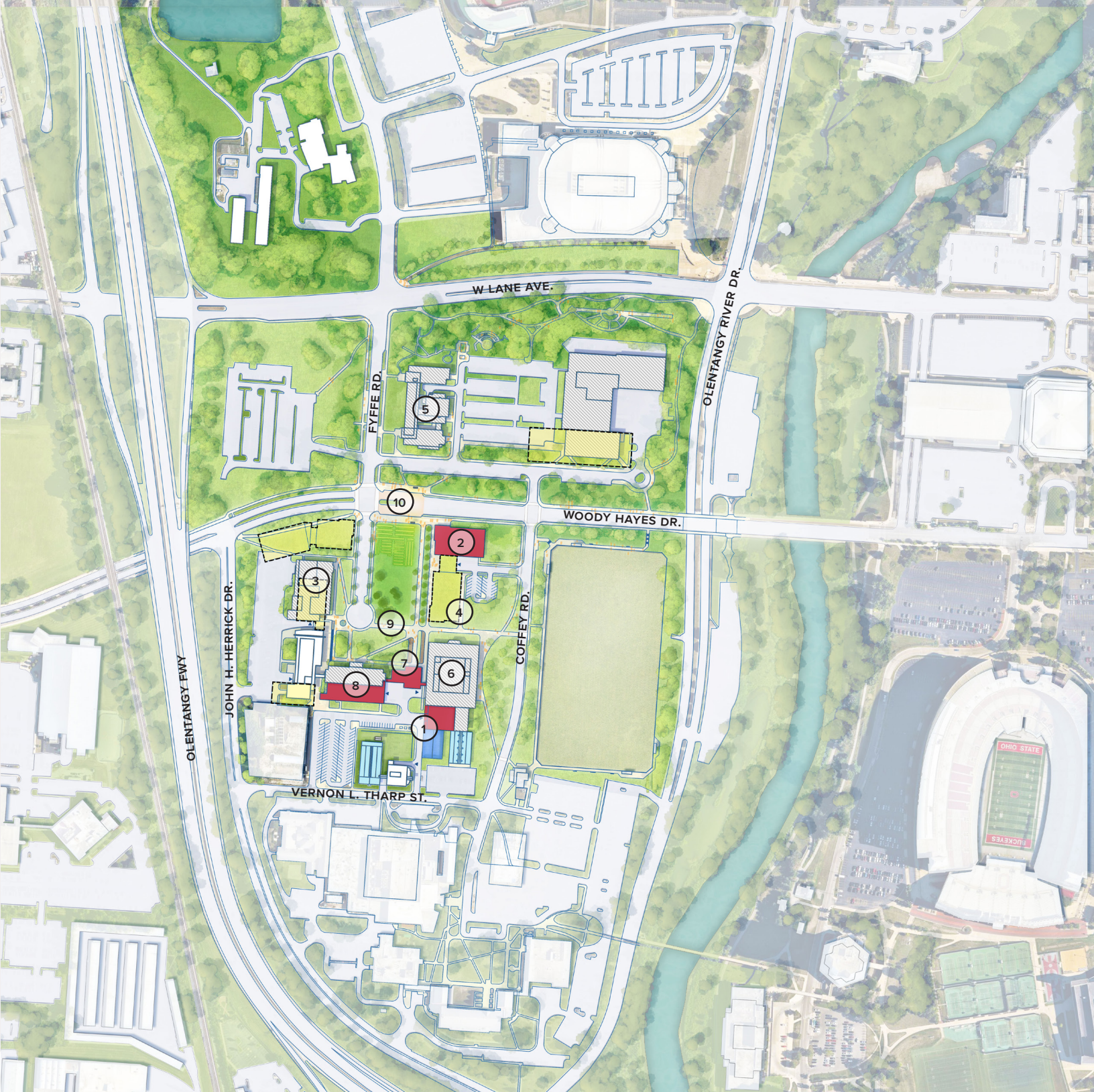
MID TERM (5-10 YEARS)

- ④ **Plumb Hall demolition**
- ⑤ **Additional renovations in the Agricultural Administration Building** to address the ground floor, western wing of the second floor, and the third floor, which have not been recently upgraded
- ⑥ **Kottman Hall renovation** to comprehensively address deferred maintenance, add collaboration and social spaces, and provide more widespread access to natural light

- ⑦ **Howlett-Kottman connector addition** to enhance connectivity between buildings, create a hub of new collaboration and gathering space, and conceal service and loading
- ⑧ **Howlett Hall addition and renovation** to address deferred maintenance issues and expand laboratory capacity
- ⑨ **Quad landscape enhancements** to create more active community spaces and improve pedestrian safety while showcasing unique programs like the cultivar trials
- ⑩ **Woody Hayes Drive improvements** including enhanced sidewalks and plantings that connect to the Chadwick Arboretum





LONG TERM (MORE THAN 10 YEARS)

The Midwest campus has capacity for new buildings and additions that would increase the capacity of this area beyond what is indicated by the current space needs assessment. These are long-term opportunities for needs that may not be anticipated today. They include new building sites such as the site of the demolished Plumb Hall, a replacement of the Animal Sciences Building, and/or a second new CFAES Interdepartmental Building on Woody Hayes Drive. There are also opportunities for potential building additions to Parker and the Agricultural Engineering Building and the potential for additional landscape enhancements to the parking lot north of Woody Hayes Drive.



MIDWEST CAMPUS ILLUSTRATIVE PLAN

KEY

-  Existing Building
-  New Building
-  Future New Building Opportunity
-  Renovation



Other Columbus Resources

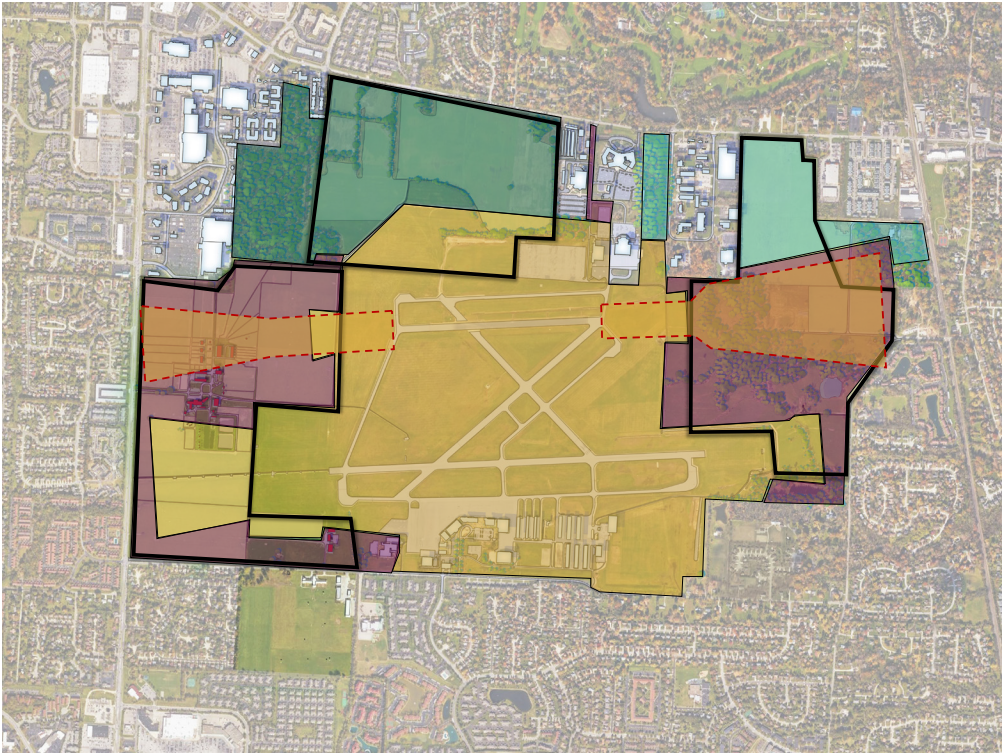
Wilma H. Schiermeier Olentangy River Wetland Research Park

This large-scale aquatic research facility provides impactful and hands-on teaching, research, and outreach opportunities. While the site and the operation are strong assets, it has limited capacity to expand beyond the work being conducted today. Expanding the building and finding strategies for additional parking capacity would be opportunities to optimize this asset for the future. The site also experiences flood events that impact operations and has access challenges.

Don Scott Airport

Don Scott Airport is a large landholding north of the Midwest campus that is managed by multiple Ohio State-affiliated entities. The College of Engineering occupies most of the land area with its airport. CFAES uses the site to support its animal operations, and all of these facilities are quite old and in need of repairs or upgrades. However, the College of Engineering's long-term plans to expand the runway will require CFAES to vacate its use of the site over time, as CFAES facilities are situated within the future no-fly zone.

The small ruminants in this area have already been transferred to the Wooster campus. When the Multispecies Animal Learning Center (MALC) opens at Waterman, the college plans for equine operations to move completely to Waterman. While the MALC provides new space for the beef and swine operations, further planning and funding are required to fully relocate beef and swine operations off the Don Scott property. Vacating the swine operation will require renovation of the Western Agricultural Research Station swine facility and vacating the Don Scott beef operation will require an expanded MALC facility space (approximately 5,600 square feet) for beef cattle that require proximity to campus for research and teaching. Larger cattle herds and operations will be downsized to three locations – Wooster, Jackson, and Eastern. There is an ongoing need for pasture and forage production acreage to support CFAES animal operations, which may be a potential long-term land use at Don Scott Airport outside the FAA boundary.



EXISTING RESTRICTIONS

- KEY**
- Extension of RPZ Zone associated with runway expansion
 - Current CFAES land use for facilities / grazing / hay production
 - Aeronautical Uses Only
 - FAA Boundary
 - OSU land outside FAA boundary



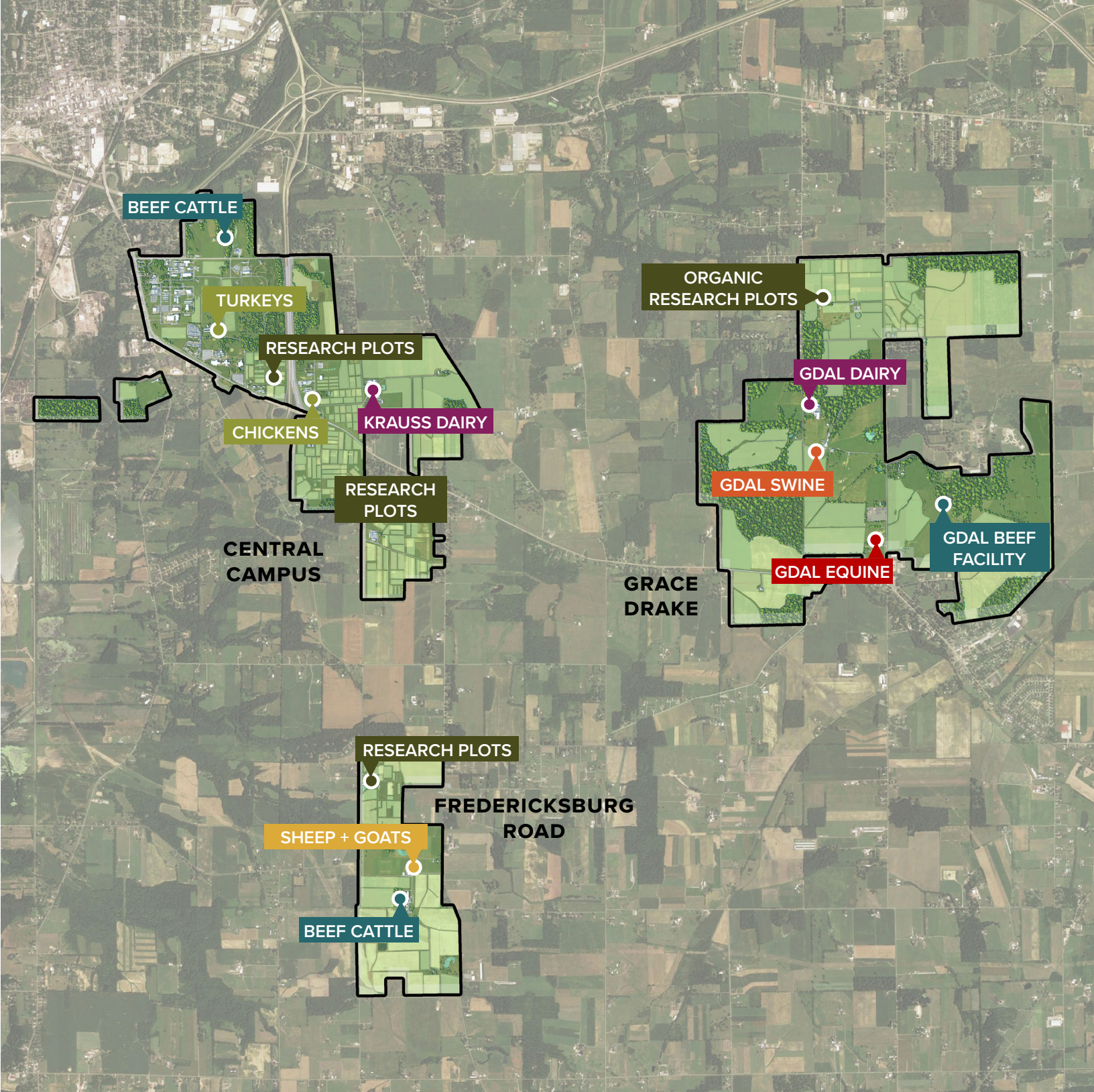
CFAES FACILITIES AT DON SCOTT AIRPORT

CFAES **Wooster Campus**

The CFAES Wooster campus consists of three primary landholdings: central campus, Grace Drake Agricultural Laboratory, and Fredericksburg Road. Together with several other further outlying and smaller properties that have been added incrementally over time, the college controls more than 4,000 acres. The Wooster campus unites two formerly separate institutions: Ohio Agricultural Research and Development Center (OARDC) and the Agricultural Technical Institute (ATI).

VISION STATEMENT

In the one college spirit, the master plan envisions a vibrant, singular heart of campus supported by surrounding landholdings with clearly defined and streamlined programmatic uses.



CFAES facilities in Wooster, Ohio.

KEY

- Research Plots
- Dairy
- Beef Cattle
- Poultry

- Sheep + Goats
- Swine
- Equine

Existing Conditions

The planning team toured the Wooster campus in September of 2019. Team members toured each building, many of the animal facilities, and the outlying college properties in Wayne County.

At the county-wide scale, CFAES controls several landholdings in Wayne County that consist of large-scale properties used for teaching, research, and outreach for the various college programs. The animal facilities at the Wooster campus closely resemble commercial operations with a diverse representation of species. On-site crops support the animal operations with a highly sophisticated feed mill, which feeds and supports college animal operations across the state. There are some challenges with the properties, however. While land resources are abundant, resources to maintain and upkeep facilities are not. Each property has numerous barns and other agricultural support facilities, many of which are aging. There are also several duplicated facilities, including two dairies and several different beef cattle herds. This raises questions about consolidation and potential sunsetting or divestment to maximize resource use, while also increasing operational efficiency. Access to outlying properties is also a challenge. It can be difficult for some students and faculty to reach the facilities, especially as more students come to the Wooster campus without their own personal vehicles or even a driver's license.

Outlying landholdings include:

- **Grace Drake Agricultural Laboratory:** This site includes a dairy, swine facility, and new beef working facilities with the balance devoted to supporting these operations and pastures. The dairy facility is currently operated as a complete dairy from birth through production with an emphasis on operations activities and teaching.
- **Fredericksburg Road:** This location includes a sheep feeding/finishing facility and an underutilized beef feeding building. The balance of the acreage are highly developed pastures and some smaller farming plots.
- **Grosjean Farm and West Grosjean:** These two smaller properties, located just west of the central campus, are proximate but not adjacent to each other and the central campus. There is no active research on these sites. Grosjean Farm is used for hay production and West Grosjean is a woodlot with limited utility for CFAES program activities due to flooding issues.
- **Mellinger Farm:** This approximately 300-acre property was gifted to the college. Nearly all the site is leased by other entities. It is subject to agricultural easements.
- **Hawk's Nest Golf Course:** This public golf course, located 11 miles north of the central campus, was donated to the university in 2007. While access to a public golf course is a distinctive opportunity for turfgrass programs, there are challenges to using the site for teaching, research, and extension activities because of access issues, exacerbated by traffic conditions, and declining facilities condition.

The central campus has the structure and connectivity of two separate entities because of its historical development pattern. With a vision for one college and one campus, the campus plan needs to continue reorientation and connection. The Wooster campus has a need for central campus amenities that would bring people together. While there is a strong sense of community among the people who work and study there, the campus and buildings do not reflect that spirit. There is a need both for centralized dining/café (the new Wooster Science Building will include a café which should begin to address this need) and for meeting and collaboration spaces for both students and faculty. In addition, there is an overall need for pedestrian and bike connectivity across campus. Many central campus facilities are outdated and aging, which further contributes to inefficient use of space.



Aerial of central campus



Space Needs Assessment

The space needs assessment for the Wooster campus addresses all non-residential, assignable space. CFAES has more than 650,000 net assignable square feet of space in Wooster. Net assignable square footage (NASF) includes all occupiable spaces with programmatic uses, and it excludes corridors, vertical circulation, mechanical space, and most restrooms. It brings together quantitative data from a variety of sources, including room use, current and projected enrollment and staff, course schedule, research activity, equipment needs, etc. Qualitative information gathered from interviews and tours plays an equally important role in determining the amount and types of space that the college should ideally have to support its operations in Wooster both now and in the future.

CURRENT AND FUTURE POPULATION

The assessment uses Fall 2018 as its baseline. The Wooster campus had 660 undergraduate and 94 graduate students for a total student population of 754. There were 354 faculty, staff, and student employees assigned to the Wooster campus at that time. The campus also facilitates partnerships with the United States Department of Agriculture, including 11 research teams.

The space assessment includes projections of needs for today's population as well as a potential future condition where there are up to 35 percent more students and 20 percent more faculty and staff. Realizing these growth targets is not a certainty and creating a more desirable physical campus environment will be critical to realizing potential growth. However, exploring the growth scenario helps ensure that the physical framework of the campus is sufficiently flexible to support future change that may not be entirely predictable.

FINDINGS

The space assessment shows that there is a surplus of space both today and accounting for potential future growth. This is particularly true for office, research, classroom, assembly and exhibit, and recreation space. Some of these surpluses can be attributed to the era in which the buildings were constructed, as contemporary office and laboratory environments achieve greater efficiency. Also some surpluses are the result of some support unit consolidation. The incremental growth of campus, aggregating over time, has created a distributed model that fuels inefficiencies as well. Some academic and operational office consolidations have taken place to address micro-goals without a greater strategy for adjusting and backfilling space. Despite the overall surplus, there are needs for more space for teaching and open laboratories, collaboration, and student-centered space. These spaces are some of the most impactful in shaping the intellectual community and addressing these shortfalls is critical.













Ultimately, both quantity and quality of space contributes to the need for investments and many Wooster campus facilities are in poor condition. In some cases, building renewal can address these deficiencies, while in other instances, replacement is warranted, either because the facility has reached the end of its useful life or because the function would be better housed in a new location. Due to these considerations, the master plan proposes new construction; however, keeping in mind the outcomes of the space assessment, investments in new facilities are paired with proposals to sunset, repurpose, or divest of poor condition and low utilization facilities.

Even as the college moves towards higher quality and better utilized spaces through the execution of the master plan, the Wooster campus will continue to present opportunities for more readily available space. As CFAES considers expansion and partnerships and their associated space needs through a one college lens, considering Wooster as a preferred location would take advantage of the resource this campus offers.

Goals

Through investments in new construction, renovation, circulation, landscapes, and infrastructure, the Wooster campus will address:












- Consolidation: concentrate activity to support community
- Connectivity + Mobility: bridge the former campus divisions and increase access
- Desirability: increase sense of place and belonging
- Security + Safety: lead industry standards of security practices, including biosecurity
- Sustainability: increase efficiency of buildings, operations, and mobility

CATEGORY	EXISTING		% NEED/ OVERAGE	RIGHT-SIZED		% NEED/ OVERAGE	PROJECTED	
	BUILDING CONDITION	NASF		Δ FROM EXISTING	NASF		Δ FROM EXISTING	NASF
Classrooms		20,530	52%	10,637	9,893	33%	6,864	13,666
Class Laboratories		36,917	-7%	(2,563)	39,480	-31%	(11,323)	48,240
Open Laboratories		20,071	0%	0	20,071	-37%	(7,331)	27,402
Research		249,836	41%	102,936	146,900	32%	79,641	170,195
Greenhouses		96,718	0%	0	96,718	0%	0	96,718
Offices		135,321	46%	62,455	72,866	39%	52,885	82,436
Library + Study Space		13,132	-6%	(845)	13,977	-23%	(3,039)	16,171
Other Departmental Space		20,538	41%	8,473	12,065	19%	3,962	16,576
Assembly + Exhibit Space		18,743	28%	5,321	13,422	28%	5,321	13,422
Physical Plant		39,962	43%	17,224	22,738	34%	13,705	26,257
Recreation		17,534	53%	9,258	8,276	35%	6,220	11,314
Student-Centered Space		18,202	-16%	(2,893)	21,095	-59%	(10,789)	28,991
GRAND TOTAL NASF		687,504	31%	210,003	477,501	20%	136,116	551,388

SPACE NEEDS BY CATEGORY

KEY

-  Satisfactory
-  Minor Rehab
-  Rehab
-  Major Rehab
-  Physically Obsolete
-  Not Applicable

	EXISTING		% NEED/ OVERAGE	RIGHT-SIZED		% NEED/ OVERAGE	PROJECTED	
	BUILDING CONDITION	NASF		Δ FROM EXISTING	NASF		Δ FROM EXISTING	NASF
ATI		126,097	15%	19,235	106,862	-2%	(2,406)	128,503
Animal Sciences		51,815	76%	39,495	12,320	74%	38,176	13,639
Entomology		47,523	57%	27,322	20,201	52%	24,931	22,592
Food Science + Technology		0	-	0	0	-	(5,470)	5,470
FABE		35,653	49%	17,338	18,315	37%	13,131	22,522
Horticulture + Crop Science		93,353	21%	19,512	73,841	15%	14,274	79,079
Plant Pathology		36,811	23%	8,432	28,379	20%	7,198	29,613
SENR		20,677	56%	11,619	9,058	54%	11,160	9,517
Food Animal Health Research Program		19,711	27%	5,272	14,439	7%	1,418	18,293
College-wide Needs		9,332	-213%	(19,898)	29,230	-357%	(33,304)	42,636
Administration		226,002	31%	71,039	154,963	27%	60,144	165,858
GRAND TOTAL NASF		666,974	30%	199,366	467,608	19%	129,252	537,722

SPACE NEEDS BY UNIT

KEY

-  Satisfactory
-  Minor Rehab
-  Rehab
-  Major Rehab
-  Physically Obsolete
-  Not Applicable

Recommendations

County Scale: Land Use

At the county scale, the primary, mission-driven programs should be conducted at the central campus, Grace Drake Agricultural Laboratory (GDAL), and Fredericksburg Road site. Other outlying landholdings should be deployed for supporting any specialized uses as appropriate. Consistent with this goal of consolidation, there are several near-term changes that are already in the works, as well as a potential public-private-partnership for a Certified Angus Beef Learning Center at GDAL. The second is the consolidation of both the GDAL Dairy teaching production herd and the Krauss Dairy research herd onto the Krauss Dairy site for milk production activities. The GDAL dairy facility would be devoted to dairy young stock. These types of consolidation strategies can be applied to other landholdings in the future. A new swine facility could transition from smaller, modular teaching facilities to a production scale facility and create opportunities to consolidate operations from the Western Station and Don Scott Airport. Considerations for where this might go include neighboring swine facilities around GDAL, as well as a higher flooding potential at a large portion of the GDAL properties, neither of which is ideal for future swine facilities. Second, there is a need to relocate the existing turkey facility from the central Wooster campus to address the biosecurity hazard of having a poultry facility so close to residences and the core of campus. It has been suggested that the turkey facility could also be combined with the chicken facility and both could find a new location further away from the central campus. As there are fewer biosecurity concerns between poultry and dairies, one option would be locating closer to Krauss Dairy or on some of the other nearby properties to the dairy. In the future, the college should continue evaluating the usefulness of each of the outlying parcels and determine if any divestments, acquisitions, or other land agreements would be a benefit to the mission and operations of the Wooster campus.

Campus Scale: Heart of Campus

In an early open forum session in Wooster, the planning team posed the question, “Where is the heart of campus?” Nearly everyone agreed that there is no heart of campus due to the dispersed development pattern and the legacy of two distinct institutions. Having a clearly identifiable heart of campus is critical to aligning the physical environment with a one college vision and improving the desirability of the Wooster location, which

can support growth that promotes long-term sustainability. The heart of campus should be easily identifiable and central to major campus facilities. The master plan proposes that the college continue its plans to cluster new Wooster campus investments around the Fisher Auditorium Building and the Wooster Science Building to create the type of critical mass and vibrancy that define a campus heart. This location capitalizes on the best condition assets and places academic resources and student life amenities in an easily accessible location. It would include a diverse mix of uses – research, teaching, housing, dining, retail, library and study, collaboration, social, recreation, and campus and community events – that would ensure it becomes a defining component of the student experience.

Access, Parking, and Connectivity

The scale of the Wooster campus operation will require a multimodal approach to access to ensure that all students can succeed in the program of their choosing, take advantage of internships and other opportunities, and minimize carbon emissions related to vehicle travel to the extent possible in a region with limited public transportation. To address the needs of student, faculty, and staff populations who may not have a personal vehicle, the university could expand the Lyft (or similar) partnership it has established in Columbus. This partnership establishes reduced rates within a ten-mile radius. For each ride, the university pays a base rate and the student pays the difference. Due to the volumes and the irregular commute timing patterns, the ride sharing mode provides significantly greater and more reliable access than a shuttle or other form of shared transportation.

The scale of the central campus extends beyond comfortable walking distance, but investments in cycling infrastructure will increase connectivity to the edges of the central campus property and reduce dependence on vehicle travel. By designing these facilities as multi-use trails, they also provide recreational opportunities for students, faculty, staff, and members of the Wooster community.

The master plan consolidates more key facilities in one area of the central campus, making it easier for people to park once and walk to more than one destination. Parking should be located outside of the developing new heart of campus area to reinforce the pedestrian, campus-oriented feel.

Other Needs

In Wooster, there will be ongoing focus on renovating and modernizing research labs, as well as field lab and research farm facilities with the goal of enhancing efficiency, flexibility, and capacity to accommodate future research investments from government, private, and corporate partners. Investments are needed to improve soil drainage and irrigation capacity to support intensive plot-based research.

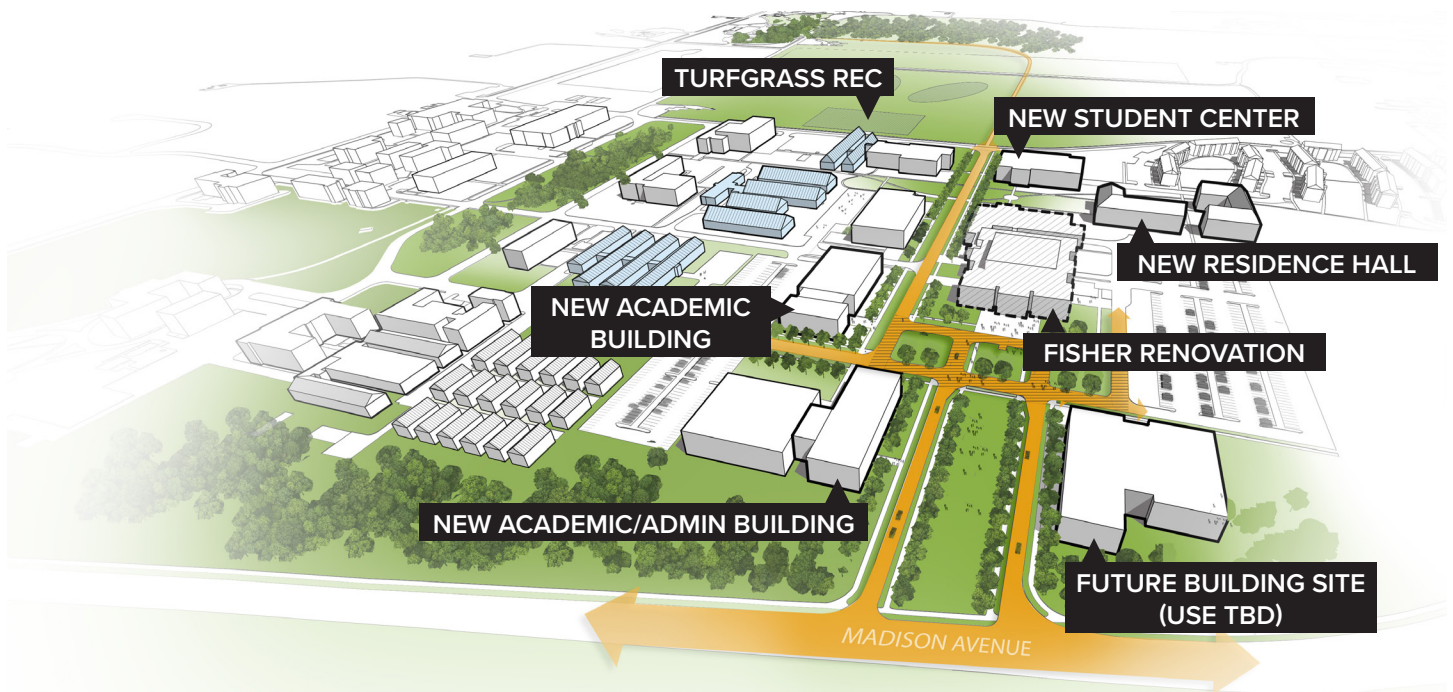
Biosecurity Considerations

The Wooster campus has unique biosecurity considerations due to the expansive nature of the total footprint, diverse enterprises, and operational interconnectivity. However, the separation and distance between these components allow for flexible mitigation strategies.

The poultry location has several biosecurity limitations due to lack of access control, close proximity to housing, and distance farm equipment needs to travel. The GDAL Swine and GDAL

Dairy locations have topographical and manure management issues. Biosecurity of these operations would be improved by consolidating the poultry and dairy facilities and relocating the poultry and swine facilities to sites with reduced environmental impacts and improved access control. Consolidating species will reduce equipment movements across the Wooster campus and, therefore, reduce the potential for disease transmission between sites while allowing access control across all facilities to improve bioexclusion and biocontainment capabilities for business, operational, and academic continuity.

The Wooster campus feed mill and animal operations connect with other CFAES campuses across the state. Operational biosecurity such as vehicle disinfection, access control, and consideration of agricultural operation types served in a specific day would reduce the risk to research and allow for business continuity.



WOOSTER CAMPUS AERIAL ILLUSTRATION

Wooster Campus Proposed Projects

Each individual investment proposed as part of the master plan is considered holistically and contributes to the larger vision for campus.

NEAR TERM (0-5 YEARS)

- ① **Renovation of the Fisher Auditorium Building** to refresh event space and provide a mix of uses that may include new classrooms, library and study, dining, and collaboration space to serve the entire Wooster community
- ② **Traditional residence hall** to house approximately 260 students, freeing up capacity in the existing townhouses for graduate student housing
- ③ **Bike trails** to connect to various locations on campus and in the Wooster area, alongside the creation of a bike repair hub near Secrest Arboretum
- ④ **Pedestrian path enhancements** in the core of campus to promote safety, connectivity, and a vibrant heart of campus
- ⑤ **Turfgrass teaching amenities** (e.g. golf holes and/or soccer pitch, etc.) to also serve as a recreational resource for the college community

MID TERM (5-10 YEARS)

- ⑥ **New heart of the campus** to include dining, recreation, social, and other amenity space serving the entire campus community
- ⑦ **New interdepartmental academic building** to replace poor condition and outdated facilities with modern teaching, research, and extension environments
- ⑧ **Greenhouse replacement** for poor condition greenhouses west of Gerlaugh Road by expanding the Williams Greenhouse complex with new greenhouses to be served by an expanded headhouse and infrastructure
 - **Demolition of poor condition and underutilized buildings, ag facilities, and greenhouses**, including Thorne, Japanese Beetle, Halterman, Skou, and other facilities to be identified in the future







LONG TERM (MORE THAN 10 YEARS)

The master plan represents a potential full buildout of the campus and identifies long-term opportunities for further animal facility consolidation and modernization (swine, poultry), building renovations, additional turfgrass teaching amenities (e.g. golf holes and/or soccer pitch, etc.) to also serve as a recreational resource for the college community, and buildout of future flex sites.



WOOSTER CAMPUS ILLUSTRATIVE PLAN

KEY

- | | |
|---|---|
|  Existing Building |  Renovation |
|  New Building |  Existing Greenhouse |
|  Future New Building Opportunity |  Proposed Greenhouse |

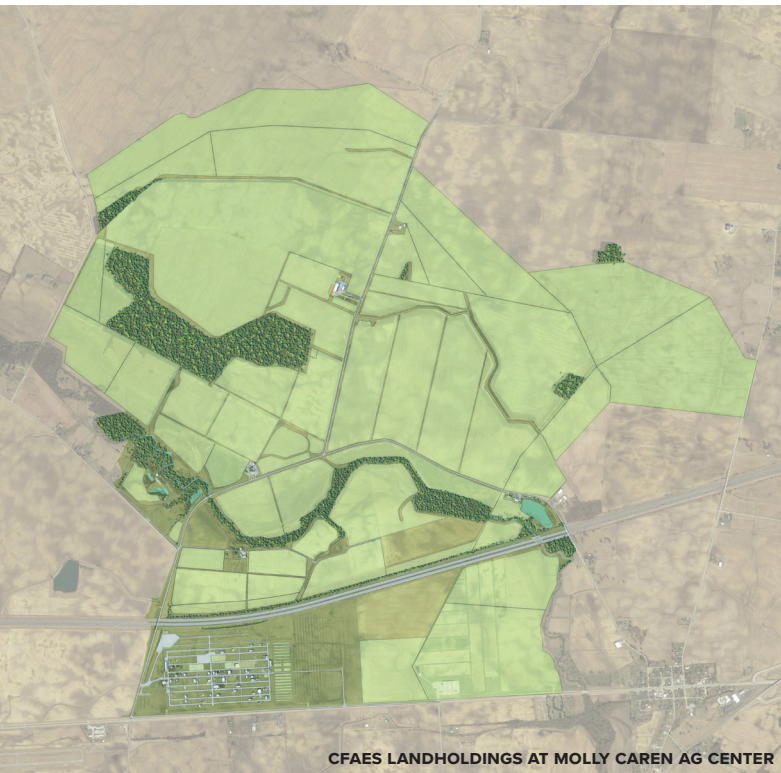
CFAES Statewide Campus

The statewide campus encompasses county extension offices, research stations, and field labs. There are important facilities needs at many of these locations that, like the rest of the college's sites, often stem from aging facilities and deferred maintenance. The facilities and the context surrounding them varies widely, and they represent a mix of leased and owned sites that influence the way that the college can invest in these environments. In many cases, they have smaller building footprints and are addressed through facility improvement and capital planning processes.

Several sites with notable facilities planning considerations are highlighted in the following pages.



CFAES facilities locations across Ohio.



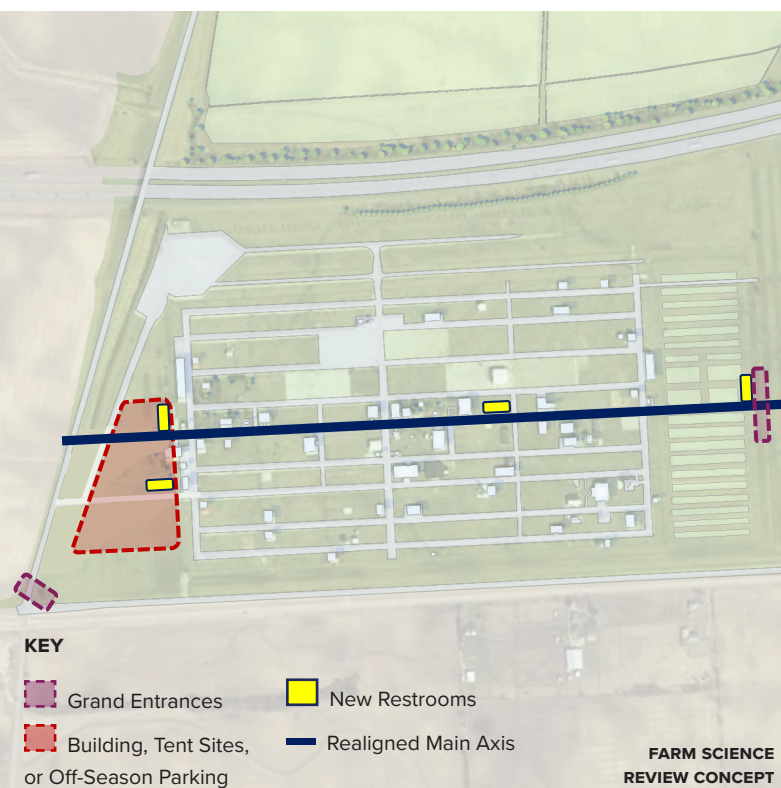
Molly Caren Agricultural Center

The planning team visited Molly Caren Agricultural Center for a tour in October of 2019. There are three major land use components at Molly Caren Ag Center today: field-scale production and research operations, Farm Science Review (FSR) grounds, and The Gwynne Conservation Area, including the Natural Resources Interpretive Center. Molly Caren Ag Center has a unique focus on outreach and has an interrelated business model to support the other CFAES farm operations and to support the Farm Science Review itself.

The challenges of the existing Farm Science Review (FSR) grounds are several. Vendors have been asking for a separated, quiet meeting space for their staff to use during the actual Farm Science Review. Second, the FSR offices are undersized and out of date for the needs of the staff. Third, the outdated FSR restrooms are served by a pump truck and are undersized for the needs of the yearly event, so that pump trucks disrupt the FSR participants with daily visits to each restroom during the event. Lastly, the vendors often come to the staff asking if they could use the grounds to host year-round events associated with FSR, but they would also need indoor meeting space/a small conference center, as well as permanent bathroom facilities. The college is currently weighing the strategic plan for Molly Caren Ag Center and whether a year-round event grounds and meeting center would be a next step.

The concept for Molly Caren Ag Center addresses all the current issues at the FSR grounds: the need for a conference center, office improvements, restroom improvements, and an improved entry experience. It improves circulation through the major east-west axis and entry point and arranges future build sites around this more-direct entrance experience. The concept concentrates density around the west entrance, proposes improvements to the restroom facilities throughout the site, and improves the eastern entrance gateway, as well.

In addition to the proposed changes to the FSR grounds, Molly Caren Ag Center has great potential utility because of its relative proximity to Columbus. The large land area can be deployed to complement and support college operations, particularly at Waterman as there are increasing pressures on land use there over time. This could include manure composting, forage production, and/or research plots.



Stone Laboratory

Stone Laboratory is The Ohio State University's island field lab, an incredible environment supporting freshwater biology research, science education, and outreach that has operated for more than 100 years. Students and professional researchers come from The Ohio State University as well as other institutions and K-12 school systems, and because of its remote location, housing is a critical component of the facilities offerings. Most of its operations are highly seasonal, running from April through October, though some research continues throughout the year. Through a parallel master planning process, the college has outlined a series of potential investments to expand the research capacity and footprint and address critical facilities issues.



South Centers

A feasibility study for expansion of the Endeavor Center Business Incubator (EC) was completed by Greenwood Consulting Group Inc (GCGI) in 2019. After completing the feasibility analysis, GCGI concluded that a physical footprint expansion of the mixed-use incubator portion of the EC was not warranted based upon the data and stakeholder input collected and summarized. An overall recommendation for the future was to undertake one or more of the opportunities focused on programs/services that would not require additional EC facility space. See the 2019 Feasibility Study for Expansion of the Endeavor Center Business Incubator in Piketon, Ohio for additional information.

Near-term facility improvements at South Centers will focus on renovations to improve existing office, lab, and greenhouse space in the original research and Extension building, expanded/enhanced teaching-meeting-event space to support Extension programs, academic programs, and community engagement, and improved space for a dedicated recording studio to support Extension, academic, and community educational programs.





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