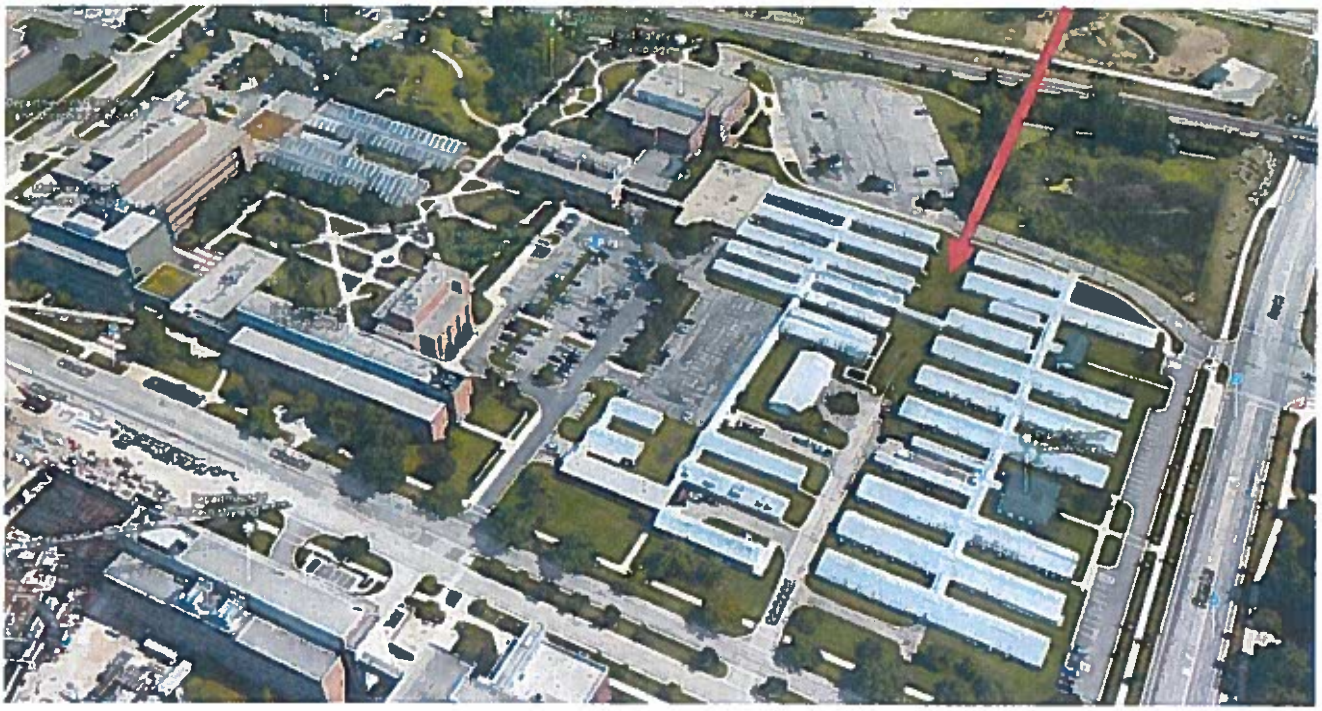
Michigan State University Capital Outlay Project Request – SFY2020
Greenhouses – Renovation of Existing and Addition – Research Expansion and Learning
Joint Capital Outlay Subcommittee Hearing – April 24, 2019

Programmatic Rationale

- Michigan State University (MSU) is internationally recognized for its excellence in research and training in the plant sciences. To remain nationally competitive and internationally relevant MSU must dramatically improve and expand its greenhouse facilities.
- Current greenhouse quality and capacity limits the ability of MSU to continue to concurrently meet the immediate needs of the Michigan agricultural community and conduct fundamental research in areas such as plant resilience, pest management, and innovative management systems to address challenges of the future.
- More than 150 plant science faculty in 7 units and two colleges on campus with nearly 60 current users of greenhouse facilities on campus with a combined grant portfolio of approximately 260 active grants encompassing over $20 million in research funding for FY2018.
- MSU is an institutional partner in the U.S. Department of Energy sponsored Great Lakes Bioenergy Research Center (GLBRC). Since its inception in 2007, GLBRC has received roughly $267 million in DOE funding.
- Allows MSU to continue to attract and retain quality faculty and students, increase participation at both the undergraduate and graduate levels, prepare students for careers in fields of agri-based science, and attract/increase federal, corporate and commodity group research dollars.
- Will enable the shift of fundamental plant sciences from small scale model plant systems to agronomic crops, resilience in agronomic crops, align infrastructure with the needs of the broader agricultural community to support critical research and to continue MSU's success and competitiveness in the broad areas of the bio-economy.
- Completion of this project will increase research capacity in areas critical to improving Michigan's economy, such as innovative research in agronomic crop resilience to maximize productivity of crops in response to a growing world population.
- Agriculture is the second largest contributor to the Michigan economy with approximately $104 billion in revenue attributed annually to food and agriculture, with total employment in the food and agriculture sector in Michigan of 923,000 or about 22% of the state's employment.
- MSU research efforts are supported in part by MSU AgBioResearch and through long-standing state supported research programs such as Project GREEEN. These types of projects require modern greenhouse space. There are currently 39 commodity groups in the state of Michigan that are active partners in Project GREEEN.
- Investment now in this core research space is critical in supporting the growth and further development of our plant sciences research. MSU investments in recent years include the construction of the Molecular Plant Sciences Building, expansion of growth chamber facilities, the establishment of the Plant Resilience Institute and new faculty positions as part of the Global Impact Initiative.

PLANT SCIENCES GREENHOUSE RANGE



Project Scope and Rationale

- A combination of renovation and new construction at the existing greenhouse range located in the Plant Science Neighborhood at Farm Lane and Wilson Roads. This neighborhood includes most of the plant science teaching and research facilities.
- The current greenhouses are functionally and technically limiting and do not enable the vast majority of faculty members' research programs to propose and conduct precise quantitative and qualitative plant research at the level of precision and scale needed to meet current and future societal needs as defined in requests for proposals from the NSF, USDA, DOE and other funding agencies.
- Renovation of approximately 150,000 gross square feet of existing greenhouses that were constructed between 1955 and 1978, with one greenhouse constructed in 2002.
- New construction (addition(s)) of approximately 25,000 gross square feet will be planned to provide an increase in capacity and align with programmatic requirements.
- Renovations would return existing greenhouses to higher functional use and improve utilization through modernization including internal resizing/zoning of space, environmental control capabilities to precisely control multiple environmental variables year-round and to conduct research in specialized environments.

Funding Request and Anticipated Schedule

- State of Michigan Capital Outlay SFY2020 Submission
  - Request authorization for planning
  - Estimated project budget - $20 million
    - State of Michigan - $15 million
    - Michigan State University - $5 million