

# ***Facilities & Infrastructure Report 2008***

*Vice President for Finance & Operations  
January 17, 2008*



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## EXECUTIVE SUMMARY

In January 2007, the Office of the Vice President for Finance & Operations and its units presented a comprehensive report on the facilities and infrastructure at Michigan State University. The report presented improvements, challenges and emerging issues. The report gives a brief update on those issues. Additional topics have been added that may have a significant impact on facilities and infrastructure in the coming year. Units have been self critical, using data to analyze problems and performance. No attempt was made to prioritize these issues across the report.

MSU continues to use the Just-In-Time approach to maintaining facilities and infrastructure. The backlog of projects decreased from \$260 million before the JIT approach was implemented to \$6 million in 2006-07. However increasing maintenance needs have increased the backlog to \$12 million for 2007-08. This year a pathways category has been added to JIT, so that the maintenance of sidewalks and paths may be addressed systematically.

The University continues to invest in design and construction projects. Significant improvement has been made in meeting substantial completion dates which can be attributed to increased communications between the contractor, project manager and University client. Some progress has been made in meeting final completion dates, but there is much room for improvement. Quality continues to be a central focus. The contractor scorecard tool has been implemented to measure and improve contractor performance.

In 2007, the issue of nutrient management on South Campus Farms was presented to the Board of Trustees. Decreasing acreage for the disposal of manure became a critical issue. A comprehensive nutrient management plan for South Campus farms was created and put into action. Manure export, nutrient separation technology and composting have been implemented to address nutrient management.

The regulatory landscape continues to evolve and Michigan State University must keep abreast of new requirements. To that end, the University anticipates that new storm water management regulations from the Michigan Department of Environmental Quality in 2008 will require a more stringent set of storm water management practices. Currently, the university uses a holistic, watershed management program that draws on its teaching, research and outreach activities. MSU has worked and continues to work with the Greater Lansing Regional Committee (GLRC), a guiding body comprised of twenty individual entities within the three local urbanized watersheds: the Lower Upper Grand River, the Middle Looking Glass River, and the Lower Red Cedar River watersheds.

MSU will continue to investigate the issues related to facilities and infrastructure. The state of the facilities and infrastructure will evolve as the University continues to be self-critical in analyzing issues and solutions.

F.L. Poston

Vice President of Finance & Operations, Treasurer





## CHAPTER 1: JUST IN TIME

### Introduction

The Just-In-Time (JIT) facilities evaluation process requires a comprehensive review of all campus infrastructure components in order to determine their condition and estimate their failure date. The industry-predicted life-cycle of infrastructure systems is used as the early determination point for potential replacement. This number is then adjusted to account for MSU's actual experiences with component life-cycles and for critical observations from the field. Also, field observations made during preventive maintenance and testing of building system components are used to refine the JIT need. The JIT information is collected in a database and used to predict annual maintenance and replacement costs for a 20 year period.

The more precise the data and the ability to predict when critical infrastructure needs are closest to failure the more accurate the identification annual revenue needed to address the JIT needs. By identifying failures in the future enhances the ability to coordinate JIT projects with other active construction projects and JIT needs. The planning minimizes campus disruptions and multiple repairs at the same location. In addition, identifying JIT needs in the future provides the ability to manage funding of these projects with greater flexibility.

Substantially more General Fund infrastructure maintenance projects are being addressed today than when the process started (Figure 1). Six years ago, funding was received to address the first 43 projects in the JIT category. The value of these projects was \$13,531,146. By fiscal year 2007-08, 249 projects worth nearly \$203 million were completed or are underway. In addition, nearly every building on campus has been impacted by Just-In-Time work, resulting in more reliable infrastructure systems to support the operation of the University.

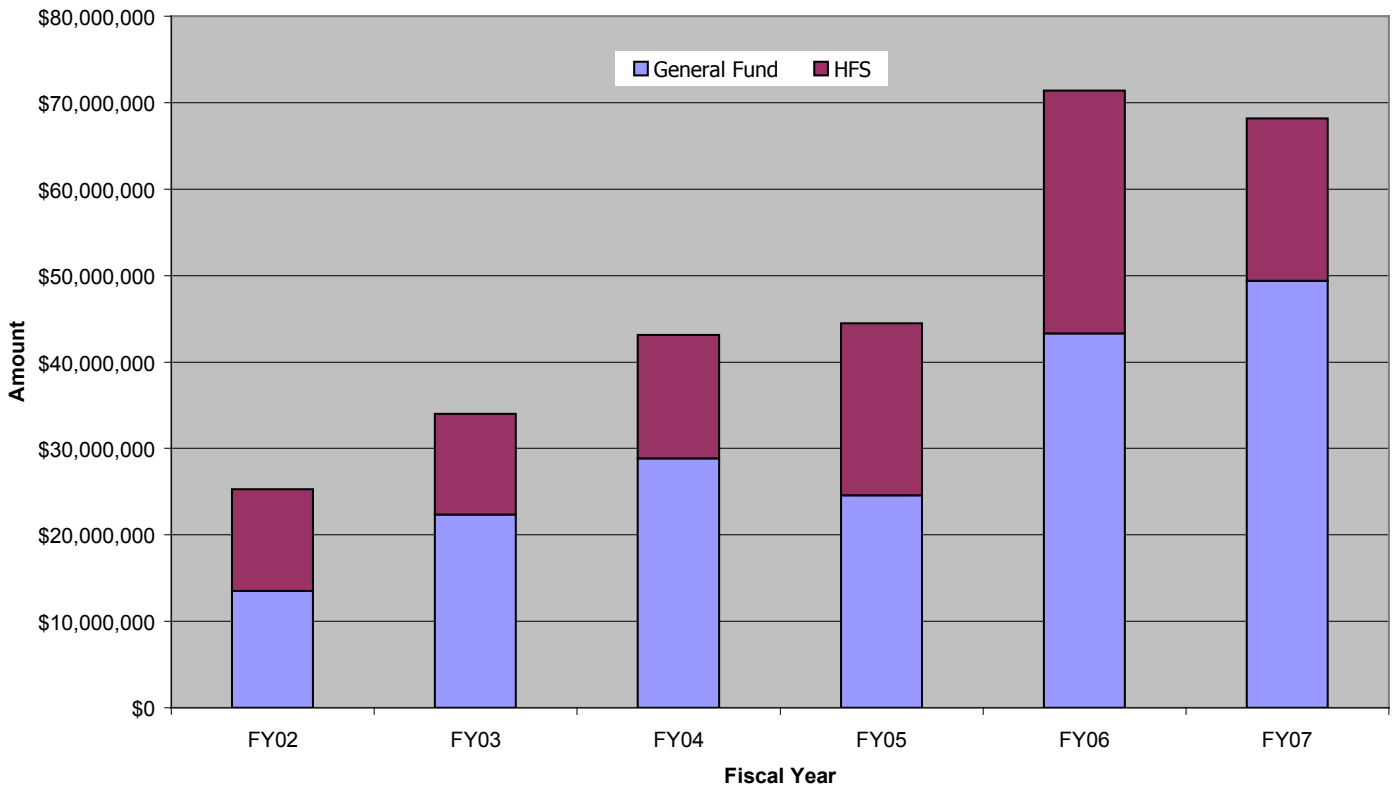
### Analysis

When the Just-In-Time process was initiated, MSU estimated a deferred maintenance backlog for General Fund infrastructure of approximately \$250 million. As the JIT process was implemented the \$250 million worth of delayed work was refined and then this backlog was merged with the JIT data projected in the future. As a result a 20 year projection of JIT needs began to take shape.

The current General Fund 20 year JIT needs projects \$548 million of work that must be performed in order to preserve the safety and reliability of the university infrastructure. This has increased from the \$260 million projected 6 years ago. The increase is due to adding Housing and Food Services, roads and sidewalks to the JIT program. The key to dealing with the problem is addressing each year's JIT needs as they move to the top of the list, in order to keep annual funding requirements at a manageable level. Otherwise, unfunded needs just stack up and compound the problem.

Housing and Food Services has also developed a JIT database to identify the infrastructure needs for these auxiliary facilities. The current HFS JIT 20 year funding need is projected to be \$384 million. Since FY 2001-02, \$104 million has been allocated for HFS JIT needs. Combined General Fund and HFS expenditures during this period totaled \$307 million (Figure 1).

# JIT Funding General Fund & HFS FY02 - FY07



**Figure 1.** Past JIT funding for General Fund and Housing and Food Services

## General Fund

Five categories comprise the JIT needs for the General Fund (Table 1). These categories are buildings, utility distribution, power and water, roads, and campus pathways. Each category contains its own set of sub-components.

**Table 1.** General Fund Just-In-Time past funding analysis by category

## General Fund Just-in-Time Past Funding Analysis by Category

### Funded JIT for FY02 to FY08

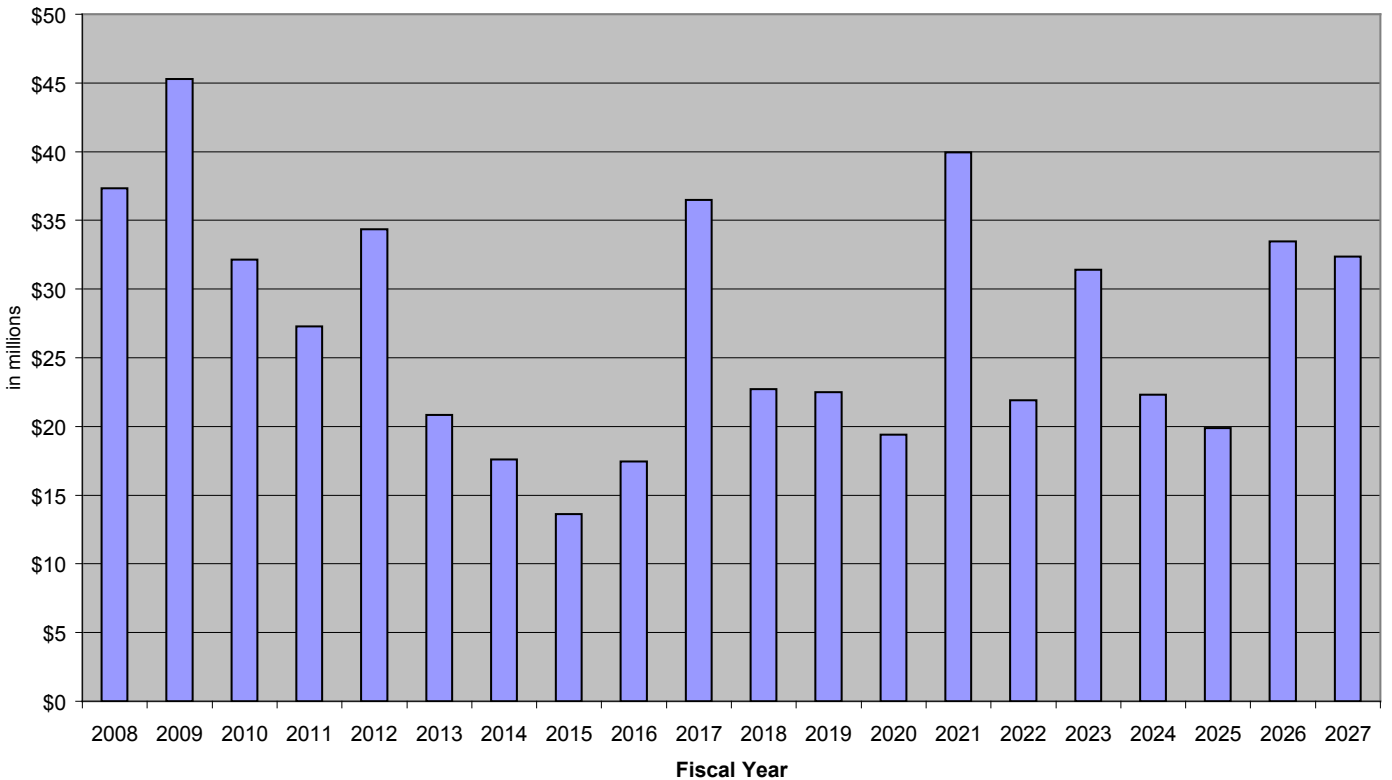
*in millions*

JIT Category	FY02	FY03	FY04	FY05	FY06	FY07	FY08	Total
<b>Buildings</b>								
Envelope	\$0.9	\$2.5	\$4.3	\$4.1	\$2.9	\$11.4	\$2.8	\$28.9
Interior Finishes	\$0.0	\$0.2	\$0.2	\$0.0	\$0.0	\$1.3	\$0.5	\$2.3
Systems	\$2.1	\$2.2	\$12.7	\$2.6	\$21.3	\$9.9	\$3.8	\$54.5
	\$3.0	\$4.9	\$17.2	\$6.7	\$24.2	\$22.6	\$7.0	\$85.7
<b>Utility Distribution</b>								
Steam	\$3.2	\$1.2	\$7.9	\$10.1	\$9.1	\$6.4	\$1.5	\$39.3
Electrical	\$0.3	\$13.3	\$0.8	\$3.9	\$0.6	\$0.3	\$2.3	\$21.4
Communication	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$2.4	\$0.2	\$2.6
Water	\$0.0	\$0.0	\$0.0	\$0.8	\$0.7	\$1.9	\$1.4	\$4.7
San & Storm Sewers	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.2	\$0.4	\$0.6
	\$3.5	\$14.4	\$8.6	\$14.7	\$10.3	\$11.2	\$5.7	\$68.5
<b>Roads</b>								
Reconstruction	\$0.0	\$0.0	\$0.0	\$0.0	\$4.8	\$13.1	\$4.7	\$22.6
Mill & Cap	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
	\$0.0	\$0.0	\$0.0	\$0.0	\$4.8	\$13.1	\$4.7	\$22.6
<b>Power &amp; Water</b>								
Turbines, Boilers, Baghouses	\$6.9	\$2.9	\$2.9	\$2.5	\$3.7	\$2.3	\$3.2	\$24.3
Wells	\$0.2	\$0.2	\$0.1	\$0.7	\$0.2	\$0.2	\$0.2	\$1.6
	\$7.0	\$3.0	\$3.0	\$3.2	\$3.9	\$2.5	\$3.4	\$25.9
<b>Totals</b>	<b>\$13.5</b>	<b>\$22.3</b>	<b>\$28.9</b>	<b>\$24.6</b>	<b>\$43.3</b>	<b>\$49.4</b>	<b>\$20.7</b>	<b>\$202.8</b>

While this initial funding had a very positive effect on addressing the JIT needs, there was still an annual shortfall. Beginning in fiscal year 2005-06, and continuing in 2006-07, endowment trust funding was added which accounts for the increase. This accounted for the large increase of General Fund JIT needs being addressed in fiscal year 2005-06. In 2007-08 there is a significant drop in funding for JIT projects because \$9 million was diverted to support the Farm Lane Underpass project. This resulted in two projects being delayed.

Pathways and sidewalks were incorporated into the JIT database beginning in FY 2008, and are included in the twenty year projections shown in Figure 2.

## General Fund 20 Year JIT Needs



**Figure 2.** General Fund JIT Needs for the next 20 fiscal years

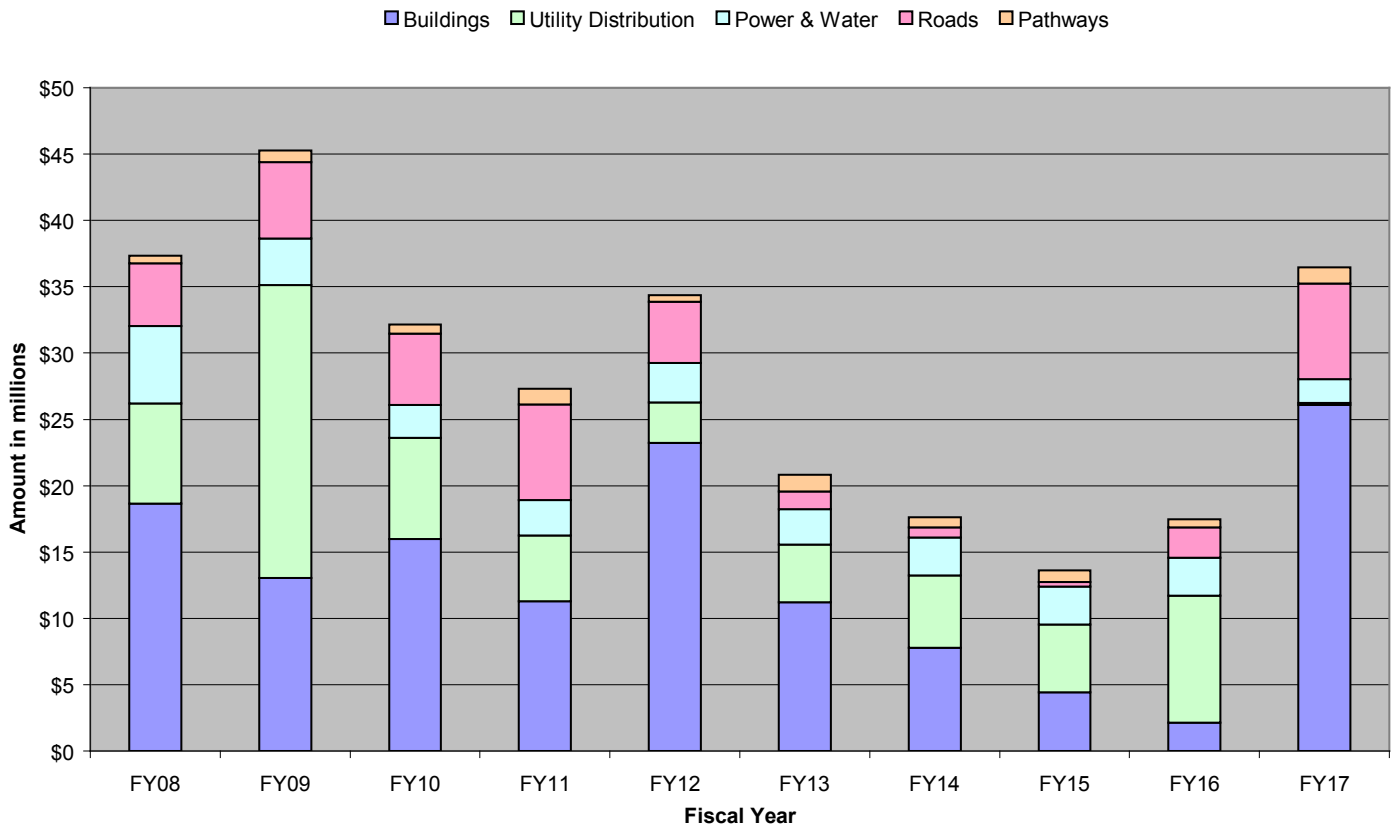
General Fund JIT needs are shown for the next 20 years. The total JIT needs over this 20 year period is \$548 million. Needs for the first five years are determined by an analysis based on field inspections. The needs for the following five years are determined by MSU experience-adjusted industry life-cycles for infrastructure systems and equipment. The remaining ten year forecast is determined by industry life-cycle alone.

During the first ten years, the General Fund JIT needs see gradual a decrease as much of the backlog in deferred maintenance is scheduled to be addressed. Beginning in fiscal year 2017, JIT needs begin to fluctuate somewhat from year to year. This is the result of many infrastructure systems such as HVAC systems, elevators and masonry reaching the end of their industry life-cycles. Based on the time that they were built, some years will see more systems reach their estimated failure date than others. From this point forward, it is assumed that all campus infrastructure systems will last at least as long as their industry life-cycle.

Field inspections provide a more accurate analysis of JIT needs by General Fund category (Figure 3).

## Ten years by category General Fund JIT

FY08 - FY17



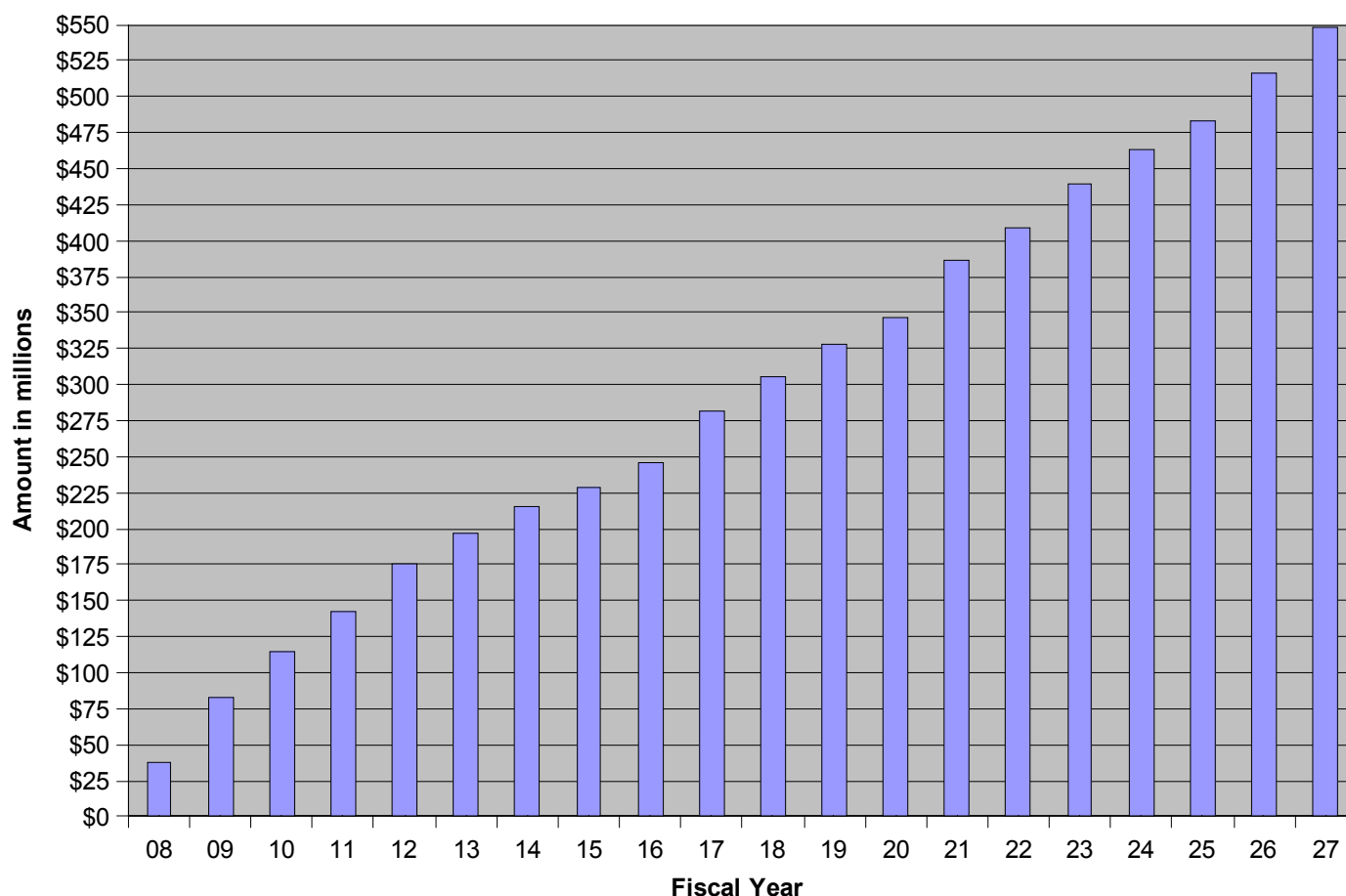
**Figure 3.** General Fund JIT needs from fiscal year 2008 through fiscal year 2017 for buildings, utility distribution, power and water, and roads, and pathways

Reviewing the next ten years of projected General Fund JIT work reveals that the total annual funding needs for each fiscal year are trending downward through 2016. This can largely be attributed to the backlog of deferred maintenance projects gradually being addressed. In fiscal year 2017 however, there is a significant spike, which is primarily the result of a number of infrastructure systems reaching the end of their life-cycles, and becoming JIT needs for that particular year.

The utility distribution category fluctuates the most over the next ten years due to the substantial amount of work being done on campus electrical sub-stations and the steam tunnel system. These are mostly one-time repairs and should result in the projection for JIT utility distribution becoming more stable after fiscal year 2017.

It was also determined that \$10 million of JIT funding would be used to fund an unanticipated increase to the Farm Lane Underpass project. To accommodate the funding shift, some JIT items were moved to future years.

## General Fund Cumulative JIT Needs FY08 through FY27



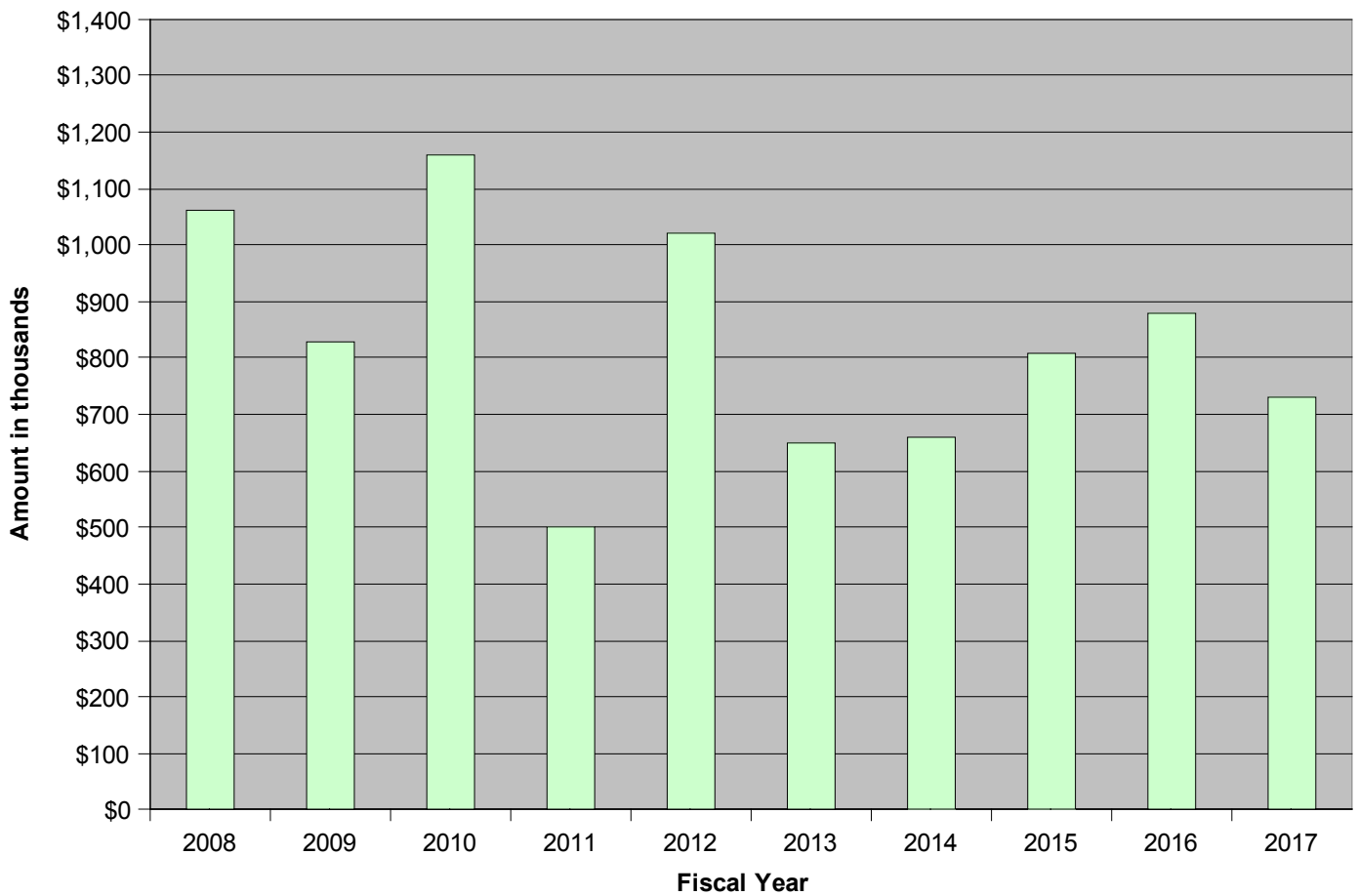
**Figure 4.** The cumulative growth of General Fund JIT needs for the next 20 fiscal years

If not addressed, JIT needs would reestablish a rapidly accumulating shortfall. Currently the shortfall for 2007-08 is approximately \$12 million. Over the next 20 fiscal years, General Fund JIT needs will exceed \$548 million (Figure 4).

## JIT Pathways

A new category called 'pathways' has been added to the General Fund Just-In-Time analysis. This category is primarily pedestrian walk repairs. Funding for the on-going maintenance of campus pathways has traditionally been scarce. As a result, repair work has not kept pace with needed maintenance and the aging pathway system has deteriorated. While the cost to bring the pathways back to a serviceable condition is not of the same order of magnitude as for buildings, the problem must still be addressed. Approximately 20% of the 3.7 million square feet of pathways on campus (about 17 acres) have been categorized to be in poor or fair condition, characterized by cracked, broken, or settled concrete. Poor conditions inevitably affect the safety and serviceability of the walks. Some pathways are inadequate in width for the present needs of pedestrian or bicycle traffic.

## JIT Pathway Needs FY08 through FY17



**Figure 5.** JIT Pathway funding needs for the next ten fiscal years

### *Housing and Food Services*

HFS is currently engaged in a comprehensive strategic planning process. Key outcomes will include recommendations for the appropriate size and style of housing stock as well as a complete financial model to accomplish these goals. Market research and financial modeling will be the foundation of this plan. It is anticipated that the timing of the renovation and refurbishment schedule will change as circumstances dictate.

There have been six categories that make up JIT needs for Housing and Food Services since fiscal year 2001-02. These categories will change this year as HFS moves toward categorizing JIT needs to be consistent with the General Fund method. The current categories are:

## Architectural

Includes the overall structure of the building; walls, floors, and roof, both inside and out, and all the finishes attached to them.

## Mechanical

Includes all the components that combine to provide comfortable living temperatures, water supply and drainage, and elevator maintenance.

## Electrical

Includes all of the components that combine to provide electrical power to spaces, mechanical equipment, and lighting.

## Site Work

Work related to the buildings exterior grounds.

## Renovation

New construction or building additions.

## FF & E

Furniture, fixtures, & equipment

Since FY2002, HFS has spent more than \$104 million in repairs and renovation, including more than \$20 million in equipment and furniture replacement. Major projects in FY05 and FY06 included the Spartan Village School, Snyder-Phillips and Food Stores/Bakery.

**Table 2.** HFS JIT Funding Analysis by category

## HFS Just-in-Time Funding Analysis by Category

### Funded JIT for FY02 to FY07

*in millions*

JIT Category	FY02	FY03	FY04	FY05	FY06	FY07	Total
<b>Buildings</b>							
Architectural	\$3.4	\$4.4	\$4.3	\$3.7	\$1.1	\$3.6	\$20.5
Electrical	\$1.1	\$2.3	\$1.6	\$0.2	\$0.4	\$0.3	\$5.9
FF&E	\$2.8	\$0.6	\$1.2	\$2.8	\$6.3	\$6.8	\$20.6
Mechanical	\$1.1	\$2.7	\$2.6	\$2.5	\$0.7	\$3.5	\$13.0
Renovation	\$3.0	\$1.5	\$4.5	\$10.5	\$19.5	\$3.9	\$42.9
Site	\$0.3	\$0.1	\$0.2	\$0.1	\$0.2	\$0.6	\$1.4
<b>Totals</b>	<b>\$11.7</b>	<b>\$11.6</b>	<b>\$14.2</b>	<b>\$19.9</b>	<b>\$28.1</b>	<b>\$18.8</b>	<b>\$104.3</b>



The HFS facility major renovation schedule for the next ten calendar years shows major renovations occurring in eight residence halls and campus apartments. A new strategic planning initiative underway within the division may result in adjustments to this schedule. Additionally, the division is investigating options to refurbish the larger halls with new furniture, paint, floor covering, improved informal learning areas and public spaces. By being strategic, the division can expedite the number of projects related to these critical areas, while being mindful of the building systems and building envelope needs.

**Table 3.** HFS major renovation schedule

HFS Facility Major Renovation and New Construction Schedule 2007-2016										
Project Description	Calendar									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
New University Village Apartments	■									
Snyder/Phillips Renovation and Addition	■									
Spartan Village School/UH Building	■	■								
Mayo Renovation	■	■	■							
Holden Hall Refurbishment	■	■	■							
Brody* Renovation	■	■	■	■	■	■	■	■	■	
Spartan Village Zone I Demo		■								
Cherry Lane/Faculty Bricks Rebuild			■	■	■					
Emmons Renovation			■	■	■					
Bailey Renovation				■	■	■	■			
Armstrong Renovation						■	■	■	■	
Bryan Hall Renovation								■	■	■

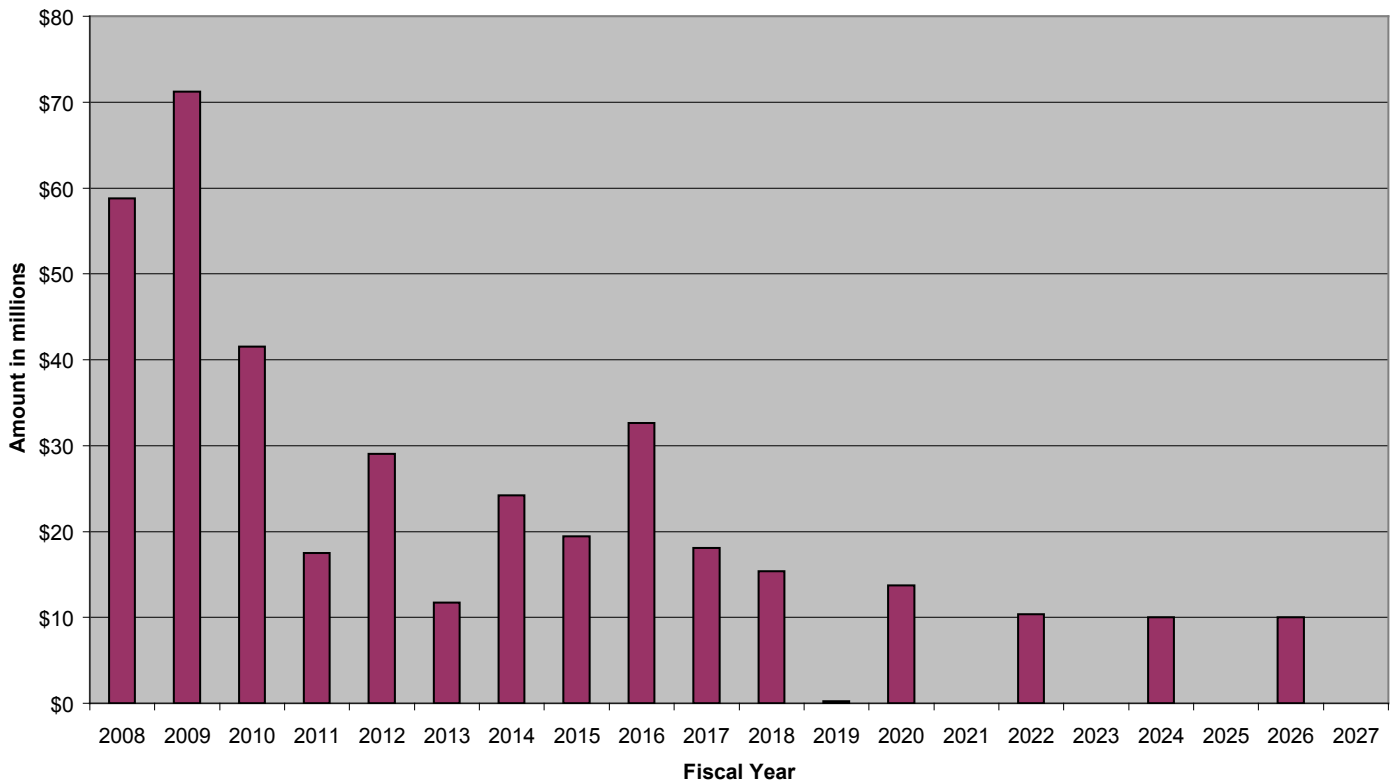
\*Brody Building project is subject to scope analysis

**KEY**

Projects underway  
Design phase  
Construction phase



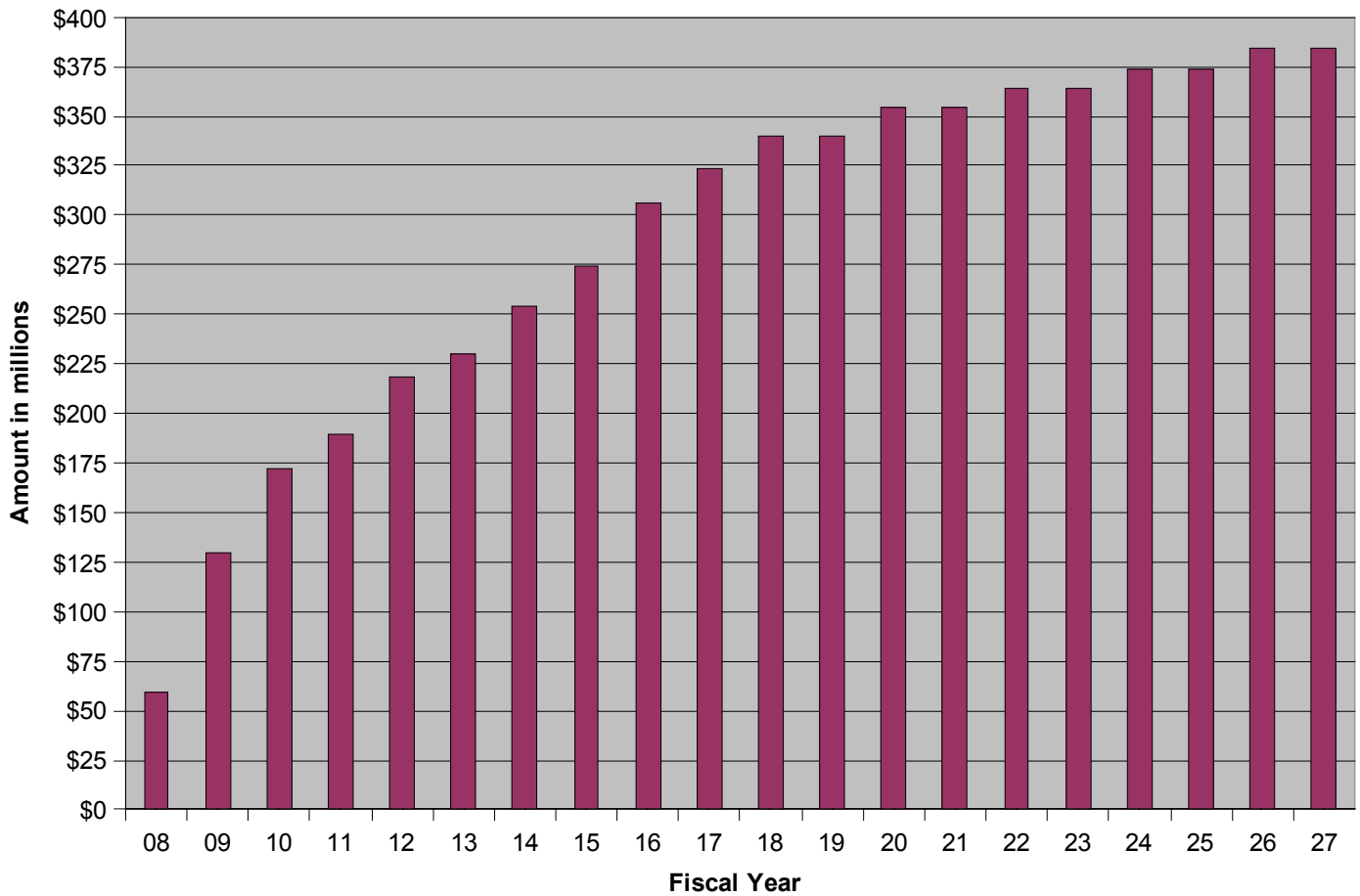
## HFS JIT Needs FY08 - FY 27



**Figure 6.** HFS JIT needs for the next twenty fiscal years

The JIT projections for Housing and Food Services show a gradual decrease over the next twenty fiscal years. As HFS shifts to the same General Fund categories there will likely be additional adjustments. Marketability of the residence halls and other entertainment facilities demand a higher level of appearance maintenance to encourage successful occupancy and use levels. Through the strategic planning process, the twenty year cycle will be updated and reviewed in critical areas such as access security, technology, and other areas that were not considered in the original plan.

## HFS Cumulative Fund JIT Needs FY08 through FY27



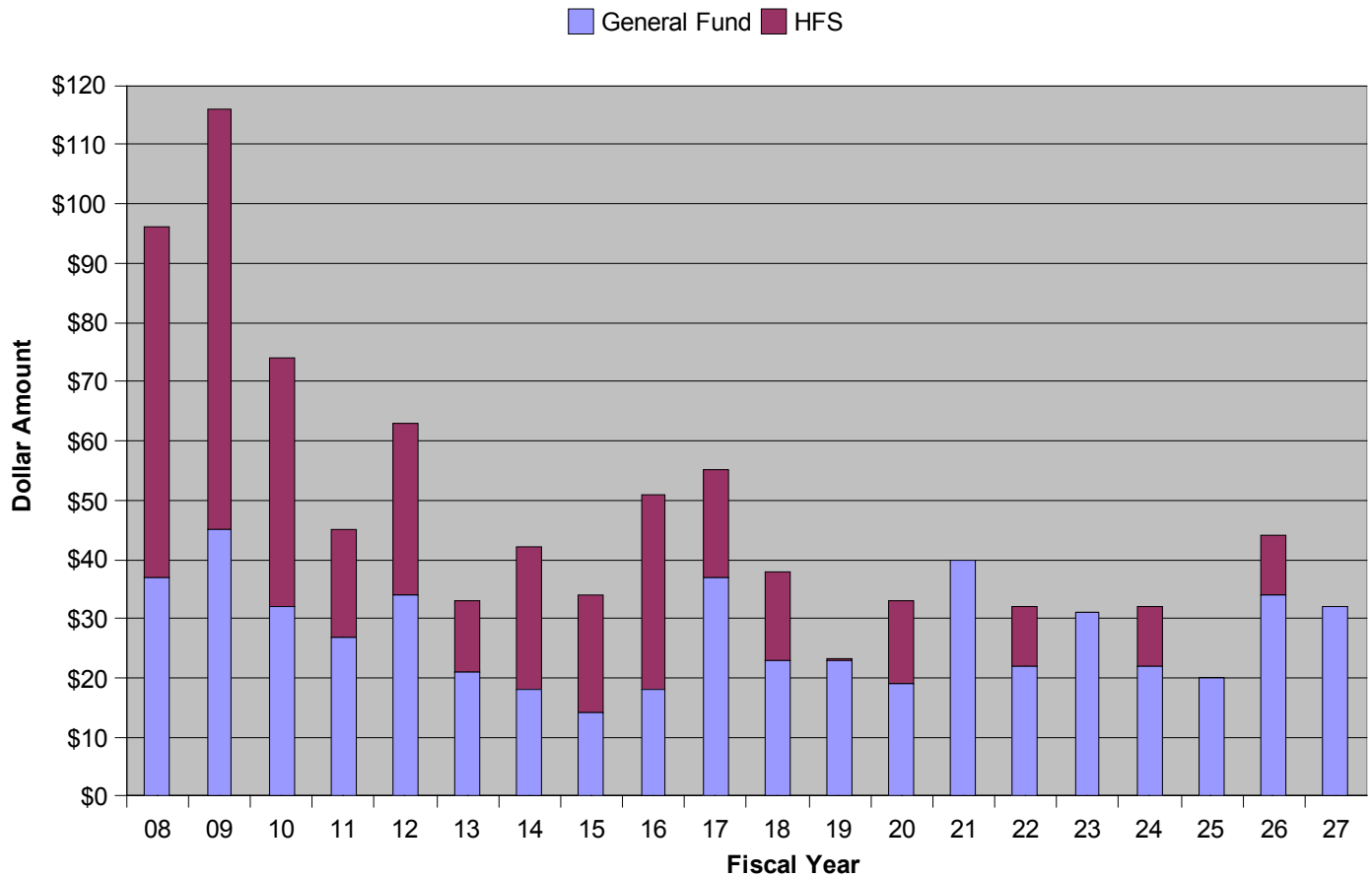
**Figure 7.** The cumulative growth of HFS JIT needs for the next 20 fiscal years

If JIT needs are not addressed the backlog will escalate. Over the next 20 fiscal years, the Housing and Food Services JIT needs will amount to almost \$384 million.

### Future Directions

Using the most recent data, the combined General Fund and Housing and Food Services JIT needs in dollar amounts for the next twenty fiscal years totals \$932 million.

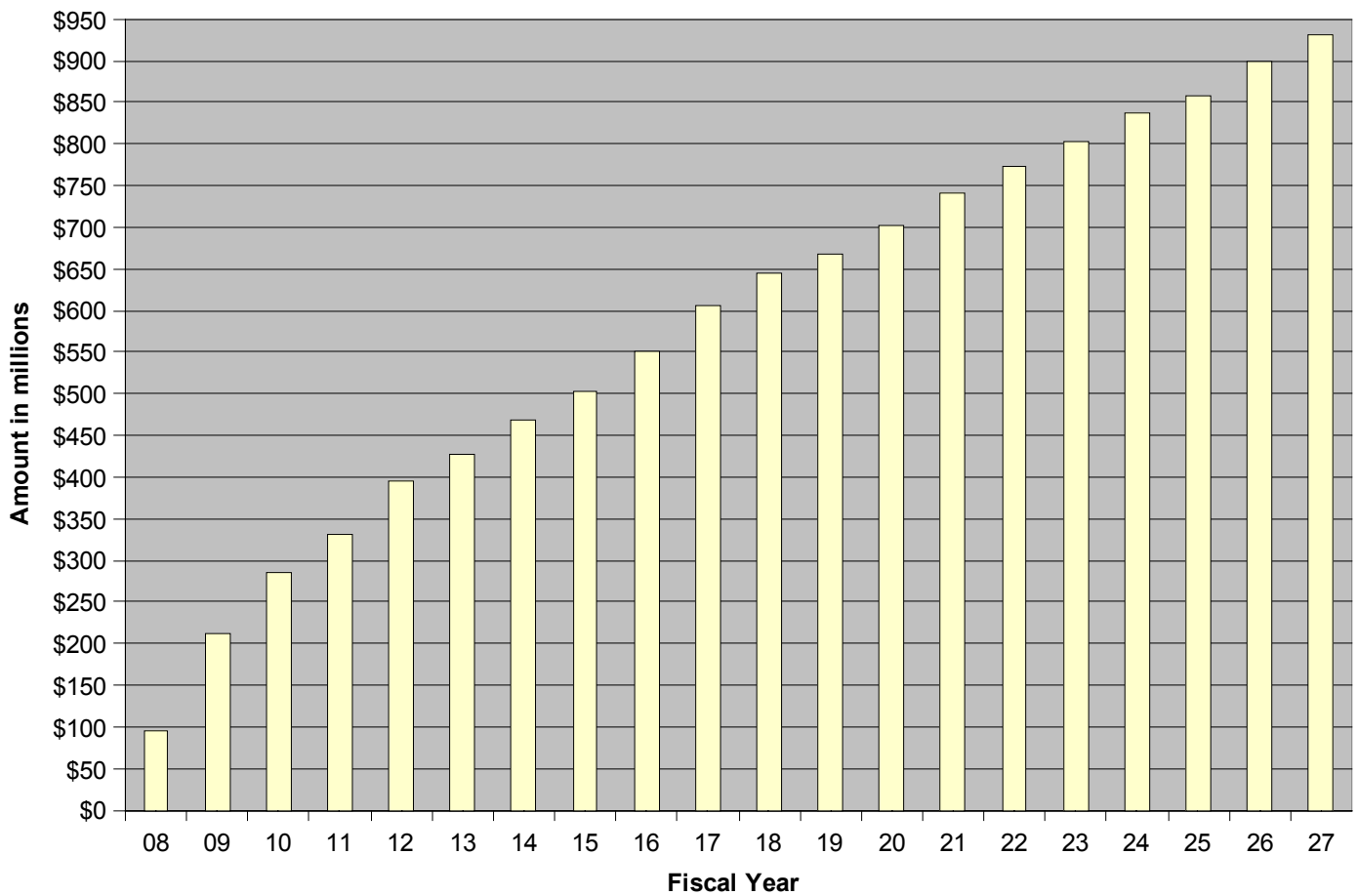
## Total JIT Needs for the Next 20 Fiscal Years FY08 through FY 27



**Figure 8.** JIT needs for the next twenty fiscal years includes General Fund categories and Housing and Food Services

The annual funding necessary may decline. The five, ten, and twenty year projections are adjusted annually as new data is incorporated into the JIT system.

## Total Cumulative Fund JIT Needs FY08 through FY27



**Figure 9.** The cumulative growth of General Fund and HFS JIT needs for the next 20 fiscal years

The combined total of General Fund and Housing and Food Services JIT needs will exceed \$932 million over the next twenty-years. Left unaddressed, infrastructure safety and integrity could be compromised, as well as planning for the future. It is critical that MSU fund the JIT initiative or risk having a larger and more difficult problem in the future.

## CHAPTER 2: CONSTRUCTION

### Introduction

The University continues to invest in design and construction projects. Capital projects are tracked through the Facilities Asset Management Information System (FAMIS) to provide timely and accurate project information, report on project performance in the aggregate, analyze strengths and weaknesses, and improve processes. There has been improvement from last year in meeting final completion dates, but there is still opportunity to improve performance meeting final completion dates and to reduce the number and value of change orders caused by design or document changes. This was the first year that a contractor score card was used to provide feedback to contractors so that they may make process improvements and improve performance. This evaluation process will be expanded to design firms, university-performed work, university project management and construction management next year.

### Analysis

#### *Annual Construction Report*

The *2008 Annual Board of Trustees Construction Report* found in Appendix A includes major capital construction projects (greater than \$1 million) and minor construction projects (between \$250,000 and \$1,000,000) closed in fiscal year 2006-07. There were 42 projects closed with a value of \$95 million (Table 1). This is more than double the number of projects and nearly ten times the value of projects closed last year. The 42 projects were completed for \$88,853,508, 6.8% under the approved budget. Over \$6 million was returned to units in project savings. There are a number of complex projects closed this year, including Food Science and Biochemistry HVAC, Marshall-Adams Hall renovation, and the Psychology Building renovation.

#### **42 Closed Capital Projects**

Budget			Classification	Count	Budget	Final Cost
Authorized			Building:	33	79,643,320	77,587,349
Budget:	95,311,321		Parking Lot:	3	1,755,001	1,630,050
Final Cost:	88,853,508		Parking Ramp:	0	0	0
Returned:	6,457,813	Contingency	Power and	0	0	0
		16,000,805	Water:	0	0	0
Change		% of	Roads:	3	7,493,000	6,804,640
Orders	% of Contract	Contingency	Site:	0	0	0
Contract:	65,864,103		Utilities:	3	2,920,000	2,831,343
Scope:	1,021,573	1.6%				
Document:	2,745,589	4.2%				
Field:	3,398,623	5.2%				
Total:	7,165,785	10.9%				

**Table 1.** Budget Summary for Closed Projects in Fiscal Year 2006 – 2007.

## Construction and Design Volume

In FY 2006-07, total payments to contractors exceeded \$110 million, a significant increase from \$92 million in payments in FY 05-06 (Figure 1). It should be noted that 51% of these payments were for four projects (Snyder Phillips, University Village, Chemistry Addition 1, and the Chiller Replacements). Design payments decreased to a level consistent with FY 03-04 and FY 04-05 (Figure 2). Construction payments in FY 2007-08 will likely decrease, but this should only be a temporary decrease in activity, as projects such as the Secchia Center, Broad Art Museum, Wharton Center Renovations, the Recycling Center, and the Mary Mayo Hall renovation should all be in active construction in FY 08-09, along with *Just-In-Time* projects and academic and research programmatic needs.

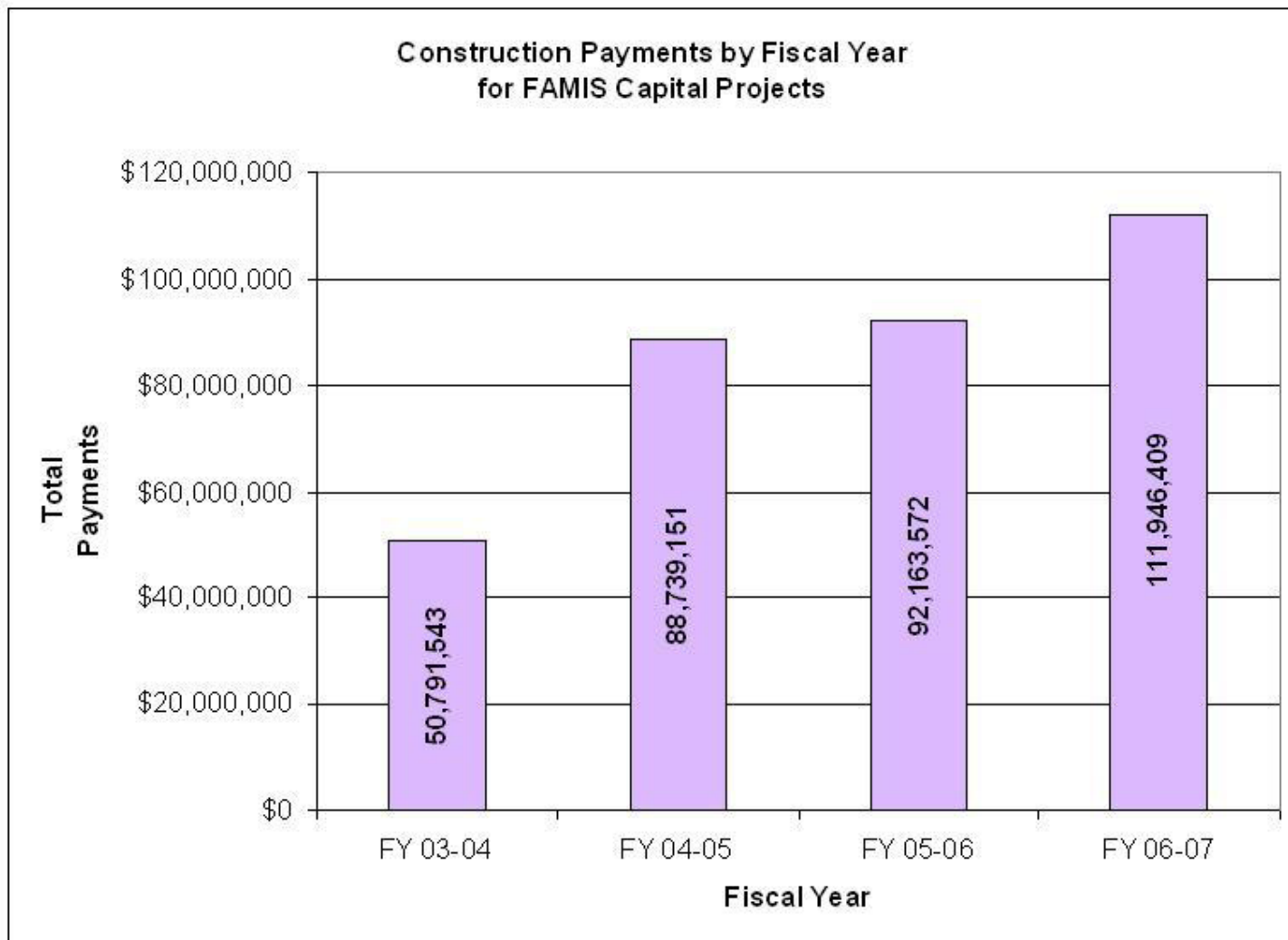
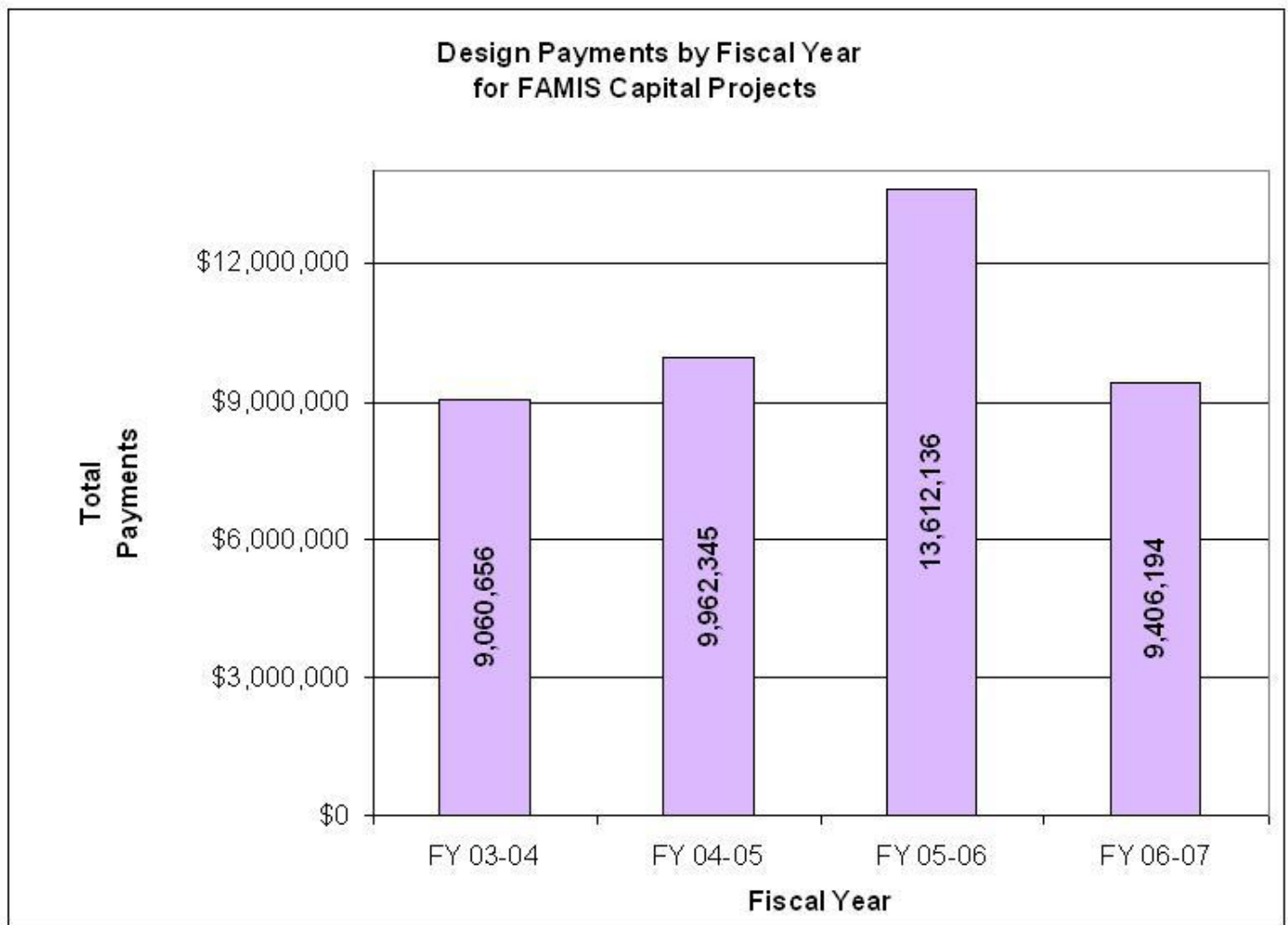


Figure 1. Construction payments for the last 4 years.





**Figure 2.** Design Payments for the past 4 years

### *Construction Change Orders, particularly Document Changes*

Campus Planning & Administration (CPA) and Engineering & Architectural Services (EAS) are using available data to review processes and make improvements in the design and construction process.. One of the earliest areas of focus was construction change orders. Change orders are a reality in the construction process for a number of reasons, including differing field conditions, such as bad soils and concealed asbestos; document discrepancies, where the work specified either can't be built or doesn't meet the intent of the project; and scope changes of additional work at the discretion of the University.

Though often necessary, change orders can lead to delays in construction, additional costs, and disputes with contractors. Often these disputes do not arise from a single change, but from numerous small changes that can lead to a contractor claiming that the volume of minor changes delayed the project or impacted their productivity, in turn leading to a demand for substantial additional compensation. These concerns prompted MSU to track change order rates as the dollar value of change orders divided by construction payments (figure 3). Scope changes, which are the most easily controlled through the planning process, are discouraged. Field changes generally result from unknown conditions being revealed during construction. Document changes are made to correct errors in the bid documents, or to provide additional information that is required to construct a project.

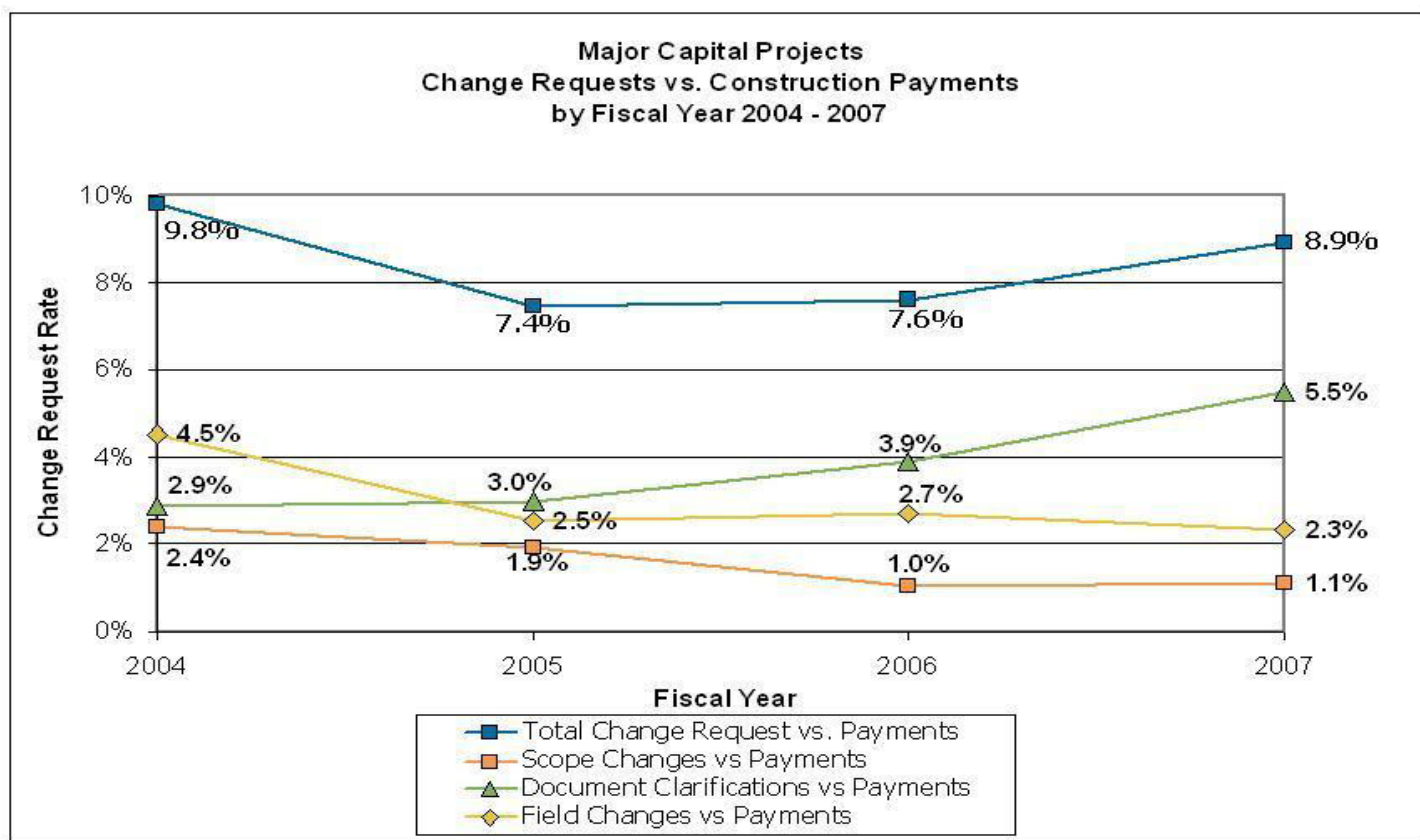
Initial efforts to reduce change orders were good, with the overall number dropping significantly in 2005, and scope changes in particular dropping in 2006. Unfortunately, document changes have climbed steadily, with a dramatic increase in FY 06-07.

The increase in document changes is disappointing. They can be attributed primarily to two projects, which had a combined document changes value equal to 9.9% of the combined construction budgets. If these projects are excluded from the data, the document change order rate for other projects is reduced to 2.7%, a drop from the past 3 years.

MSU is committed to improving our processes to reduce change orders, particularly document changes. Physical Plant EAS has taken a number of steps to continue improvements in document quality:

- Reassigned nine skilled trades' workers to have responsibility for technical inspection of existing field conditions at project sites, and to review designs before projects are bid;
- Revised the *Design Procedures Manual* in January 2007 to incorporate review by the skilled trades assigned to EAS;
- Added two more design staff; and
- Created an in-house commissioning team that will also perform document review. The commissioning team will be reviewing design documents to ensure that all devices required to test and balance the systems are included in the bidding documents.

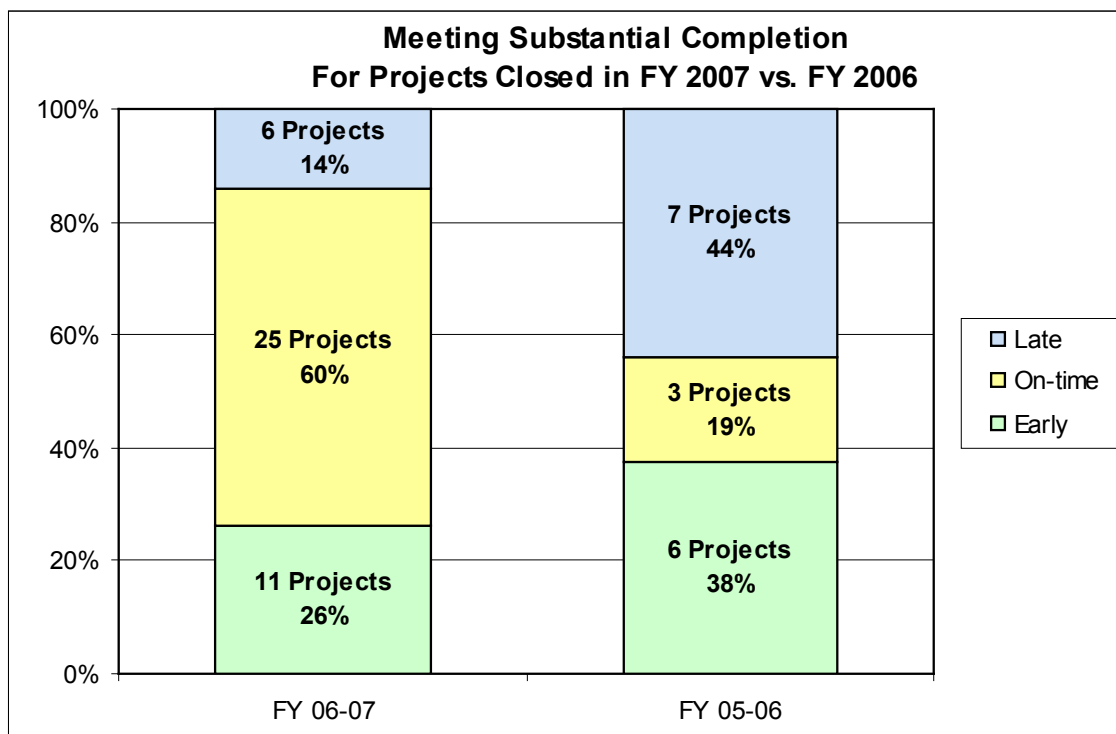
These changes will not improve document quality overnight. The design process takes time, and many projects just beginning construction had limited benefit of these improvements.



**Figure 3.** Change Requests vs. Construction Payments for the past 4 years

## Timely Project Completion

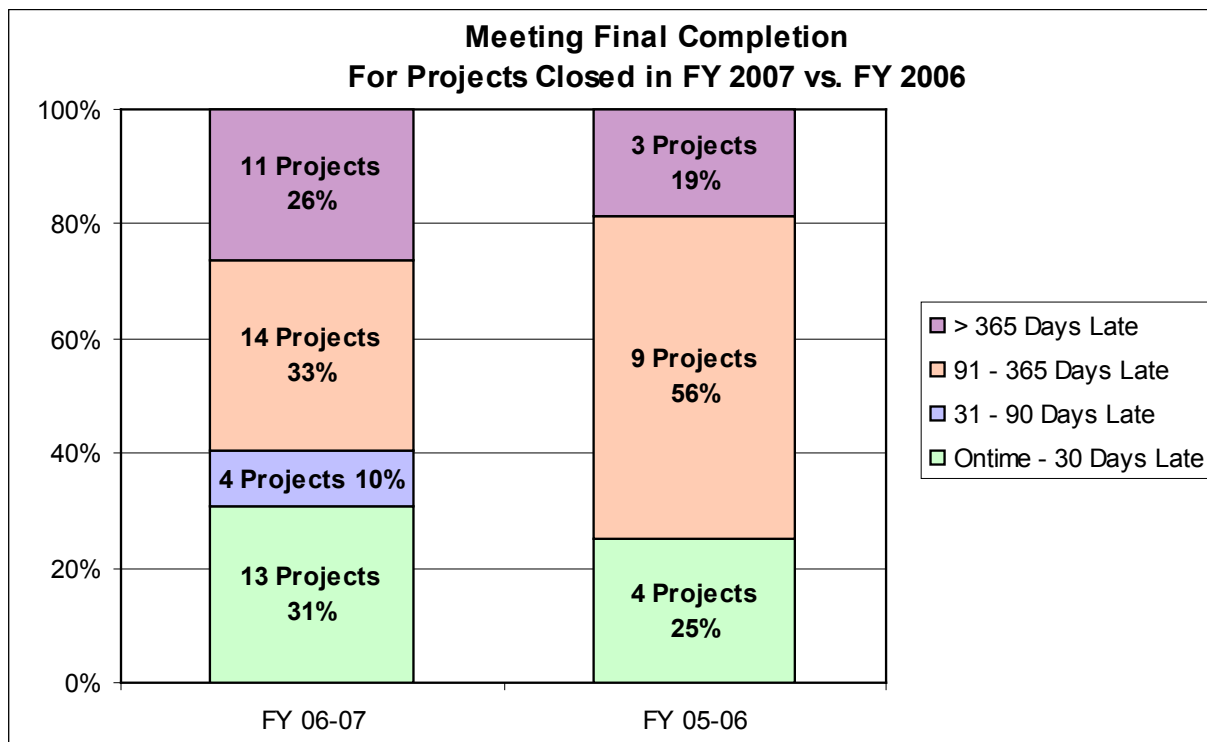
MSU has made progress in project completion, but again, there is still room for improvement. A project is substantially complete when usable for its intended purpose (e.g., an intersection is open, classes or research can be conducted in a laboratory, or an elevator is permitted to carry passengers). Substantial completion deadlines were met on 86% of projects closed in the past fiscal year. This is a significant improvement over FY 2005-06, when just 57% of projects met substantial completion. Further, no project was more than 60 days past substantial completion. Last year, there were two projects more than 90 days late. It should be noted that projects that did not meet substantial completion did not impact vital university functions.



**Figure 4.** Performance meeting substantial completion

The improvements in meeting substantial completions dates stem from an emphasis on project scheduling. Project managers, in consultation with University customers, are setting more realistic substantial completion dates and focused on meeting them. A more demanding scheduling specification is now being used for difficult or time-sensitive projects. Finally, EAS has emphasized schedule adherence at contractor forums.

Final Completion requires that all activities for a project be finished, including the contractor's punch list of corrective items, work by MSU forces for tasks such as landscaping or furnishings, and that all expenses are complete and accounted for, including returning unused funds. Only 27% of the 42 projects that were closed during fiscal year 2007 met final completion on schedule. This is a modest improvement over 19% from last year.



There are a number of factors that inhibit timely final completion. The University self-performs many functions on a construction project, including landscaping, procurement of furnishings and equipment, technology systems, telecommunications, and the selection and installation of public art. These functions tend to occur at the end of a project. Many of this year's projects did not have realistic or integrated schedules for these activities. While scheduling has improved, there are many projects still pending closeout that weren't set up with these considerations.

The University is putting more effort into establishing and maintaining project schedule information through the final completion phase. Schedules are now built with MSU-performed work in mind. Staff is pursuing a process of completing functions as early as possible so that final completion is not compromised by a log-jam of unfinished details. CPA & EAS regularly meet to review the status of substantially complete projects. The School of Planning Design and Construction (SPDC) completed a study to evaluate our project closeout process. The study assessed MSU's performance against industry standards, and recommend changes to reduce the time required to close out projects. Quicker project close out would be a benefit to all, including the MSU customer, staff, contractors and design professionals.

### Quality Control (Vendor Feedback)

The University established a scorecard for general contractors and construction managers. The scorecard is used as a feedback tool. As part of project close-out for major capital projects, the construction representative or project manager evaluates contractor performance through standardized criteria to rate each project and vendor. The scorecard report compares performance on quality, schedule, price, project management, and close-out. The MSU Construction Representative shares the scorecard with the contractor, along with average scores. The Construction Superintendent has reviewed poor performance with several contractors who have had multiple mediocre or unacceptable projects.

In general, contractors view MSU as an owner of choice, and want to meet university expectations. This evaluation is an opportunity for productive interaction and could be used as a future criterion for contractor selection. The scorecards and their rankings will have more meaning as the University accumulates a larger database. Of the 33 contractors involved so far, only 7 have had 4 or more projects evaluated. The Capital Project Score Card Report by project ranking is shown in Appendix B.

## **Future Emphasis**

### *Quality Control*

The School of Planning Design & Construction will also assist in expanding the scorecard process. A designer scorecard is the next step along with an MSU scorecard process, which will include contractors and designers evaluating the University's performance on projects. In addition after each major capital project, building occupants will be given feedback opportunities. The primary goal of this entire initiative is to improve project performance at MSU.

### *Project Management Software*

MSU projects have become more complicated, and the number and value of projects has increased. The new BOT construction approval process reinforces the requirement for timely engagement and review of issues.

The FAMIS implementation made a positive impact in how MSU manages capital projects. FAMIS allowed MSU to collect and analyze data, identify weaknesses, and enable improvements to subsequent workflows. For example, in June 2005, the process for completing a change request took over 6 months. Today, the time to process a change request has shrunk to under 3 months. The improvement in change request processing was largely accomplished by the commitment of people in EAS & CPA.

There are limitations to FAMIS. It plays a key role enabling MSU to collect data, measure key performance indicators, and make improvements to MSU workflows. However, FAMIS does not enforce business rules, it does not automate processes, and it does not allow collaboration efforts among MSU units, external designers, and contractors. Even though the implementation of FAMIS Capital Projects module met its stated goals, project management software is necessary for future improvement.

University staff has investigated a number of options for enhanced project management software, including developing an internal system, for supplementing the limited project information available in FAMIS. There are a number of additional datasets also used to track information FAMIS can not store or monitor. In the end, staff has recommended we proceed with Skire Unifier, a commercial product used by a number of other higher education clients. It allows improved accountability and transparency, standardized business processes, improved collaboration, and provides timely information to all involved in the process. It is important to note that this product will supplement, not replace, FAMIS which will continue to be used where effective. As the university's Enterprise Business Systems Project is implemented, Skire Unifier will be interoperable and integrated with the new systems.



## CHAPTER 3: COMPLIANCE

While the University continues to be confronted by a myriad of federal and state environmental, health and safety programs, the emerging emphasis on storm water quality and management and the expanding regulation of Concentrated Animal Feeding Operations (CAFOs) by the US Environmental Protection Agency (USEPA) and the Michigan Department of Environmental Quality (MDEQ) remain significant University challenges.

### ***University Storm Water Management***

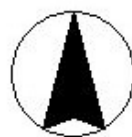
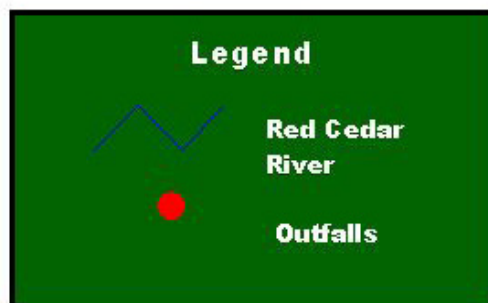
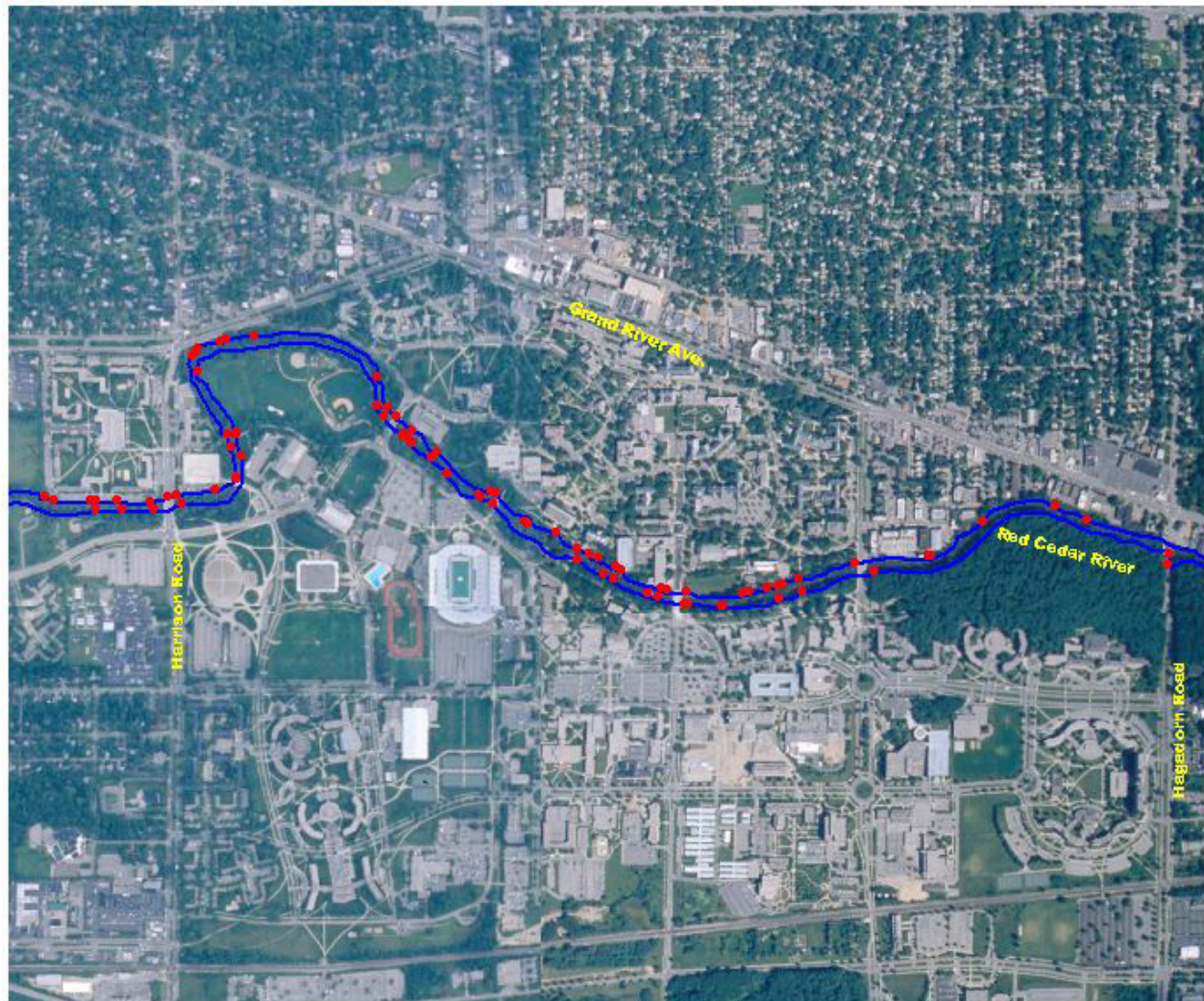
#### **Introduction**

Polluted storm water runoff has long been identified as a leading cause of surface water impairment in the United States. As early as 2000, the VPFO and Provost funded the University's Watershed Action through Education and Research (MSU-WATER) project, a voluntary watershed management initiative that emphasized the integration of research, teaching and outreach activities to address non-point source pollution, including storm water runoff.

Beginning in 2003, however, hundreds of medium-sized communities, including the University, became subject to federally-enforceable storm water management requirements and the University received its first formal permit to discharge storm water in April of that year. The permit essentially allows the University to maintain its approximately 70 storm water outfalls that discharge to the Red Cedar River. (Figure 1)



**Campus of Michigan State University  
Ingham County  
Red Cedar River Outfalls**



80 0 80 160 Meters

A horizontal scale bar with alternating black and white segments, corresponding to the measurements 80, 0, 80, and 160 meters.

**MICHIGAN STATE  
UNIVERSITY**



Designed:  
Chad Fizzell  
DATE: 10/3/02

**Figure 1.** Arial map of Red Cedar Outfalls



The current MDEQ storm water permit will expire in April 2008 and an entirely new permit with (expected) additional substantive requirements will be issued later that year.

Based upon information provided by MDEQ, the new permit will unquestionably contain new post-construction control requirements (storm water treatment) for larger construction projects, as well as expanded storm water retention standards that may be retroactively applied to the University (and other Communities). The deadlines for meeting these new standards are expected to become effective sometime during the first two or three years of the next five-year permit term (2008-2013).

## **Recent Compliance Activities**

Phase II of the Federal Clean Water Act amendments required medium-sized urbanized communities to obtain a permit for all storm water discharges by 2003. The MSU campus maintains a complex storm water system with 70 outfalls that convey storm water to the Red Cedar River

More than 400 Michigan communities and institutions (including the University) were required to comply with Phase II requirements. The University received its Certificate of Coverage (Storm water Permit) in April 2003.

Along with 80% of Michigan's permitted communities, MSU has met its storm water permit requirements by participating in a watershed-based approach. This holistic approach is designed to accomplish storm water quality improvements watershed-wide while allowing for cost sharing for some storm water controls. To that end, MSU has worked and continues to work with the Greater Lansing Regional Committee (GLRC), a guiding body comprised of twenty individual entities within the three local urbanized watersheds: the Lower Upper Grand River, the Middle Looking Glass River, and the Lower Red Cedar River watersheds.

## **Current Permit Terms**

The University's existing permit contains terms and conditions that require the implementation of seven minimum measures to meet federal storm water management objectives. These measures essentially form the nucleus of terms and conditions of the MSU storm water permit.

The compliance status of each of these requirements is described below:

1. Public Education and Outreach: A public education plan was developed for campus and is currently in place. The plan targets students, faculty staff and visitors to campus, and emphasizes student involvement. Measurable goals and evaluation mechanisms are included in the plan and the University has met its targets and goals.
2. Public Involvement and Participation: A series of public meetings and workgroups were held for citizens throughout the Red Cedar River Watershed to gather input into the watershed planning process. Additional activities are planned with the GLRC for the new permit cycle.
3. Illicit Discharge Detection and Elimination (IDEP): The purpose of the IDEP program is to identify and remove illicit (improper) discharges to the Red Cedar River, and to encourage reporting of water quality problems and possible illicit connections and discharges. With few exceptions, only storm water and groundwater may be discharged through the University's storm water system. As illicit connections are identified, corrective actions are undertaken. Initial testing was completed at all MSU-owned outfalls along the river, with follow-up testing

at several of these, in accordance with the permit. Housing and Food Service (HFS) has completed a comprehensive survey of its building drainage systems to ensure that non-storm water discharges are not entering the storm drain system. Having identified several improperly connected water softening systems, HFS has undertaken measures to disconnect these and convey them to the sanitary systems with all work to be completed by early January 2008. Physical Plant has also identified improperly connected water softening systems that were readily identifiable and implementing the changes, taking further tests on softeners where the drainage system source was not readily identifiable and after tests will implement changes. All changes to non-conforming water softening units will be completed in January 2008.

4. Other significant previous IDEP activities: Standard custodial and maintenance procedures to protect prevent floor drain contamination have been developed with training to be completed in January 2008; permanent numbering of outfalls along the river corridor to assist with spill response investigation has been completed; labeling of catch basins across campus to increase awareness of their direct connection to surface waters has been completed; implementation and training of a spill response protocol for the campus storm drain network has been completed; and, the development of a database management system for the storm water pipe network for spill response purposes has been completed.
  5. Construction Site Storm Water Runoff Control: This element is addressed through the existing Soil Erosion and Sedimentation Control Act measures currently in place. These in essence require the University to obtain Soil Erosion and Sedimentation plan approvals from various permitting agencies with jurisdiction over the location of the construction project (i.e., Meridian Township, City of East Lansing, etc.).
  6. Post-Construction Storm Water Management: This element seeks to ensure that storm water will be managed onsite to the maximum extent practicable. Significant work was been completed during this first permit cycle. Faculty members and students from the Department of Biosystems and Agricultural Engineering (BAE) completed a hydrologic for the MSU campus, with detailed modeling completed for outfalls 42 (Shaw Hall area) and 53 (which drains a large portion of south campus). In addition, a storm water bio-retention facility was designed as part of the BAE senior design project (for possible implementation at the Shaw Hall green space). A rain garden (small bio-retention facility) was designed with assistance from BAE faculty at the Erickson Hall patio and installed in 2007. (Figure 2)
- Additionally, a group of MSU-WATER representatives met with the Farm Lane Underpass engineers to ensure that storm water best management practices are incorporated into the project. A bio-retention facility and swales have been proposed for the site, and the group is advocating for ongoing water quality monitoring in these areas and long-term use of the area by faculty members and students. Additional storm water demonstration sites are being discussed by the storm water committee.
7. Pollution Prevention and Good Housekeeping for Municipal Operations: This element requires MSU to address a large range of activities, including maintenance and inspection of streets, parking lots and storm water structural controls as well as applications of pesticides, fertilizers and herbicides. Training, record-keeping and long-term operation and maintenance of storm water controls must be included. An online staff training module has been developed by the University to introduce storm water concepts and outline good housekeeping best management practices for targeted staff members.



**Figure 2.** Erickson Hall Rain Garden



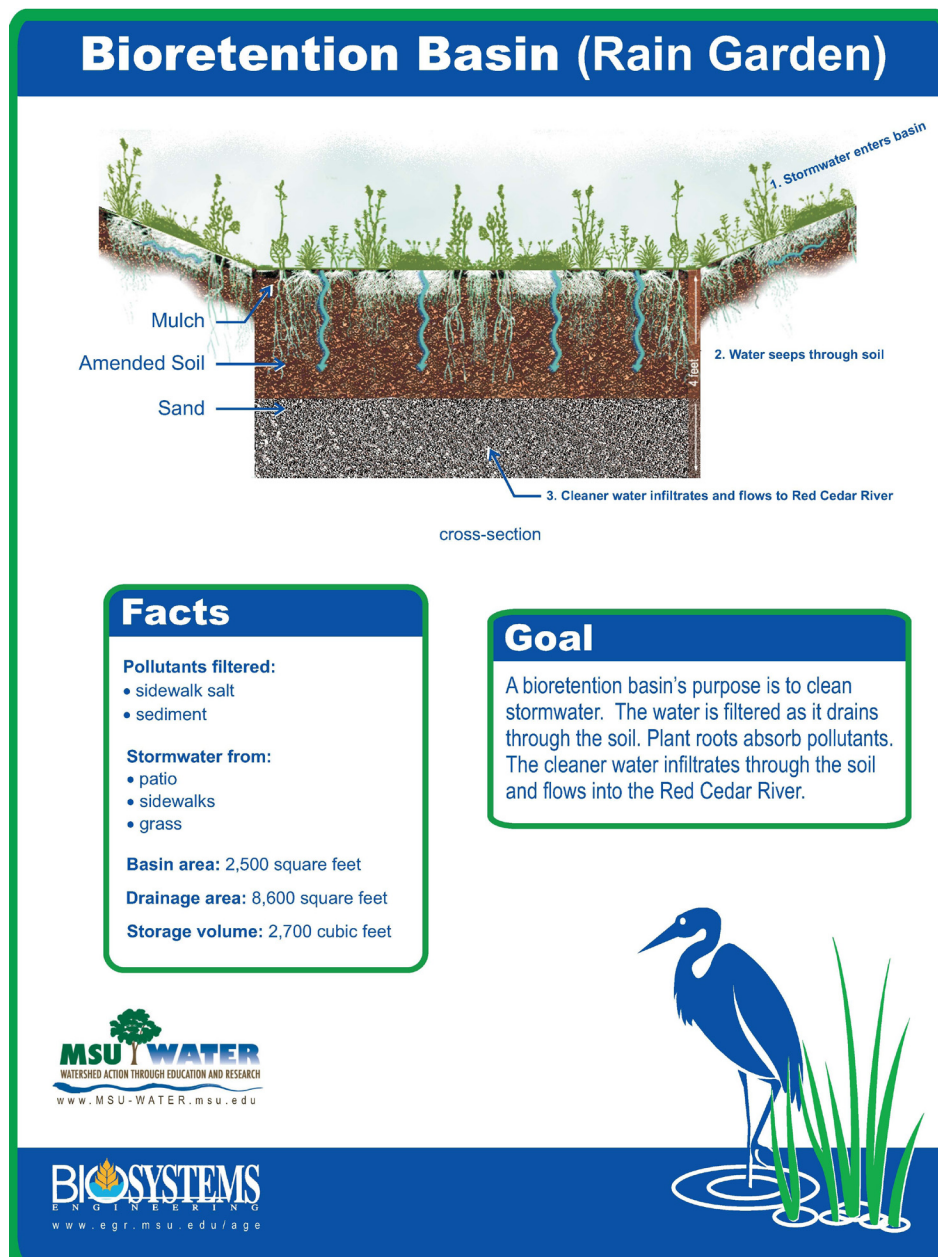


Figure 3. Model of bioretention basin

## Future Compliance Issues

Draft permit language currently being circulated by MDEQ would require the University (and other permit holders) to meet significantly more prescriptive standards addressing both the quantity of storm water that may be produced as well as the quality of storm water that leaves campus. The University is currently evaluating MDEQ's draft permit language and its potential impacts to campus. For example, the MDEQ is currently considering requiring the treatment of the first inch of rainwater collected at an affected site. It is also considering post construction treatment standards, such as "end of pipe" limit of 80 mg/L total suspended solids. Such prescriptive standards could significantly affect future project development costs and schedule. If applied retroactively, the costs could be staggering.

Preliminary discussions have occurred with Physical Plant staff members regarding a plan for incorporating storm water design policies into current building specifications and construction standards that would meet the new standards contemplated by MDEQ. These construction standard recommendations will be presented to the VPFO in February 2008. Moreover, the University is actively engaged, with other community members, in the negotiation of the new Phase II storm water permit that will hopefully ensure both a fair and effective discharge limitations.

The University is also committed to incorporating Low Impact Development techniques (onsite storm water management techniques modeled after natural systems, such as rain gardens, swales, etc.) and ensuring long-term maintenance of these systems the community moves toward more sustainable storm water management techniques

The University is committed to linking central storm water management planning and modeling to its long range capital improvement and construction planning, as well as coordinating University storm water management with its existing plans to enhance campus green space—a move entirely consistent with the MSU 2020 Master Plan. This master plan for storm water management opportunities will be presented to the VPFO in February 2008.

Finally, with the integration of the University's public education efforts into existing academic coursework and the involvement of its students in the development and dissemination of storm water education materials will assure both a richer experience for the students and more effective community storm water outreach.

### ***South Campus Farms CAFO NPDES Permit Compliance***

#### **Introduction**

The Michigan Department of Environmental Quality (MDEQ) issued an individual National Pollutant Discharge Elimination System (NPDES) permit covering the South Campus Farms in November, 2006 following an August 2006 public hearing. The University was required to obtain this permit because it substantially met the state criteria associated with Concentrated Animal Feeding Operations (CAFOs). Issuance of this individual permit (as opposed to a General Permit) does in fact allow the University to meet its surface water obligations while utilizing innovative treatment methods that would otherwise be prohibited. Under this permit, the University is required to meet all of the terms and conditions by 2009, although the permit itself expires in 2010.

#### **Current Permit Compliance**

The South Campus Farms continue to operate in compliance with the requirements of the NPDES CAFO Individual Permit, issued by MDEQ in November 2006. This permit essentially prohibits all surface water discharges from potential contamination sources on the South Campus Farms, including water related to the land application of animal wastes. The permit t does not expire until October 2010.

The constructions of two new and innovative vegetative filter treatment strips are currently under way at the University Dairy and at the Beef Cattle Research Facility. These are demonstration projects that, if successful, may be utilized by other small to medium sized farms across the state. These projects, which received approval by MDEQ in mid 2007, are partially funded by MDEQ. The effectiveness of these treatment systems will be evaluated over the course of the next two growing seasons. If monitoring demonstrates that the system is effective, no additional treatment works should

be required at either the Dairy or Beef Cattle Research. In the event that these treatment systems are not ultimately deemed successful, substantial waste retention facilities will require construction prior to August 2009 or the facilities must close.

### **Future Permit Compliance Issues**

The next significant permit deadline is August 2009 when all manure storage structures must be in place and all process water must be treated and/or contained. The Farms are on schedule to meet this permit condition, provided that the Vegetation Filtration projects prove viable.

The Office of Land Management continues to oversee the implementation of the NPDES CAFO Permit requirements, which, as stated above, is on track to meet the permit deadlines and other requirements relating to the NPDES CAFO Permit. Since January 2005, approximately \$1,971,000 has been spent on environmental related improvements, which includes nearly \$580,000 of the recently acquired \$1,277,500 additional funding. Another \$699,000 is expected to be expended by August 2009 to meet all of the Permit terms and conditions.

Note that upon expiration of the Permit in 2010, it is possible that the University may no longer meet the criteria of a large CAFO dependent upon the animal units maintained on the South Campus farms. Regulatory relief may be available to the University provided that the University remains in continual compliance with the CAFO permit during the entirety of the Permit term.

## ***Environmental Health and Safety Issues***

The University's main campus, due to both its size and complexity, requires continual proactive and responsive environmental, health, and safety program management to maintain compliance with applicable federal and state regulations and to assure a safe work environment.

Following is a summary of the major current infrastructure-related environmental and safety related management activities.

### ***South Campus Farms***

#### **Recent Actions**

Environmental, Health & Safety management related activities continue to require substantial commitments of time and expense to support the South Campus Farms.

Significant new management initiatives since January 2007 include:

- Completion of nine comprehensive asbestos surveys for a number of farm facilities and coordinated with EHS to establish a priority listing for conducting future asbestos surveys of the South Campus Farms facilities. While there are approximately 90 more structures on the South Campus Farms that require updated surveys, most of these are sheds, barns, silos, and pump houses
- Developing comprehensive Tractor and Farm Machinery Safety computerized training modules with Office of Environmental Health & Safety
- Completed Concentrated Animal Feeding Operation Operator training and certification, in accordance with state regulations. CAFO Operator training is administered by MDEQ. All nine Livestock Farm managers took the training and passed the Certification Exam, which covers proper animal waste management and safety issues

The recent creation and selection of a livestock facilities general manager in late 2006 has proven instrumental in enhancing communications and coordination of environmental and safety related activities and the South Campus Farms have already benefited accordingly

#### **Future Requirements**

The College of Agriculture and Natural Resources and the Office of Land Management are committed to continuing to improve communications with State agencies, stakeholders, industry and environmental groups regarding the management and stewardship of the South Campus Farms. To that end, University faculty and students outreach has extended across several disciplines to ensure active and diverse future participation in the long range planning activities for the South Campus Farms

As mentioned earlier in this report, all necessary structural and operational improvements imposed by the CAFO permit must be in place by 2009. The Office of Land Management has secured the necessary funding (\$1,277,500 from a number of sources, including from the Office of the Provost, the College of Agriculture and Natural Resources, Michigan Agriculture Experiment Station, the College of Veterinary Medicine, and others) that will be spent over the next two years to complete the

facility enhancements on South Campus prescribed by the terms and conditions of the CAFO Permit.

In addition to waste water issues, the University expects the US Environmental Protection Agency (USEPA) to issue air emission standards for CAFO over the next three to five years. The impacts to South Campus Farm management could be substantial and pollution control equipment may be required to be installed at a number of the animal facilities.

### ***Chemical Waste Storage Facility (WSF)***

#### **Recent Actions**

The MSU Chemical Waste Storage Facility (WSF) is a state and federally licensed Transfer, Storage and Disposal (TSD) facility that stores and manages all of the University's campus generated hazardous waste, including chemicals and used oil, as well non-hazardous and conditionally exempted wastes.

The WSF (located just off campus, on Jolly Rd) continues to play a key role in the safe and efficient management of hazardous and non-hazardous waste generated on campus. The WSF is managed by EHS. It is licensed by both MDEQ, inspected quarterly by MDEQ and annually by USEPA. MSU is the only college or university in the state that holds a federal TSD permit and that centrally manages its hazardous waste. Note that a number prior USEPA and MDEQ inspections over the past few years have confirmed that the facility currently is managed in a safe and compliant manner.

#### **Future Requirements**

The WSF will require renewal of its existing licenses in late 2009 prior to permit expiration in May 2010. The facility, which is technically "off campus", is over 20 years old, and while a number of incremental physical improvements have been incorporated over the years, the facility appears to be showing its age. Fire suppression, storm water management, baseline security and chemical compatibility issues all will require some level of attention in the near future.

A life-cycle analysis and site assessment is recommended and has been requested to be conducted next year to assure that the WSF will remain more than adequate to meet future safety and regulatory requirements applicable to the management of waste generated on campus.

### ***Lead Management***

#### **Recent Actions**

MSU is subject to a number of federal and state environmental, health and safety programs regulating the proper use management, and disposal of lead and products containing lead, as well as comprehensive safe drinking water standards, Michigan Occupational Safety and Health Administration (MIOSHA) worker exposure limits, and federal Housing and Urban Development (HUD) environmental standards.

The management of lead on campus continues to be a high priority. In the spring of 2007 an issue of lead-based paint in apartments was brought to the attention of Housing and Food Services (HFS) through a complaint.



At the direction of Environmental Health & Safety (EHS) and the University Physician's Office, a number of soil and paint samples were taken within and near the residential units in question. The test results did not reflect actionable levels of lead.

HFS and EHS subsequently conducted surveys of representative campus apartments with an independent third-party contractor to determine the location and assess the condition of any lead based paint. Preliminary results showed the presence of lead based paint in less than 3% of test samples (n=516). These results indicated the risk of exposure to lead in the housing units appears to be low and can be attributed appropriate property maintenance and management and the frequent painting and renovation of the apartments.

### **Future Requirements**

HFS and EHS are in the process of conducting additional surveys that will exceed the relevant recommendations of the US Environmental Protection Agency (USEPA), the Department of Housing and Urban Development (HUD), and the Occupational Safety and Health Administration (OSHA). HFS is preparing to make significant expenditures, if necessary, to repair or replace non-conforming railing and other structures. In addition, HFS is reviewing apartment assignment procedures to minimize the potential for contact with lead.

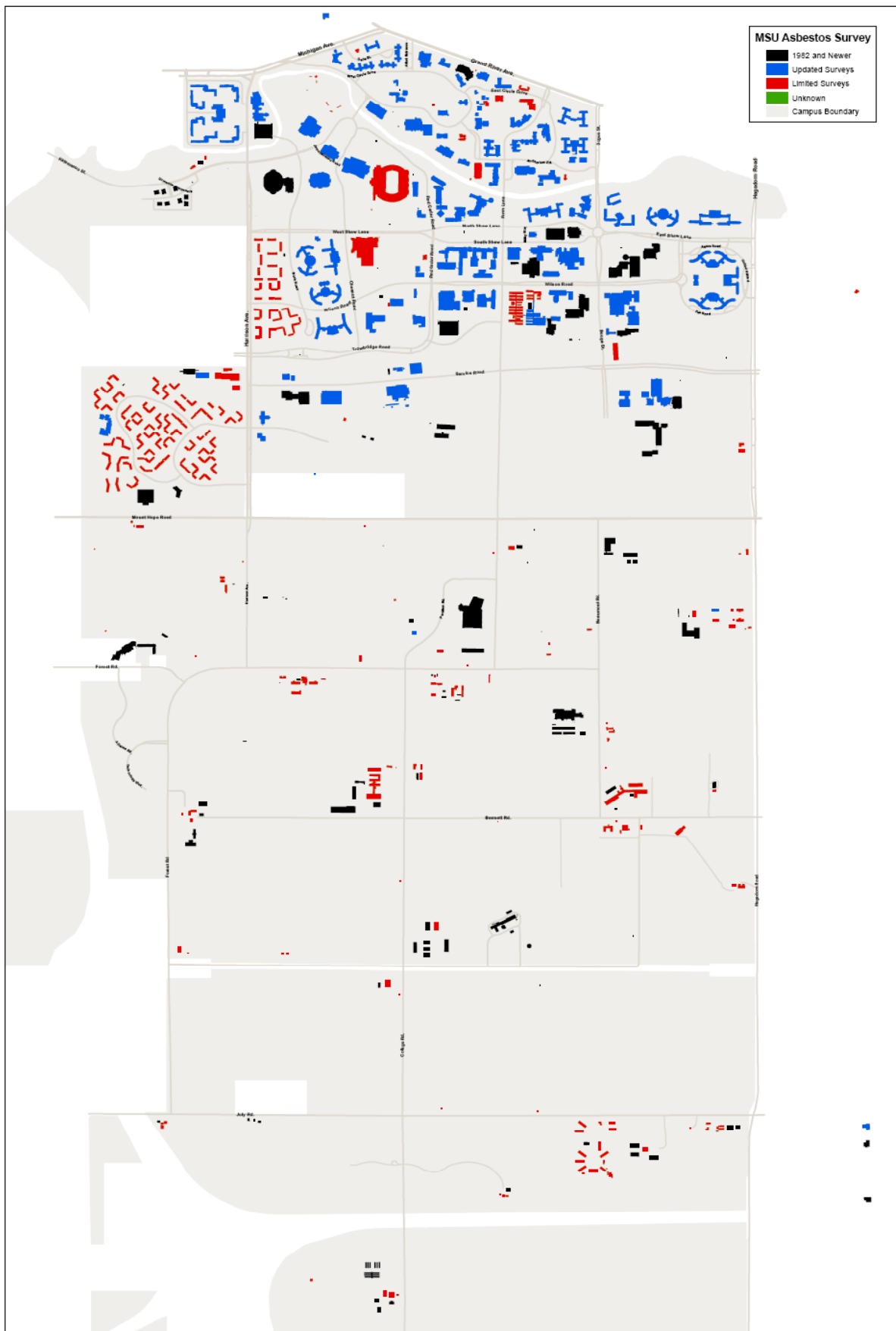
Current lead management activities continue to focus on potential exposures to children in University Housing facilities, play grounds and play ground equipment, EHS is currently laying the groundwork on developing a campus-wide lead survey that will include General Fund facilities as well as some off-campus structures. EHS will be requesting funding to begin this survey in the spring of 2008.

### ***Asbestos Management***

#### **Recent Actions**

Older University buildings and structures typically present a number of environmental health and safety challenges. Asbestos containing materials (ACM) are common in most buildings and structures constructed prior to 1980. However, when properly managed and maintained, they do not present a health hazard to building warders or occupants. In accordance with federal and state standards, the University manages asbestos "in place" and only removes (abates) ACM when undertaking significant renovations or when materials begin to display signs of deterioration. Beginning in 2004 the University undertook an aggressive program to update its existing asbestos surveys across campus.

The University's asbestos program continues to move forward. Since 2004, 112 updated asbestos surveys have been completed. See Figure 1 which contains a map depicting the asbestos survey status of all main campus buildings.



**Figure 1.** MSU Asbestos Survey Map

Surveys should be completed for the remaining 23 North Campus buildings by July 1 2008. HFS plans to update the asbestos surveys for Cherry Lane Apartments and remaining Spartan Village Apartments in Fiscal Year 2008-2009.

In addition to survey development, EHS has created a series of new on-line asbestos training modules for faculty, staff and students, has expanded existing asbestos sampling protocols and has extended oversight of asbestos abatement to University contractors. EHS continues to interact with departments on campus regarding asbestos related issues and track any potential asbestos complaints.

## **Future Requirements**

Updated surveys for a number of South Campus Farm facilities remain to be completed, yet many of these are structures are low traffic and have low have very low occupancy rates (sheds, well houses, silos, etc.); updated surveys for these structures are slated to be completed during FY 2008-2009. A number of off-campus facilities will be surveyed once main campus surveys have been completed.

## **Site 65**

### **Recent Actions**

Site 65, located behind (south of) the Simon Power Plant, is the location of one of the University's two retired chemical waste disposal facilities. These facilities were the subjected of MDEQ enforcement action in the 1980's and were designated "corrective action: sites by MDEQ due to significant soil and groundwater contamination. While all of the site's waste products and debris were removed and disposed of offsite, pockets of contaminated soil and ground water persist.

Currently site 65's groundwater contamination (diethyl ether) has been identified as moving southerly from Site 65. New monitoring wells were installed in 2005, 2006, and 2007. These wells have defined the boundaries of the contamination at Site 65. According to MDEQ and MSU consultants, additional measures need to be taken in order for MSU to remain in compliance with current regulations. These measures could include installing additional monitoring wells, removal and disposal of soil, active treatment such as "pump and purge" or air stripping or other capital intensive measures.

### **Future Requirements**

At this time, the University is incorporating into the planning of the T.B. Simon - Coal Handling Improvements Project the Site 65 remediation, restoration and de-listing activities. The T.B. Simon Plant – Coal Handling Improvements Project was approved for planning by the BOT June 6, 2007 and this project is planned in the same area land area. This project envisions removing wholesale large quantities of suspected contaminated soil and disposing of these materials at an approved and licensed disposal facility. Accordingly, these improvements will provide for the complete and final remediation of this site.

## ***Simon Power Plant Air Emission Compliance***

### **Recent Actions**

MSU is considered by MDEQ and USEPA to be a “major source” for air pollutants. As such it is subject to numerous restrictions, conditions and terms consolidated within its Renewable Operating Permit (ROP). Among the many limits placed upon the Simon Power Plant are restrictions on the amount of sulfur in fuel both coal and gas.

MSU Simon Power plant received two letters of violations on March 2, 2007 and August 13, 2007. These violations were related to coal sampling practices and sampling results that were found to be deficient. Additionally, the Plant was found to have exceeded its operational emission limits relating to fuel sulfur while co-firing coal and natural gas.

While the facility has historically conducted chemical analysis of coal to demonstrate compliance with its permit, the University and DEQ have agreed, that an appropriate solution to the permit violations would be include the University installing a Continuous Emissions Monitoring System (CEMS). This sampling technique provides instantaneous real time emissions data and is a far better method for demonstrating permit compliance. CEMS equipment is now in place and replaces the old direct coal sampling requirements. A Permit to install was submitted to Michigan Department of Environmental Quality (September 28, 2007) to modify the power plant’s renewable operating permit conditions.

### **Future Requirements**

The Simon Power Plant MDEQ and USEPA approved compliance plan for emissions of certain hazardous air pollutants (HAPS), was effectively invalidated (as were the compliance plans of all federally regulated industrial boilers) when a federal appeals court set aside USEPA Industrial Boiler regulations covering the emission of mercury, chlorine and particulates. The USEA is expected to reissue new regulations, expected by 2010; however these regulations may require the installation of pollution control equipment for removal of hydrochloric acid (HCL). Physical Plant believes that these new regulations may also affect the Simon Plant’s ability to burn alternative fuels in the future.

## CHAPTER 4: SOUTH CAMPUS FARMS NUTRIENT MANAGEMENT

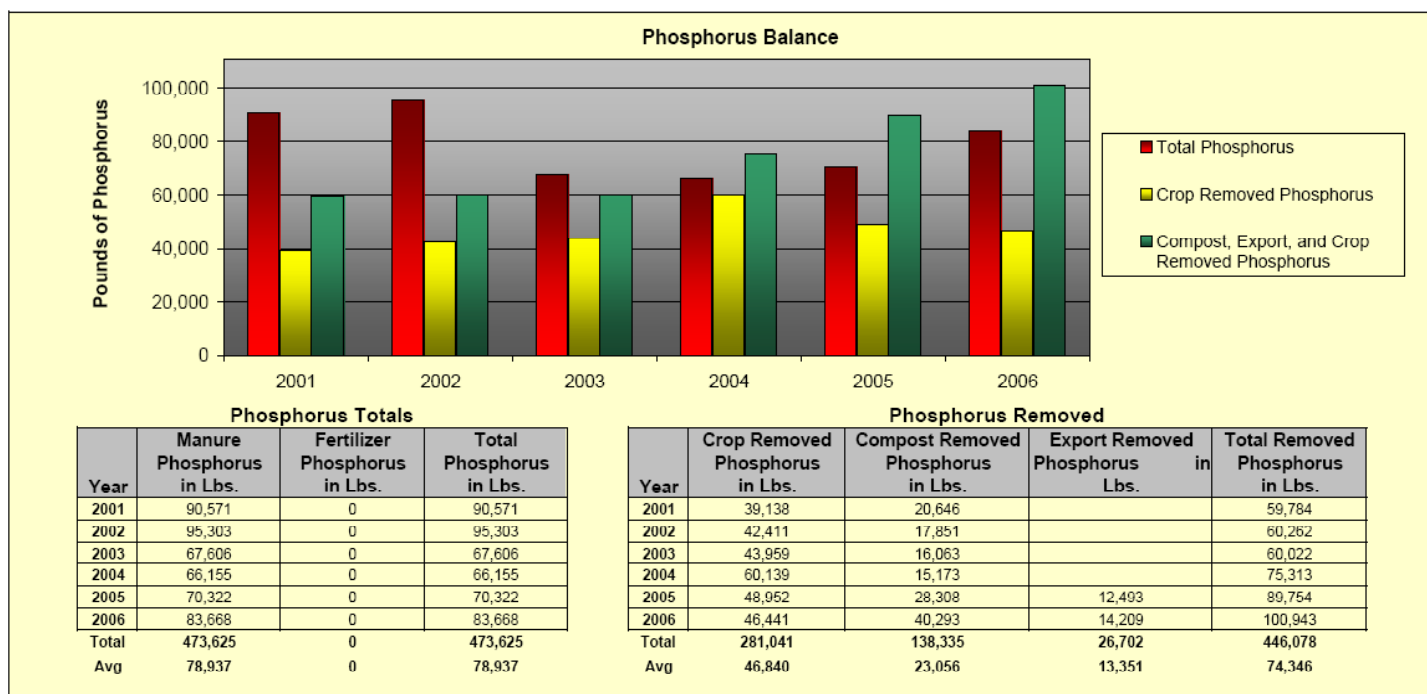
The MSU South Campus Farms continue to face significant challenges related to manure phosphorus production and sustainable nutrient management on the South Campus Farms land base. Shrinking research support acres, production of excess manure phosphorus, and elevated soil phosphorus levels have had a severe impact on the sustainable operation of the livestock facilities, Pavilion, and Veterinary Medicine. The collective size of the animal populations on the South Campus Farms classifies MSU as a Concentrated Animal Feeding Operation (CAFO) and requires the livestock facilities, Pavilion, and Veterinary Medicine to operate under a National Pollution Discharge Elimination System (NPDES) CAFO permit. The South Campus Farms are operating under a comprehensive nutrient management plan (CNMP) that incorporates retailing compost to the general public, export of raw manure to non-university land, reductions in research animal numbers, and exploration of alternative treatments and utilization options to achieve operational sustainability and maximize opportunities for teaching, research and demonstration.

The South Campus Farms have been engaged in the following over the past year:

### *CNMP and Nutrient Management*

A manure management system plan (MMSP) had been utilized since 1990 to manage the application of manure nutrients in conformance with Right to Farm Generally Accepted Agricultural and Management Practices (GAAMPs). Completion of the CNMP for the South Campus Farms has provided an all-encompassing “plan” for handling all phases of nutrient management, including environmental protection, in a sustainable manner. Utilization of the plan and the information contained within it have become nearly a daily occurrence as the consolidated document places pertinent information at each of the manager’s finger tips. The CNMP has been submitted to the Michigan Department of Environmental Quality (MDEQ) as a requirement of the NPDES-CAFO Permit.

There continues to be an imbalance in the amount of manure phosphorus produced and the amount of phosphorus that can be removed through crop production (See Figure 1). This imbalance continues to be 8,000-10,000 lbs of phosphorus annually, with retailing compost and exporting raw manure being utilized to transfer this imbalance to non-university land.



**Figure 1. Phosphorus Balance** Phosphorus balance for research support acreage on the South Campus Farms. Total phosphorus represents manure phosphorus produced at South Campus Farms livestock facilities, the Pavilion, and Veterinary Medicine. Phosphorus removed represents the amount of phosphorus removed through crop production across all acreage, removed by processing manure through the manure composting facility which then leaves the South Campus Farms land base, and removed through the export of raw manure to non-university land. High crop yields in 2004 were a result of abundant precipitation. Composting began in mid-July 2003 and became fully operational in 2005. Manure export began in 2005.

The CNMP is maintained as a fluid document. Many factors continue to impact the nutrient management plan and changes/fluctuations occur on a regular basis. These include animal research projects and fluctuations in animal numbers that impact manure production, plant-type research projects impacting land base utilization, feed management changes that impact crop production and manure production, weather conditions that impact crop yields and manure application opportunities, and material handling issues that impact composting rates and raw manure export.

### Regulatory Required Environmental Enhancements

Land Management Office (LMO) is continuing to oversee the implementation plan to meet the regulatory requirements associated with the NPDES-CAFO Permit. Since January 2005, approximately \$1,971,000 has been utilized for environmental related improvements on the South Campus Farms, including nearly \$580,000 in recently acquired additional funding. Another \$699,000 of the recently acquired additional funding is expected to be utilized by August 2009 to complete the implementation plan. This will bring the total estimated cost to complete the NPDES-CAFO implementation plan to approximately \$2.7M.

As environmental enhancements are being implemented on the South Campus Farms, a concerted effort is being made to incorporate those improvements that also promote future opportunities to address the overall aging facilities and infrastructure across the South Campus Farms system. Completion of a master plan to take the South Campus Farms into the next two decades should become a major goal.

CANR continues to place priority on communication with State agencies, stakeholders, industry and environmental groups, and our faculty and student populations across disciplines to ensure an active participation in the South Campus Farms and the current and future vision for continued sustainable operations.

#### *Livestock General Manager*

The South Campus Farms Livestock General Manager (GM) was hired December 2006 and given the responsibility to oversee and coordinate the operations of all the livestock facilities on the South Campus Farms. With the addition of the GM, the South Campus Farms are realizing enhanced coordination of operations, incorporation of additional management expertise into daily operations, over-arching attention to environmental issues, coordination of changes that could impact nutrient management, and budgetary efficiencies. The number of animals available for research is continually being evaluated through the GM and department faculty in an attempt to ensure optimal operation to maximize teaching, research and demonstration opportunities.

#### *Retailing Compost to the General Public*

The South Campus Compost Facility has been operating at full capacity since 2005 and regularly generates approximately 10,000 yards of compost for retail annually. Currently three “grades” of compost are being produced for retail through the MSU Surplus Store and include Un-Cured (good), Aged (better), and Cured (best). Development of the Cured/Best compost product and working with MSU Surplus to develop the ability for small quantity sales directly at the MSU Surplus Store will continue to expand the retail market. Additionally, MSU Grounds continues to utilize 1,500-2,000 cu-yds of compost in their maintenance and management of the grounds on North Campus.

The Agricultural Product Center within the College of Agriculture and Natural Resources (CANR) is near completion of a study assessing the feasibility for retailing compost and is evaluating potential new markets.

#### *Raw Manure Export & Power Generation from Wood Shaving Bedding*

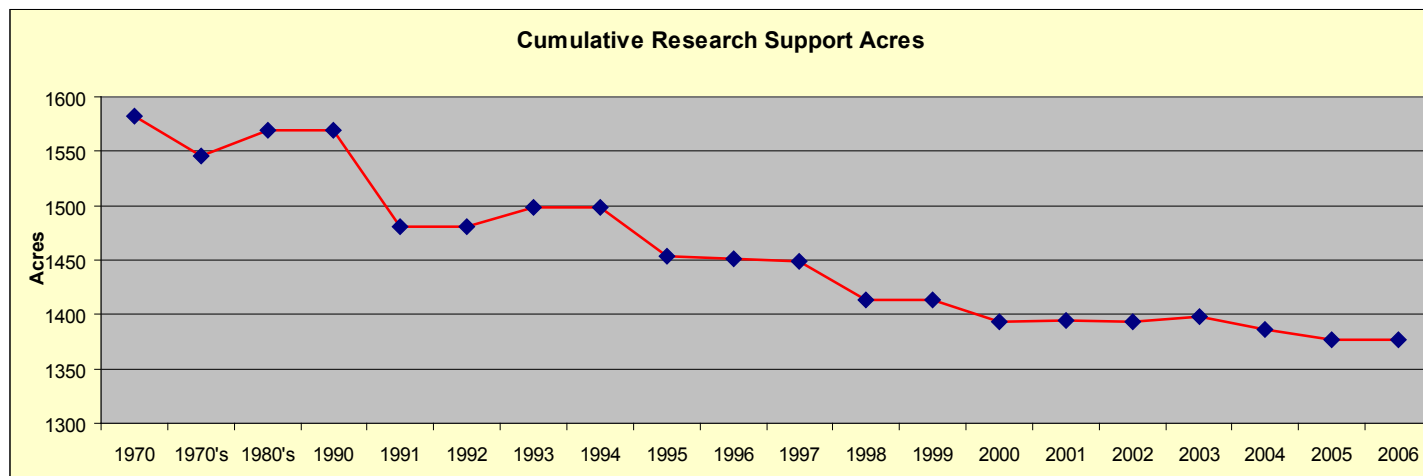
For a second year, the practice of exporting raw manure to non-university land is being utilized to enable nutrient balancing on the South Campus Farms land base (ie Nutrients applied = Nutrients removed). Approximately 700 tons of solid manure and 1.2M gallons of liquid manure are exported to area farms annually, at a cost of approximately \$55,000 each year. Each spring, manure is applied to all spreadable acres (and available research acres) based upon phosphorus crop removal rates to prevent the increase of soil phosphorus levels. All other manure nutrients generated throughout year are then either exported or processed through the South Campus Compost Facility. The actual quantity of raw manure that is exported in any given year is influenced by a number of factors, including research support acres, spreadable acres and research acres available, crop rotations, animal numbers and amount of manure generated, and the types of manure.

The South Campus Farms orchestrated the utilization of burning for power generation (via Mid Michigan Recycling (MMR) and Genesee Power in Flint) to handle approximately 2,000 cu-yds annually of wood shaving bedding being generated at the Veterinary Clinic Hospital on Main Campus. This represents approximately 7% of the total solid manure generation. Plans are being developed for future use of this material at the MSU Power Plant.

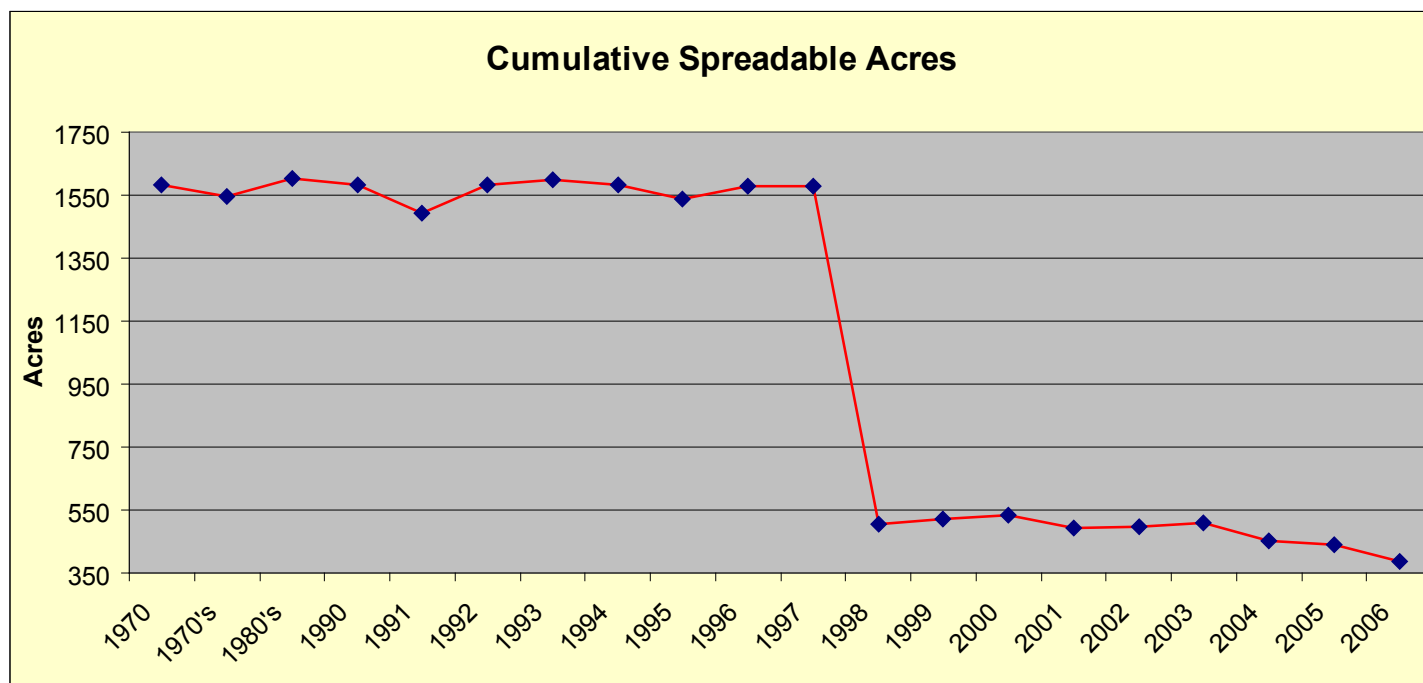


## Land Base Losses

South Campus Farms research support and spreadable acres continue to decline with increases in departmental research projects, buildings and facilities, and environmental requirements and setbacks (Figures 2 & 3). Additionally, the effects of necessary crop rotations (corn to wheat to alfalfa) can have an impact on the number of spreadable acres available as manure is not applied to established alfalfa (as seen in the loss of 51 spreadable acres from 2005 to 2006).



**Figure 2. Cumulative Research Support Acres** Impacts on the amount of research support acreage available (1,582 Acres in 1970 to 1,377 Acres in 2006). Acreage losses are attributed to departmental research projects, buildings and facilities, and environmental regulations and setbacks.



**Figure 3. Cumulative Spreadable Acres** Impacts on the amount of research support acreage available for manure application (spreadable acres) (1,582 Acres in 1970 to 388 Acres in 2006). Significant acreage losses in 1991 & 1998 were related to removing fields with high phosphorus soil tests and by eliminating the majority of pastures and all marginal land from the manure spreading plan.

The Land Management Office (LMO) is continuing to explore any opportunities for the acquisition of additional land, in the immediate area and/or contiguous to the South Campus Farms, to alleviate the constraints associated with nutrient management and land accessibility for teaching, research and



demonstration. In the short term, compost retail, raw manure export, and off-site power generation have proven to be more cost effective practices to address the land base shortage issue.

### *Anaerobic Digestion & Nutrient Separation – A Conceptual Study*

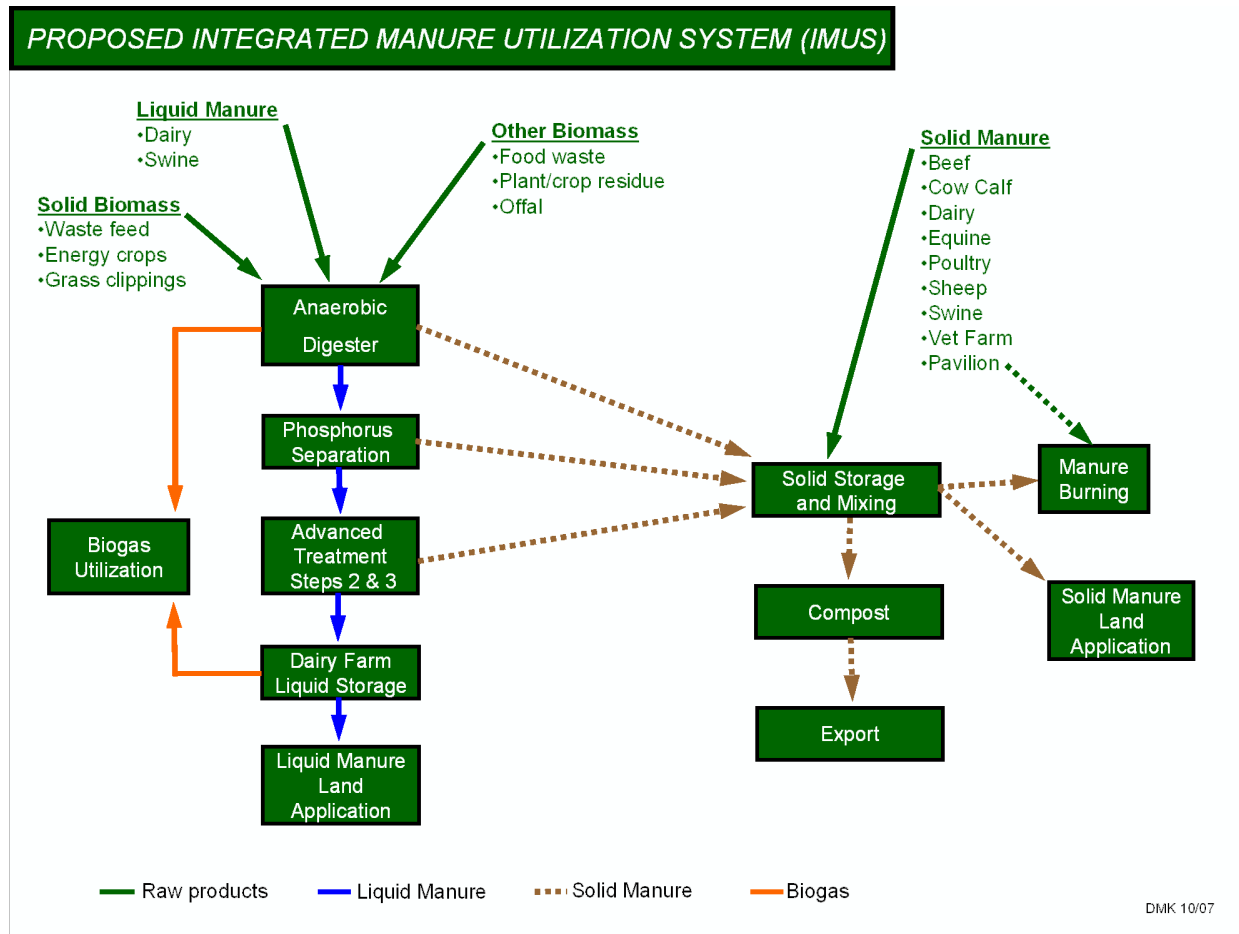
LMO has recently completed a feasibility study evaluating anaerobic digestion and nutrient separation technologies, in the form of an Integrated Manure Utilization System (IMUS) (Figure 4), for potential future incorporation into the South Campus Farms operations. The purpose of the study was to evaluate the feasibility of combining manure generated on various South Campus Farms for treatment in a centralized system and also includes the possible utilization of residence hall cafeteria food waste. The proposed system would integrate anaerobic digestion and advanced manure treatment technologies with the existing Compost Facility to alleviate social and environmental pressures and improve handling efficiencies.

The study identifies concerns and deficiencies with the existing manure management system. Based on these concerns, a preliminary conceptual plan for a South Campus Farms IMUS was completed. Necessary facility modifications were also identified and a preliminary manure transfer force main design was completed. The preliminary plan also includes a budget, site selection, site suitability review, and summary of the perceived and measurable benefits.

The current system review indicated that a nutrient management, odor control, manure handling and storage should be addressed when planning a new manure treatment system.

The proposed improvements to the existing South Campus Farms manure management system would result in an IMUS that assures all manure produced on the South Campus Farms is treated prior to utilization. The following components are included in the IMUS.

- Manure pipelines (force main)
  - A force main will connect transfer manure from the Swine Farm to the Dairy Farm daily.
  - Manure can be transferred between the farms or land applied using irrigation points built into the return main
- Anaerobic digester
  - Manure from the Dairy and Swine Farms will serve as the primary feedstock
  - Waste feed and other dry biomass feedstocks can be utilized
  - Cafeteria food waste in another beneficial feedstock for anaerobic digestion
- Covered manure storage (at Dairy Farm)
  - Manure storage will replace existing under floor storages
  - Cover will capture biogas and odor
- Phosphorus separation
  - Phosphorus “free” liquid can be applied to all South Campus Farms land base
  - Solid phosphorus exported with compost
- Additional advanced manure treatment components
  - Nitrogen, potassium, and pathogen treatment
  - Near discharge quality water is the goal
- Compost facility (existing)
  - Treats solid manure and solid fraction of advanced manure treatment



**Figure 4. Proposed Integrated Manure Utilization System (IMUS)**

The following tables summarize the estimated costs associated with construction of the IMUS (Table 1) and annual operation (Table 2).

**Table 1. IMUS Conceptual Budget Estimate <sup>1</sup>**

System Component	Year			Total Line Cost
	FY '08	FY '09	FY '10	
Overall Planning, Design, and Engineering	\$116,667	\$116,667	\$116,667	\$350,000
Material Transfer (South Campus Farms)	\$650,000	\$0	\$0	\$650,000
Anaerobic Digester	\$1,531,402	\$0	\$290,750	\$1,822,152
Facility Improvements	\$295,103	\$0	\$0	\$295,103
Advanced Manure Treatment Technologies	\$250,000	\$200,000	\$200,000	\$650,000
Cafeteria Food Waste	\$0	\$842,500	\$562,500	\$1,405,000
<b>TOTALS</b>	<b>\$2,843,171</b>	<b>\$1,159,167</b>	<b>\$1,169,916</b>	<b>\$5,172,254</b>

<sup>1</sup> Preliminary budget reflects the total value of individual system component budgets

**Table 2. IMUS Annual Recurring Operating Cost Estimate**

Item	Item	Quantity	Unit	Total
#			Cost	(annual)
1	Project Coordinator (50% FTE)	1	\$50,000	\$50,000
2	1585 Employees (digester, compost, food waste, manure handling, and facilities)	2	\$50,000	\$100,000
3	Operational/Utility costs	1	\$0	\$0
4	Maintenance - pumps and tanks ancillary to anaerobic digester	1	\$10,000	\$10,000
5	Maintenance - facilities/buildings	1	\$20,000	\$20,000
6	Maintenance - anaerobic digester	1	\$20,000	\$20,000
7	Maintenance - generator system	1	\$5,000	\$5,000
8	Maintenance and Supplies - phosphorus separation	1	\$20,000	\$20,000
9	Maintenance - solid separation system	1	\$5,000	\$5,000
10	Maintenance - food waste handling system including vacuum truck	1	\$10,000	\$10,000
11	Maintenance and Operation - manure/compost handling equipment	1	\$10,000	\$10,000
11	Operational office space and equipment	1	\$5,000	\$5,000
12	Pest management	1	\$5,000	\$5,000
<b>TOTAL ANNUAL COST</b>				<b>\$260,000</b>

<sup>1</sup> Preliminary budget to be used only for discussion purposes on May 31st, 2006.

Residence hall cafeteria food waste, as well as other organic waste generated from Main Campus are potential feedstocks for an anaerobic digester. Food waste from campus cafeterias has the potential to increase biogas output significantly. The biogas generation potential of food waste is significantly greater than animal manure. Based on the results of the 2006 food audit (Table 3), MSU cafeterias generate approximately 340,000 gallons (2.9 million pounds) of food waste annually. If food waste is included in the proposed digester system, daily biogas production would increase by 9,400 ft<sup>3</sup>/d. In addition to the increased biogas production, treating food waste in the digester would also increase carbon credit offsets and reduce the cost of discharging to the East Lansing Wastewater Treatment Plant (ELWTP).

**Table 3. Fall 2006 Cafeteria Food Waste Audit Findings**

Residence	Patrons <sup>1</sup>	Pre-Consumer		Post Consumer		Total	
Hall	(daily	Food Waste		Food Waste		Food Waste	
	average)	(lb/d)	(lb/patron)	(lb/d)	(lb/patron)	(lb/d)	(lb/patron)
Akers	1,362	368	0.27	681	0.50	1,049	0.77
Brody	2,989	643	0.22	1,251	0.42	1,894	0.64
Case	2,581	184	0.07	1,097	0.42	1,281	0.49
Holden	1,715	293	0.17	843	0.49	1,136	0.66
Holmes	1,891	541	0.28	776	0.41	1,317	0.69
Hubbard	2,467	476	0.19	1,219	0.49	1,695	0.69
Landon	945	146	0.17	283	0.29	429	0.46
Mason / Abbot	1,220	395	0.32	480	0.39	875	0.72
McDonel	1,067	193	0.18	497	0.47	690	0.65
Owen	1,118	267	0.26	66	0.06	333	0.32
Shaw	1,732	329	0.21	758	0.45	1,087	0.66
Wilson	1,303	261	0.20	532	0.41	793	0.61
Wonders	1,364	302	0.22	714	0.52	1,016	0.74
Yakeley	1,107	148	0.14	381	0.34	529	0.48
<b>Total</b>	<b>22,859</b>	<b>4,545</b>		<b>9,577</b>		<b>14,121</b>	
<b>Average</b>	<b>1,633</b>	<b>325</b>	<b>0.21</b>	<b>684</b>	<b>0.41</b>	<b>1,009</b>	<b>0.61</b>

Including cafeteria food waste in the proposed digester does pose some challenges. The major difficulty is the collection and transfer of food waste from Main Campus to the South Campus Farms.

Another challenge associated with cafeteria food waste is the quantity of cleaning water used in the cafeteria dish room. A study conducted in the spring of 2007 found that on average 5.00 gallons (≈42 pounds) of water is used for each patron entering a cafeteria; the food waste study found that 0.6

pound per day of food waste was generated for each cafeteria patron. Table 4 provides a summary of the water study findings. Reducing the water usage would be crucial if food waste were included in the anaerobic digester and decreasing cafeteria dish room water usage by 40% would reduce ground water withdrawals by 10.3 million gallons annually.

**Table 4. Spring 2007 Cafeteria Dish Room Water Usage Study**

Cafeteria	Flow Period	Velocity (ft/s)	Flow	Total Flow	Patrons	Flow	Style
	Calculated		Rate	Calculated		Rate	
	(min)		(gpm)	(gal/d)		(gal/patron)	
Brody	793	14.11	24.81	19,711	2,866	7.31	Garborator station
Landon	638	10.45	7.59	4,850	2,152	4.51	Garborator station
<b>Garborator station average</b>		<b>12.28</b>	<b>16.20</b>	<b>12,280</b>	<b>2,509</b>	<b>5.91</b>	
Akers	325	7.64	19.65	6,319	1,017	6.71	Tray line, mechanical
Holmes	806	5.87	13.95	11,279	2,035	5.60	Tray line, mechanical
<b>Mechanical tray line average</b>		<b>6.76</b>	<b>16.80</b>	<b>8,799</b>	<b>1,526</b>	<b>6.15</b>	
Holden	615	10.49	13.74	8,339	1,670	4.99	Tray line, gravity
Shaw	755	13.86	10.08	7,369	1,996	4.39	Tray line, gravity
Hubbard	756	8.83	13.83	10,654	2,144	7.80	Tray line, gravity
Wilson	493	4.83	4.83	4,887	1,434	3.42	Tray line, gravity
<b>Gravity tray line average</b>		<b>9.50</b>	<b>10.62</b>	<b>7,812</b>	<b>1,811</b>	<b>5.15</b>	
<b>Tray line average</b>		<b>8.59</b>	<b>12.68</b>	<b>8,141</b>	<b>1,716</b>	<b>5.48</b>	
Owen	256	2.84	1.96	493	1,269	0.27	<b>All water</b>
<b>AVERAGE DISH ROOM WATER USAGE</b>		<b>8.77</b>	<b>12.27</b>	<b>8,211</b>	<b>1,842</b>	<b>5.00</b>	

Housing and Food Services (HFS) is establishing standard operating procedures to improve water conservation and is continually focused on educational opportunities with the residence hall cafeteria patrons to promote healthy eating and limiting waste.

Numerous measureable (Table 5) and perceived benefits from the IMUS have been identified and will assist in evaluating the necessity for implementing these technologies.

**Table 5. Estimated Measurable Benefits of IMUS**

	Description	Estimated	Unit	Note
		Value		
Current cost offsets	Elimination of manure export	\$50,000	yr	1.6 Mgal @ \$0.031 per gallon
	Reduced liquid manure application cost	\$74,740	yr	Labor and equipment
	Crop productivity & quality	\$10,000	yr	Increased crop yield, quantity, and decreased labor overtime
	Reduced ELWWTP discharge volume	\$24,335	yr	Reduced cafeteria water usage, \$2.36/1,000 gal, 40% reduction
	Reduced cost to pump water	\$1,031	yr	Reduced ground water withdrawal, \$0.10/1,000gal, 40% reduction
New sources of revenue	Phosphorus retail value	\$5,022	yr	Increased compost value due to phosphorus amendment
	Electricity	\$54,050	yr	772,000 kWh/yr @ \$0.07 kWh
	Carbon credits	\$21,164	yr	\$4.00 metric ton CO2
<b>Total Measurable Benefits</b>		<b>\$240,342</b>	<b>yr</b>	

## Perceived Benefits of IMUS

- **Enhanced Sustainability of the South Camps Farms**
  - o Increases the ability to fluctuate animal numbers with little to no impact to the land base, crop production, or manure production costs (also eliminates need to acquire additional land)

- o All manure would receive some level of treatment before export, sale, or land application
- o Positive public perception
- o Notoriety associated with a first of a kind system on public University campus
- **Environmental Benefits to the MSU Community**
  - o Reduced fresh water withdrawals
  - o Reduced discharge to sanitary sewer, food waste and water
  - o Renewable energy and reduced greenhouse gas emission
  - o Investment in maintain South Campus Farms for future generations
  - o MSU moving to the forefront of innovative environmental sustainability
- **Material Transfer**
  - o Efficient transfer liquid manure to central treatment and storage facility
  - o Reduced cost for manure collection, transfer, and land application
  - o Reduced road traffic during application
  - o Reduced soil compaction during manure application
  - o Versatility in manure transfer and storage
  - o Minimize use of under-floor manure storage
    - ☐ Reduce confined space entries
- **Anaerobic Digestion**
  - o Biomass utilization
  - o Odor reduction
  - o Pathogen reduction
  - o Weed seed reduction
    - ☐ Increased crop yield
    - ☐ Less intensive pesticide program
  - o Renewable energy source
    - ☐ Biogas for electricity and heat generation
      - The Dairy facility (dairy, compost, & well #18) use on average 892,320 kWh of electricity per year (approx. \$58,000/yr)
      - The mixed substrate digester would generate approximately 530,000 kWh per year (approx. \$37,000/yr)
    - ☐ Byproduct heat from Co-Gen
      - Hot water to for the dairy farm and compost facility
    - ☐ Green label
    - ☐ Renewable and carbon credits
  - o Digester and covered manure storage
    - ☐ Modular digester design for future expansion
    - ☐ Collection of biogas
    - ☐ Decreased greenhouse gas emissions (carbon dioxide and methane)
    - ☐ Conversion of manure nutrients to plant available forms
    - ☐ Improved animal health, manure storage separated from barns
    - ☐ Increased storage capacity (net increase of 280,000 gallons)

- o Cafeteria food waste utilization
  - ☐ Lower wastewater BOD discharged to sanitary sewer
  - ☐ Decreased discharge cost to MSU and operational cost to ELWTP
  - ☐ Increased biogas production from the anaerobic digester
  - ☐ Acceptable under the MDEQ Individual NPDES-CAFO permit
    - Not a regulated solid waste
  - ☐ Renewable and carbon credits
  - ☐ Public perception
- o Education, outreach, and research opportunities

- **Advanced Manure Treatment**

- o Manure treatment can improve capacity to manage manure without increasing south campus land base
  - ☐ Manure treatment can achieve near discharge quality water
- o Solid liquid separation
  - ☐ Reduced solids concentration minimizing irrigation problems
  - ☐ Separated solids can be utilized in existing compost system
- o Advanced treatment systems can remove >95% of the phosphorus from the liquid manure
  - ☐ Low phosphorus concentration of liquid manure increases utilization options and application rates
  - ☐ Phosphorus “free” water can be applied to all fields with soil phosphorus tests less than 300 lb/ac
  - ☐ Decreased manure export cost (current cost \$55,000/yr)
  - ☐ Increased value of compost
- o Potential for removal/recover of nitrogen and potassium
- o Liquid manure can be irrigated or injected
  - ☐ Increased yields
  - ☐ Decreased need to import crops
  - ☐ Decreased need for pasture
  - ☐ Increase crop production acres
  - ☐ Decrease nitrogen needs for pastures
- o Education, outreach, and research opportunities

- **Environmental and Occupational Safety**

- o Decreased environmental impact from land application
- o Decreased risk of a discharge
- o Reduced emissions
- o Decreased exposure to Hydrogen Sulfide for employees and animals
- o Decreased reliance on under floor storage

- **Crop Production**

- o Converting to a percentage of no-till
- o Decreased overtime due to more timely applications
- o Placing the nutrients where they are need vs. just disposing of
- o Improved crop yield and soil condition due to reduced compaction

- **Departments that may Receive Cost/Management Benefits**
  - o Animal Science, Housing Food Services, Land Management, Physical Plant
- **Education/Outreach/Research Opportunities (by department)**
  - o Agricultural Economics
  - o Animal Science
  - o Biosystems and Agricultural Engineering
  - o Civil and Environmental Engineering
  - o Community, Agriculture, Recreation and Resource Studies
  - o Crop and Soil Science
  - o Horticulture

#### **IMUS Potential Issues:**

- Capital cost intensive
- Will result in a shift in labor and resources
- Routine maintenance schedules required
- Communication between IMUS operator(s) and biomass generators is essential as changes in feed inputs, cleaning agents, and/or chemicals/antimicrobials will impact the anaerobic digester
  - o Acclimation periods will be needed for changes
- Back up plans to address frozen or dry manure would need to be developed

#### **IMUS Recommendation**

The findings of the conceptual study indicate that developing the IMUS is the most logical option for improving the environmental sustainability of the South Campus Farms. The advance manure treatment component of the IMUS will address the nutrient management issues on the South Campus Farms land base. The anaerobic digestion component of the IMUS reduces concerns with odor and pathogens while improving the efficiency of advanced manure treatment. The proposed manure transfer and dairy farm storage decrease labor associated with manure management while improving nutrient utilization and crop productivity. The generation of renewable energy and abatement of greenhouse gas emissions benefits the entire MSU community.

Socially and environmentally the inclusion of cafeteria food waste from Campus is desirable. However, estimates of the cost and logistics of collecting, dewatering, and moving food waste from Main Campus to the South Campus Farms for treatment are too preliminary at this point to recommend including food waste in the plans. The flexibility of the IMUS conceptual plan is such that the system can be expanded as new sources of substrate (cafeteria food waste and other biomass) become available.





# APPENDICES

# Annual BOT Construction Report

January 2008

The annual construction report for the Board of Trustees includes major capital construction projects which have been completed, including final payment to the contractor, all work by MSU complete, and project accounts closed. This report is the result of the Construction Project Planning and Approval Policy approved by the Board of Trustees April 13, 2006. Part of the new policy was to provide reports on construction projects.

Major capital projects have a budget of \$1 million or greater and require Board approval at the end of June 20, 2007. There were 42 closed projects (31 major and 11 minor). Of the 42 closed projects, 16 projects were implemented under the previous Board approval construction threshold of \$250,000, but closed under the new Board construction policy. Minor capital projects are between \$250,000 and \$1 million and do not require Board approval.

The Closed Major Capital Projects Report highlights the thirty-one major capital projects closed during FY 2006-07. The report includes the authorized budget, final cost of the project, contingency use, construction schedule performance, and change order management.

The Closed Minor Capital Projects Report highlights final cost for the eleven minor capital projects closed during FY2006-07.

The Capital Project Contractor Scorecard Report measures contractor performance on major and minor capital construction projects. When final payment to the general contractor or construction manager is made, the university construction representative evaluates the contractor's performance on several factors, including quality, schedule, cost, project management, and close out. Scores from 100 to 80 are considered good, 51 to 79 acceptable and 50 and below are unacceptable.

## **2008 Annual BOT Construction Report**

### **Closed Major Capital Projects 2006-07**

#### **Summary of Data**

There were 31 major projects closed during the fiscal year ending June 30, 2007. The approved budgets for the projects totaled \$89,989,320. The final cost of these projects was \$84,097,043, a difference of \$5,892,277 (7%) that was returned to the appropriate unit.

Of the 31 projects, 26 were building related with an aggregate final cost \$76.6 million; 3 were road projects with an aggregate final cost of \$7.5 million; and the remaining 2 were utility projects with an aggregate final cost of \$2.4 million.

#### **Analysis**

Approximately 87% or 27 closed projects met substantial completion and only 19.4% or 6 closed projects met final completion on schedule. None of the late completions impacted MSU's programmatic functions (e.g., roads were open before student fall semester move-in, at least some elevators were functioning throughout the project, and other laboratories were available for instruction or research).

It should be noted that a number of projects have negative balances in the change order categories. On occasion, change orders result in a credit to the university instead of an additional cost which leads figures being reported as a negative number. Credits can be realized for a number of causes, including a decision to remove a portion of the work from the contractor so it may be performed by Physical plant at a lower cost (e.g. the controls at Marshall Adams); work specified in the documents that was not necessary (Fee Hall Elevators); and better than expected conditions in steam vaults and tunnels that required less surface repair than specified on a project (Steam Vaults 182 & 183).

#### **Future Focus**

The University has made improvements in closing out construction projects so that the University's mission of education, research, and outreach can run with as few interruptions as possible. These improvements will continue and a continued partnership with the School of Planning, Design and Construction and the implementation of project management software will allow better collaboration with internal stakeholders, designers, and contractors.

## 2008 Annual BOT Construction Report

### CP02067 - CAMPUS - CONVERT LIGHTING FROM T12 TO T8

Authorized Budget:	2,250,000	Final Cost:	2,241,009	Classification:	BUILDING
Construction:	1,880,595	Returned:	8,991	Contractor:	SUPERIOR ELECTRIC OF LANSING
Professional Services:	124,000			A/E:	EAS
Owner Work and Material:	0				
Contingency:	195,405			Funds returned to:	51-4343 2005 Bonds - Project Proceeds

Change Orders		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	-10,181	-0.5%	-5.2%	Substantial Completion:	6/15/2005	6/15/2005	0
Document:	0	0.0%	0.0%	Final Completion (Closeout):	6/30/2005	11/30/2006	518
Field:	182,502	9.7%	93.4%				
Total:	172,321	9.2%	88.2%				

### CP02075 - KELLOGG CENTER - RENOVATIONS TO GUEST BATHROOMS

Authorized Budget:	7,500,000	Final Cost:	6,831,222	Classification:	BUILDING
Construction:	6,219,837	Returned:	668,778	Contractor:	THE CHRISTMAN COMPANY
Professional Services:	547,630			A/E:	HOBBS & BLACK ASSOCIATES
Owner Work and Material:	12,912				
Contingency:	578,890			Funds returned to:	51-4216 H&FS Deferred Maintenance

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	685,279	11.0%	118.4%	Substantial Completion:	3/31/2006	3/31/2006	0
Document:	21,973	0.4%	3.8%	Final Completion (Closeout):	6/30/2006	12/7/2006	160
Field:	-400,224	-6.4%	-69.1%				
Total:	307,028	4.9%	53.0%				

## 2008 Annual BOT Construction Report

### CP02078 - BIOCHEMISTRY - HVAC RENOVATIONS

Authorized Budget:	15,459,587	Final Cost:	14,839,674	Classification:	BUILDING		
Construction:	11,732,287	Returned:	619,913	Contractor:	THE CHRISTMAN COMPANY		
Professional Services:	1,192,456			A/E:	HARLEYELLIS		
Owner Work and Material:	656,827						
Contingency:	1,746,318			Funds returned to:	N/A Bond Funded		
Change Orders		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	193,156	1.6%	11.1%	Substantial Completion:	10/30/2004	10/15/2004	(15)
Document:	862,911	7.4%	49.4%	Final Completion (Closeout):	8/23/2005	4/11/2007	596
Field:	789,741	6.7%	45.2%				
Total:	1,845,808	15.7%	105.7%				

### CP02079 - FOOD SCIENCE - HVAC RENOVATIONS

Authorized Budget:	17,094,880	Final Cost:	17,086,044	Classification:	BUILDING
Construction:	12,836,441	Returned:	8,836	Contractor:	CLARK CONSTRUCTION CO.
Professional Services:	1,332,522			A/E:	PETER BASSO ASSOCIATES
Owner Work and Material:	118,811				
Contingency:	2,707,792			Funds returned to:	N/A Bond Funded

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	472,152	3.7%	81.6%	Substantial Completion:	10/30/2004	10/30/2004	0
Document:	607,685	4.7%	105.0%	Final Completion (Closeout):	7/1/2007	6/13/2007	(18)
Field:	1,226,871	9.6%	211.9%				
Total:	2,306,708	18.0%	398.5%				

## 2008 Annual BOT Construction Report

### CP02081 - MARSHALL-ADAMS HALL - RENOVATIONS

Authorized Budget:	6,957,700	Final Cost:	6,815,297	Classification:	BUILDING		
Construction:	5,325,000	Returned:	142,403	Contractor:	FRYLING CONSTRUCTION CO., INC.		
Professional Services:	629,981			A/E:	LORD AECK SARGENT		
Owner Work and							
Material:	385,000						
Contingency:	549,619			Funds returned to:	N/A Internal Loan		
Change Orders		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	-439,168	-8.2%	-79.9%	Substantial Completion:	6/30/2005	6/30/2005	0
Document:	107,057	2.0%	19.5%	Final Completion (Closeout):	12/30/2005	6/15/2007	532
Field:	458,263	8.6%	83.4%				
Total:	126,152	2.4%	23.0%				

### CP03073 - CLINICAL CENTER /LIFE SCIENCES- COIL REPLACEMENT - PHASE ONE

Authorized Budget:	740,000	Final Cost:	718,059	Classification:	BUILDING
Construction:	462,000	Returned:	21,941	Contractor:	GUNTHORPE PLUMBING & HEATING
Professional Services:	78,000			A/E:	DICLEMENTE SIEGEL DESIGN
Owner Work and Material:	45,000				
Contingency:	142,000			Funds returned to:	51-4326 Reserve-Physical Plant Projects

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	7,657	1.7%	1.3%	Substantial Completion:	8/31/2004	8/31/2004	0
Document:	67,665	14.6%	11.7%	Final Completion (Closeout):	5/1/2005	7/1/2006	426
Field:	24,991	5.4%	4.3%				
Total:	100,313	21.7%	17.3%				

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### CP03100 - PSYCHOLOGY BUILDING - BUILDING RENOVATIONS

Authorized Budget:	8,225,000	Final Cost:	8,093,677	Classification:	BUILDING
Construction:	440,797	Returned:	131,323	Contractor:	THE CHRISTMAN COMPANY
Professional Services:	699,085			A/E:	SSOE
Owner Work and Material:	1,198,382				
Contingency:	1,501,054			Funds returned to:	51-4325 FPSM/Reserve-Facilities Projs

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	8,721	0.2%	0.6%	Substantial Completion:	6/30/2004	6/30/2004	0
Document:	548,306	11.5%	36.5%	Final Completion (Closeout):	10/30/2006	6/19/2007	232
Field:	226,545	4.8%	15.1%				
Total:	783,572	16.5%	52.2%				

### CP03109 - BAKER HALL - REPLACE CHILLER AND SUBSTATION

Authorized Budget:	1,450,000	Final Cost:	1,256,085	Classification:	BUILDING
Construction:	499,000	Returned:	193,915	Contractor:	ERA COMPANIES, INC.
Professional Services:	131,593			A/E:	DICLEMENTE SIEGEL DESIGN
Owner Work and Material:	265,300				
Contingency:	175,898			Funds returned to:	51-4325 FPSM/Reserve-Facilities Projs

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	769	0.2%	0.4%	Substantial Completion:	6/25/2004	6/25/2004	0
Document:	7,868	1.6%	4.5%	Final Completion (Closeout):	3/31/2005	7/1/2006	457
Field:	27,785	5.6%	15.8%				
Total:	36,423	7.3%	20.7%				



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### CP03135 - CYCLOTRON - ADDITION 10 (ASSEMBLY)

Authorized Budget:	3,050,000	Final Cost:	2,977,118	Classification:	BUILDING
Construction:	2,389,000	Returned:	72,882	Contractor:	KARES CONSTRUCTION COMPANY
Professional Services:	315,200			A/E:	HARLEYELLIS
Owner Work and Material:	2,000				
Contingency:	290,692			Funds returned to:	11-6643 SS National Superconducting Cyclotron Lab

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	1,966	0.1%	1.1%	Substantial Completion:	12/31/2004	11/19/2004	(42)
Document:	106,441	4.5%	60.5%	Final Completion (Closeout):	5/13/2005	11/20/2006	556
Field:	74,706	3.1%	42.5%				
Total:	183,113	7.7%	104.1%				

### CP03207 - ENGINEERING RESEARCH COMPLEX - NMR ADDITION

Authorized Budget:	2,907,155	Final Cost:	2,592,696	Classification:	BUILDING
Construction:	1,823,000	Returned:	314,459	Contractor:	CHRISTMAN CONSTRUCTORS, INC.
Professional Services:	348,265			A/E:	FTC&H
Owner Work and Material:	97,571				
Contingency:	617,719			Funds returned to:	21-2399 & 51-4325 Research Reserve & Facilities Reserve

Change Orders		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	-2,127	-0.1%	-0.3%	Substantial Completion:	2/13/2005	2/13/2005	0
Document:	50,520	2.8%	8.2%	Final Completion (Closeout):	8/15/2007	5/24/2007	(83)
Field:	69,268	3.8%	11.2%				
Total:	117,661	6.5%	19.0%				

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### CP03214 - SHAW LANE POWER PLANT - REMEDIATE SITE

Authorized Budget:	600,000	Final Cost:	490,117	Classification:	BUILDING		
Construction:	132,550	Returned:	109,883	Contractor:	PITSCH COMPANIES		
Professional Services:	64,000			A/E:	CH2M HILL		
Owner Work and Material:	0						
Contingency:	400,150			Funds returned to:	41-4816 Eng Srv - S Campus Elec Conversion		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	8/15/2005	8/7/2005	(8)
Document:	0	0.0%	0.0%	Final Completion (Closeout):	10/1/2005	7/1/2006	273
Field:	13,913	10.5%	2.4%				
Total:	13,913	10.5%	2.4%				

### CP03242 - CENTRAL SERVICES - AIR CONDITION MUSEUM STORAGE AREAS

Authorized Budget:	900,000	Final Cost:	857,390	Classification:	BUILDING		
Construction:	594,890	Returned:	42,610	Contractor:	NIELSEN COMMERCIAL CONST. CO.		
Professional Services:	114,160			A/E:	DICLEMENTE SIEGEL DESIGN		
Owner Work and							
Material:	4,028						
Contingency:	178,322			Funds returned to:	51-4325 FPSM/Reserve-Facilities Projs		
Change Orders		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	110,164	18.5%	61.8%	Substantial Completion:	6/1/2004	6/1/2004	0
Document:	17,510	2.9%	9.8%	Final Completion (Closeout):	4/30/2005	7/1/2006	427
Field:	6,875	1.2%	3.9%				
Total:	134,548	22.6%	75.5%				

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### CP03369 - CHERRY LANE APARTMENTS - ALTERATIONS AND RELOCATION OF HEATING EQUIPMENT IN 919 PIT

Authorized Budget:	440,000	Final Cost:	439,256	Classification:	BUILDING
Construction:	325,000	Returned:	744	Contractor:	DIVERSIFIED MECHANICAL
Professional Services:	49,000			A/E:	DICLEMENTE SIEGEL DESIGN
Owner Work and Material:	0				
Contingency:	53,400			Funds returned to:	41-5308 Coord, Constr, & Maint/Spec/Univ Apt Special Proj '04

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	9/15/2005	10/5/2005	20
Document:	580	0.2%	1.1%	Final Completion (Closeout):	8/30/2006	7/31/2006	(30)
Field:	27,144	8.4%	50.8%				
Total:	27,724	8.5%	51.9%				

### CP03385 - FEE HALL - ELEVATOR REPLACEMENT

Authorized Budget:	970,000	Final Cost:	895,971	Classification:	BUILDING		
Construction:	815,000	Returned:	74,029	Contractor:	MOORE TROSPER CONSTRUCTION		
Professional Services:	49,780			A/E:	DOSHI ASSOCIATES		
Owner Work and Material:	26,000						
Contingency:	53,420			Funds returned to:	51-4325 FPSM/Reserve-Facilities Projs		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	10/1/2005	9/28/2005	(3)
Document:	-3,453	-0.4%	-6.5%	Final Completion (Closeout):	9/30/2005	7/31/2006	304
Field:	3,772	0.5%	7.1%				
Total:	319	0.0%	0.6%				

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### CP03386 - ERICKSON HALL - ELEVATOR REPLACEMENT

Authorized Budget:	495,000	Final Cost:	435,710	Classification:	BUILDING		
Construction:	389,000	Returned:	59,290	Contractor:	IRISH CONSTRUCTION COMPANY		
Professional Services:	42,450			A/E:	IDS CONSULTANTS		
Owner Work and Material:	0						
Contingency:	58,000			Funds returned to:	51-4325 FPSM/Reserve-Facilities Projs		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	-1,320	-0.3%	-2.3%	Substantial Completion:	6/30/2005	6/30/2005	0
Document:	2,206	0.6%	3.8%	Final Completion (Closeout):	8/31/2005	7/1/2006	304
Field:	3,630	0.9%	6.3%				
Total:	4,515	1.2%	7.8%				

### CP03393 - CLINICAL CENTER - COIL REPLACEMENT - PHASE 2

Authorized Budget:	760,000	Final Cost:	707,422	Classification:	BUILDING		
Construction:	648,369	Returned:	52,578	Contractor:	GUNTHORPE PLUMBING & HEATING		
Professional Services:	17,700			A/E:	DICLEMENTE SIEGEL DESIGN		
Owner Work and Material:	0						
Contingency:	74,331			Funds returned to:	51-4325 FPSM/Reserve-Facilities Projs		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	2/28/2005	4/22/2005	53
Document:	8,063	1.2%	10.8%	Final Completion (Closeout):	8/30/2005	7/1/2006	305
Field:	12,107	1.9%	16.3%				
Total:	20,169	3.1%	27.1%				

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### CP03396 - T.B. SIMON POWER PLANT - REPLACE ROOFS 5, 6, 10, 11, AND 15

Authorized Budget:	320,000	Final Cost:	299,844	Classification:	BUILDING		
Construction:	264,896	Returned:	20,156	Contractor:	MID MICHIGAN ROOFING		
Professional Services:	27,000			A/E:	ROOFING TECHNOLOGIES ASSOCIATE		
Owner Work and Material:	0						
Contingency:	22,184			Funds returned to:	41-4856 Eng Srv - Various HVAC/Maintenance Proj.		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	9/15/2004	9/14/2004	(1)
Document:	0	0.0%	0.0%	Final Completion (Closeout):	8/30/2005	7/31/2006	335
Field:	156	0.1%	0.7%				
Total:	156	0.1%	0.7%				

### CP035004 - HANNAH ADMINISTRATION PLAZA RENOVATION PHASE I -00026 41-0856

Authorized Budget:	238,500	Final Cost:	238,500	Classification:	BUILDING		
Construction:	141,500	Returned:	0	Contractor:	SANDBORN CONSTRUCTION, INC.		
Professional Services:	42,720			A/E:	HAMILTON ANDERSON		
Owner Work and							
Material:	33,100						
Contingency:	19,717			Funds returned to:	11-5213 Contingencies		

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	-1,320	-0.9%	-6.7%	Substantial Completion:	8/30/2004	8/30/2004	0
Document:	8,119	5.7%	41.2%	Final Completion (Closeout):	3/11/2005	10/3/2006	571
Field:	5,299	3.7%	26.9%				
Total:	12,098	8.6%	61.4%				

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### CP04106 - FOOD STORES - INSTALL FIRE PROTECTION/ALARM SYSTEM

Authorized Budget:	455,000	Final Cost:	390,627	Classification:	BUILDING		
Construction:	424,723	Returned:	64,373	Contractor:	NIELSEN COMMERCIAL CONST. CO.		
Professional Services:	72,000			A/E:	PETER BASSO ASSOCIATES		
Owner Work and Material:	23,500						
Contingency:	57,700			Funds returned to:	41-4364 Coord, Constr, & Maint/Spec./Res Halls Life Safety		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	46,903	11.0%	81.3%	Substantial Completion:	8/1/2005	8/1/2005	0
Document:	0	0.0%	0.0%	Final Completion (Closeout):	10/31/2005	8/30/2006	303
Field:	1,845	0.4%	3.2%				
Total:	48,749	11.5%	84.5%				

### CP04174 - FEE HALL - WEST - 5TH FLOOR RENOVATIONS FOR COLLEGE OF NURSING

Authorized Budget:	1,300,000	Final Cost:	1,273,358	Classification:	BUILDING		
Construction:	362,694	Returned:	26,642	Contractor:	HBC CONTRACTING		
Professional Services:	107,000			A/E:	DESIGN PLUS		
Owner Work and Material:	250,385						
Contingency:	137,895			Funds returned to:	21-2399 Research Reserve		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	1,016	0.3%	0.7%	Substantial Completion:	4/4/2006	4/4/2006	0
Document:	20,357	5.6%	14.8%	Final Completion (Closeout):	12/15/2006	6/30/2007	197
Field:	5,921	1.6%	4.3%				
Total:	27,294	7.5%	19.8%				

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### CP04224 - GEOGRAPHY BUILDING - (PSYCH RSCH) BARRIER FREE ALTERATIONS, FIRE ALARM UPGRADES, INTERIOR REN.

Authorized Budget:	1,127,500	Final Cost:	1,072,930	Classification:	BUILDING		
Construction:	2,916,800	Returned:	54,570	Contractor:	NIELSEN COMMERCIAL CONST. CO.		
Professional Services:	120,737			A/E:	BERNATH-COAKLEY		
Owner Work and Material:	126,465						
Contingency:	175,898			Funds returned to:	51-4316 FPSM/Reserve-Handicapper Accommodations		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	8,312	0.3%	4.7%	Substantial Completion:	8/1/2005	8/1/2005	0
Document:	163,646	5.6%	93.0%	Final Completion (Closeout):	8/15/2005	12/22/2006	494
Field:	365,852	12.5%	208.0%				
Total:	537,810	18.4%	305.8%				

### CP04271 - SPARTAN VILLAGE - REROOF BLDGS. 1421, 1425, 1442, 1445, 1450, 1634, 1635, 1641, 1578, & 1579

Authorized Budget:	550,000	Final Cost:	533,613	Classification:	BUILDING		
Construction:	440,797	Returned:	16,387	Contractor:	BORNOR RESTORATION, INC.		
Professional Services:	25,000			A/E:	RTA		
Owner Work and Material:	5,000						
Contingency:	46,345			Funds returned to:	41-4214 Coord, Constr, & Maint/Spec/Res Halls Roof Restoration		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	8/25/2005	10/15/2005	51
Document:	0	0.0%	0.0%	Final Completion (Closeout):	8/1/2006	7/1/2006	(31)
Field:	-25,390	-5.8%	-54.8%				
Total:	-25,390	-5.8%	-54.8%				



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### CP04297 - CHEMISTRY - ALTERATIONS TO ROOMS 535, 536, 537

Authorized Budget:	1,096,000	Final Cost:	881,616	Classification:	BUILDING
Construction:	1,638,110	Returned:	214,384	Contractor:	MOORE TROSPER CONSTRUCTION
Professional Services:	90,000			A/E:	FTC&H
Owner Work and Material:	53,000				
Contingency:	218,400			Funds returned to:	21-2399 Research Reserve

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	5/30/2006	5/15/2006	(15)
Document:	8,552	0.5%	3.9%	Final Completion (Closeout):	2/2/2007	6/15/2007	133
Field:	-18,731	-1.1%	-8.6%				
Total:	-10,179	-0.6%	-4.7%				

### CP04445 - SPARTAN VILLAGE - REROOF VARIOUS BUILDINGS

Authorized Budget:	540,000	Final Cost:	520,728	Classification:	BUILDING
Construction:	126,000	Returned:	19,272	Contractor:	BORNOR RESTORATION, INC.
Professional Services:	29,980			A/E:	RTA
Owner Work and Material:	10,500				
Contingency:	61,597			Funds returned to:	41-4214 Coord, Constr, & Maint/Spec/Res Halls Roof Restoration

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	10/15/2005	10/15/2005	0
Document:	0	0.0%	0.0%	Final Completion (Closeout):	9/25/2006	9/25/2006	0
Field:	0	0.0%	0.0%				
Total:	0	0.0%	0.0%				

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### CP045002 - HANNAH ADMINISTRATION PLAZA RENOVATION PHASE II

Authorized Budget:	614,998	Final Cost:	613,931	Classification:	BUILDING		
Construction:	618,300	Returned:	1,067	Contractor:	GRANGER CONSTRUCTION COMPANY		
Professional Services:	36,876			A/E:	HAMILTON ANDERSON ASSOC.		
Owner Work and Material:	38,973						
Contingency:	57,981			Funds returned to:	51-4325 FPSM/Reserve-Facilities Projs		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	11,466	1.9%	19.8%	Substantial Completion:	8/30/2005	8/30/2005	0
Document:	0	0.0%	0.0%	Final Completion (Closeout):	10/30/2005	3/23/2007	509
Field:	48,645	7.9%	83.9%				
Total:	60,111	9.7%	103.7%				

### CP05047 - CHEMISTRY - ALTERATIONS TO ROOM 511

Authorized Budget:	545,000	Final Cost:	438,900	Classification:	BUILDING		
Construction:	0	Returned:	106,100	Contractor:	MOORE TROSPER CONSTRUCTION		
Professional Services:	44,300			A/E:	FTC&H		
Owner Work and Material:	43,700						
Contingency:	73,036			Funds returned to:	51-4325 FPSM/Reserve-Facilities Projs		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	1/9/2006	1/9/2006	0
Document:	0	0.0%	0.0%	Final Completion (Closeout):	2/2/2007	1/31/2007	(2)
Field:	0	0.0%	0.0%				
Total:	0	0.0%	0.0%				

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### CP035016 - ROADS - SPARTAN STATUE INTERSECTION RECONSTRUCTION & STEAM SERVICE REPLACEMENT

Authorized Budget:	4,100,000	Final Cost:	4,100,000	Classification:	ROADS		
Construction:	289,000	Returned:	0	Contractor:	KARES CONSTRUCTION COMPANY		
Professional Services:	335,205			A/E:	PAVEMENT MANAGEMENT		
Owner Work and Material:	84,940						
Contingency:	682,651			Funds returned to:	51-4127 VPFO/Roads & Parking Imp		
Change Orders		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	8/14/2005	8/22/2005	8
Document:	992	0.3%	0.1%	Final Completion (Closeout):	12/31/2006	2/15/2007	46
Field:	19,518	6.8%	2.9%				
Total:	20,511	7.1%	3.0%				

### CP035017 - ROADS - PARKING LOT 82/83 RECONSTRUCTION

Authorized Budget:	2,537,000	Final Cost:	1,933,077	Classification:	ROADS		
Construction:	787,220	Returned:	603,923	Contractor:	CADWELL BROTHERS		
Professional Services:	218,100			A/E:	CARL WALKER, INC.		
Owner Work and Material:	119,825						
Contingency:	568,010			Funds returned to:	51-4111 Campus Parking Facilities Reserve		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	379	0.0%	0.1%	Substantial Completion:	8/15/2005	8/15/2005	0
Document:	29,499	3.7%	5.1%	Final Completion (Closeout):	12/30/2005	9/25/2006	269
Field:	33,607	4.3%	5.8%				
Total:	63,485	8.1%	11.0%				

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### CP035018 - ROADS - CRESCENT/MIDDLEVALE ROADS RECONSTRUCTION - PHASE I

Authorized Budget:	856,000	Final Cost:	681,815	Classification:	ROADS		
Construction:	686,800	Returned:	174,185	Contractor:	CONCORD EXCAVATING, LLC		
Professional Services:	195,000			A/E:	CTE ENGINEERS		
Owner Work and Material:	20,000						
Contingency:	195,103						
				Funds returned to:	51-4127 VPFO/Roads & Parking Imp		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	2,131	0.3%	1.1%	Substantial Completion:	8/13/2005	8/1/2005	(12)
Document:	15,684	2.3%	8.0%	Final Completion (Closeout):	7/25/2006	10/25/2006	92
Field:	20,363	3.0%	10.4%				
Total:	38,177	5.6%	19.6%				

### CP04012 - STEAM DISTRIBUTION - VAULT 214 TO ERICKSON HALL AND INTERNATIONAL CENTER

Authorized Budget:	2,100,000	Final Cost:	1,773,045	Classification:	UTILITIES		
Construction	455,355	Returned:	326,955	Contractor:	GRANGER CONSTRUCTION COMPANY		
Professional Services	84,000			A/E:	FTC&H		
Owner Work and Material	230,000						
Contingency	105,590			Funds returned to:	Internal Loan		
Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	0	0.0%	0.0%	Substantial Completion:	9/30/2004	8/28/2004	(33)
Document:	0	0.0%	0.0%	Final Completion (Closeout):	5/27/2005	7/1/2006	400
Field:	5,080	1.1%	4.8%				
Total	5,080	1.1%	4.8%				

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### CP04120 - STEAM DISTRIBUTION - REPAIR TUNNEL BETWEEN VAULTS 182 & 183

Authorized Budget:	310,000	Final Cost:	310,000	Classification:	UTILITIES
Construction:	462,870	Returned:	0	Contractor:	SANDBORN CONSTRUCTION, INC.
Professional Services:	12,000			A/E:	FTCH
Owner Work and Material:	0				
Contingency:	68,040			Funds returned to:	41-4845 Eng. Services/Food Science Steam Tunnel

Change Order		% of Contract	% of Contingency	Schedule	Planned	Actual	Days (Under)/Over
Scope:	400	0.1%	0.6%	Substantial Completion:	9/23/2005	9/23/2005	0
Document:	16,069	3.5%	23.6%	Final Completion (Closeout):	5/9/2006	7/1/2006	53
Field:	-2,478	-0.5%	-3.6%				
Total:	13,991	3.0%	20.6%				

## 2008 Annual BOT Construction Report

### Closed Minor Capital Projects

**Summary of Data:** This report lists final cost for the eleven minor capital projects closed during FY2006-07. Minor capital projects are between \$250,000 and \$1 million and do not require Board approval. For FY2006-07 the authorized budget for these projects was \$5,322,001 and the final costs totaled \$4,756,460 allowing a return of \$621,605, or 11.7% of the authorized budget.

CP Number	Project Description	Budget	Final Cost	Returned
CP04248	OYER SPEECH AND HEARING - REPLACE A/C WITH CHILLER	\$392,000	\$389,728	\$2,272
CP04341	FEE HALL - EAST - ALTERATIONS TO ROOMS A522-A539	\$400,000	\$299,097	\$100,903
CP04443	HOLDEN HALL - REROOF AREAS 11, 15, 16, 27, 28, 31 & 32	\$415,000	\$373,964	\$41,036
CP04459	MUNN ICE ARENA - REPLACE ROOF	\$755,000	\$754,999	\$1
CP05301	CYCLOTRON - INSTALL NEW 15KV SERVICE FEEDER	\$345,000	\$401,069	\$0
CP05554	INTERNATIONAL CENTER - ROOF REPLACEMENT - AREAS 4, 9, AND 10	\$350,000	\$274,975	\$75,025
CP05137	PARKING - EXPAND ACCESSIBLE PARKING - PHASE 2	\$475,000	\$399,615	\$75,385
CP06275	PARKING - EXPAND ACCESSIBLE PARKING - PHASE 3	\$650,001	\$556,920	\$93,081
CP06276	PARKING - EXPAND ACCESSIBLE PARKING - PHASE 4	\$630,000	\$475,378	\$154,622
CP04016	COMMUNICATION DISTRIBUTION - NORTH CAMPUS - COMMUNICATION DUCTLINE - PHASE I	\$400,000	\$352,025	\$47,975
CP05412	WATER DISTRIBUTION - WEST CIRCLE DRIVE - INSTALL NEW WATER MAIN	\$510,000	\$478,694	\$31,306
<b>Projects: 11</b>		<b>\$5,322,001</b>	<b>\$4,756,465</b>	<b>\$621,605</b>

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# Capital Project Contractor Score Card Report

### Summary of Data

This report includes 89 projects performed by 33 contractors. A contractor is evaluated and scored on five factors: Quality, Schedule, Cost, Project Management, & Final Completion (Close-out). The score for each factor is weighted and then summarized into an overall ranking. In addition to the overall ranking, each factor is ranked for each project. The score for each factor is reported under the ranking and is color coded for each project. A green colored score indicates the contractor scored at least 80% of the total possible points for that factor, a yellow score indicates that the contractor scored between 51% and 79% of the total possible points, and a red score indicates that the contractor scored 50% or less of the total possible points. There were 25 projects with a score of good, 48 projects that achieved an acceptable score, and 16 projects were graded as unacceptable. Eight contractors were rated as Good, of these 8 contractors, only 2 contractors had 5 or more projects scored, the remaining 6 contractors had 2 or less projects scored. Twenty-five contractors were rated to be acceptable. More data must be collected before accurate assessment of contractor performance can be made.

**Quality** makes up 25% of the overall score and focuses on three items: ensuring workmanship and materials meet MSU standards, timely closure of items designated for re-work, and avoiding negative impact on MSU operations (e.g., striking a properly marked utility line and causing a building to shut down or traffic to be re-routed).

**Scheduling** comprises 20% of the overall ranking and centers around four elements: performance against owner milestones, utilizing acceptable scheduling practices when establishing schedules and milestones, submitting required schedule reports (keeping MSU informed of schedule issues), and coordinating trade activities.

**Cost** comprises 20% of the overall ranking and evaluates the timeliness of identifying potential change orders to minimize the impact to MSU, reasonableness in providing quotes for changes, and promptness in providing quotes.

**Project Management** is 20% of the overall ranking and focuses on coordinating resources effectively, completing change requests and submittals in a timely manner, participation in design reviews – responding to MSU needs in a fair and timely manner, being vested in the project and contributing to the successful completion of the project.

**Contractor Close-out** makes up 15% of the overall score and focuses on completing the punch list timely and accurately, submitting all drawings and documentation as required, and honoring warranties for materials and workmanship.

### Future Focus

This report is intended to be a feedback tool. Contractors generally like working at MSU, and want to meet the university's expectations. This is an opportunity to identify opportunities for improvements. The MSU Construction Superintendent has reviewed low scores with the contractors to create better performance in the future. Anecdotally, MSU believes the most improvements for













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contractor performance will be in the areas of project management and scheduling. These concerns have also been addressed with all interested contractors. As additional projects are evaluated this tool may aid in the selection of contractors for future projects.



















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### Capital Project Contractor Score Card Report By Project Ranking

	Legend	Overall (100)		Quality (25)		Schedule (20)		Cost (20)		Project Management (20)		Close Out (15)	
CP Project Name	 80 to 100% (Good)  51 to 79% (Acceptable)  Below 51% (Unacceptable)	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points
CP04016 - COMMUNICATION DISTRIBUTION - NORTH CAMPUS - COMMUNICATION DUCTLINE - PHASE I		1	94.50	24	20.63	1	20.00	1	20.00	1	20.00	4	13.88
CP04271 - SPARTAN VILLAGE - REROOF BLDGS. 1421, 1425, 1442, 1445, 1450, 1634, 1635, 1641, 1578, & 1579		2	94.13	18	21.25	7	19.00	1	20.00	1	20.00	4	13.88
CP04445 - SPARTAN VILLAGE - REROOF VARIOUS BUILDINGS		2	94.13	18	21.25	7	19.00	1	20.00	1	20.00	4	13.88
CP04360 - FOOD STORES - RELOCATE MSU BAKERY		4	93.13	1	25.00	9	18.88	21	17.50	9	19.00	11	12.75
CP03220 - PARKING RAMP NO. 6 - MORRILL HALL - CONSTRUCT ORIGINAL BUILDING		5	92.50	1	25.00	1	20.00	26	15.00	9	19.00	10	13.50
CP03135 - CYCLOTRON - ADDITION 10 (ASSEMBLY)		6	92.25	1	25.00	1	20.00	22	17.00	9	19.00	17	11.25
CP035016 - ROADS - SPARTAN STATUE INTERSECTION RECONSTRUCTION & STEAM SERVICE REPLACEMENT		7	91.50	1	25.00	11	18.25	1	20.00	20	17.00	17	11.25
CP06181 - FARRALL HALL - ALTERATIONS TO ROOMS 3 AND 129*		7	91.50	1	25.00	50	14.75	1	20.00	9	19.00	11	12.75
CP05485 - SPARTAN STADIUM - LEVEL 200 - CAREER SERVICES BUILD OUT		9	91.25	1	25.00	24	15.00	1	20.00	1	20.00	17	11.25

















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	Legend	Overall (100)		Quality (25)		Schedule (20)		Cost (20)		Project Management (20)		Close Out (15)	
CP Project Name	 80 to 100% (Good)  51 to 79% (Acceptable)  Below 51% (Unacceptable)	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points
CP06118 - CLINICAL CENTER - RENOVATION TO ROOM D117 (.7T MAGNET)		9	91.25	1	25.00	24	15.00	1	20.00	1	20.00	17	11.25
CP04373 - UNION BUILDING - ELEVATOR REPLACEMENT		11	91.13	32	18.75	1	20.00	1	20.00	1	20.00	15	12.38
CP03249 - CHERRY LANE APARTMENTS - DATA ACCESS SERVICE		12	91.00	1	25.00	53	14.00	13	18.00	9	19.00	1	15.00
CP06537 - BESSEY HALL - ALTERATIONS TO ROOM 204		13	90.38	11	23.13	21	16.00	1	20.00	1	20.00	17	11.25
CP05172 - ENGINEERING BUILDING - ALTERATIONS TO ROOM B205		14	90.13	11	23.13	1	20.00	26	15.00	20	17.00	1	15.00
CP04174 - FEE HALL - WEST - 5TH FLOOR RENOVATIONS FOR COLLEGE OF NURSING		15	89.38	16	22.50	24	15.00	13	18.00	1	20.00	4	13.88
CP04253 - CLINICAL CENTER - ELEVATOR JACKS REPLACEMENT		16	87.00	11	23.13	16	17.00	26	15.00	14	18.00	4	13.88
CP04329 - FEE HALL - EAST - 6TH FLOOR RENOVATIONS (LAC)		17	85.75	16	22.50	16	17.00	22	17.00	14	18.00	17	11.25
CP05578 - I.M. SPORTS WEST - EXTERIOR RESTORATIONS		18	85.00	24	20.63	53	14.00	1	20.00	14	18.00	15	12.38
CP02078 - BIOCHEMISTRY - HVAC RENOVATIONS		19	84.75	32	18.75	13	17.75	1	20.00	20	17.00	17	11.25
CP04385 - ERICKSON HALL - ADDITION 3		20	84.69	22	20.94	1	20.00	62	14.50	14	18.00	17	11.25
CP04459 - MUNN ICE ARENA - REPLACE ROOF		21	83.25	11	23.13	24	15.00	13	18.00	20	17.00	63	10.13
CP03380 - CHEMISTRY - ELEVATOR UPGRADE*		22	83.13	24	20.63	10	18.75	26	15.00	27	16.00	11	12.75

















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	Legend	Overall (100)		Quality (25)		Schedule (20)		Cost (20)		Project Management (20)		Close Out (15)	
CP Project Name	 80 to 100% (Good)  51 to 79% (Acceptable)  Below 51% (Unacceptable)	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points
CP05587 - FEE HALL - EXTERIOR MASONRY FACADE REPAIRS PHASES 3 AND 4		23	82.25	1	25.00	65	12.25	25	16.00	58	14.00	1	15.00
CP05533 - CHEMISTRY - ALTERATIONS TO ROOMS 403-405, 414, 414A, 524, 525, AND 526		24	81.75	18	21.25	11	18.25	26	15.00	27	16.00	17	11.25
CP05473 - ROADS - WILSON ROAD - RECONSTRUCTION 2006 - PHASE I		25	81.69	15	22.81	14	17.63	69	13.00	20	17.00	17	11.25
CP04443 - HOLDEN HALL - REROOF AREAS 11, 15, 16, 27, 28, 31 & 32		26	79.25	1	25.00	24	15.00	69	13.00	38	15.00	17	11.25
CP02081 - MARSHALL-ADAMS HALL - RENOVATIONS		27	77.63	32	18.75	24	15.00	26	15.00	14	18.00	56	10.88
CP06272 - FEE HALL - WEST - ALTERATIONS TO SUITES 324-327 & 3RD FLOOR CORRIDOR		28	77.50	22	20.94	62	13.00	26	15.00	27	16.00	14	12.56
CP05137 - PARKING - EXPAND ACCESSIBLE PARKING - PHASE 2		29	77.06	64	17.81	18	16.25	22	17.00	34	15.50	60	10.50
CP04120 - STEAM DISTRIBUTION - REPAIR TUNNEL BETWEEN VAULTS 182 & 183		30	76.88	24	20.63	53	14.00	26	15.00	27	16.00	17	11.25
CP03393 - CLINICAL CENTER - COIL REPLACEMENT - PHASE 2		31	76.75	18	21.25	18	16.25	78	12.00	27	16.00	17	11.25
CP02077 - CHEMISTRY - HVAC RENOVATIONS		32	76.13	67	16.88	24	15.00	26	15.00	14	18.00	17	11.25
CP03369 - CHERRY LANE APTS- ALTERATIONS AND RELOCATION OF HEATING EQUIPMENT IN 919 PIT		33	75.56	30	20.31	60	13.50	26	15.00	34	15.50	17	11.25
CP04224 - GEOGRAPHY BUILDING - (PSYCH RSCH) BARRIER FREE ALTERATIONS, FIRE ALARM UPGRADES, INTERIOR REN.		34	75.38	67	16.88	65	12.25	13	18.00	20	17.00	17	11.25
















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	Legend	Overall (100)		Quality (25)		Schedule (20)		Cost (20)		Project Management (20)		Close Out (15)	
CP Project Name	 80 to 100% (Good)  51 to 79% (Acceptable)  Below 51% (Unacceptable)	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points
CP03358 - VETERINARY MEDICAL CENTER - BLDG. "F", CREATE 2ND FLOOR		35	75.13	24	20.63	74	10.75	13	18.00	27	16.00	68	9.75
CP04131 - HOLMES HALL - LYMAN BRIGGS SCHOOL - HVAC MODIFICATIONS & LAB RENOVATIONS		36	75.00	32	18.75	24	15.00	26	15.00	38	15.00	17	11.25
CP03381 - LIBRARY - ELEVATOR REPLACEMENT		36	75.00	32	18.75	24	15.00	26	15.00	38	15.00	17	11.25
CP02075 - KELLOGG CENTER - RENOVATIONS TO GUEST BATHROOMS		36	75.00	32	18.75	24	15.00	26	15.00	38	15.00	17	11.25
CP03310 - CHEMISTRY - ALTERATIONS TO ROOMS 208, 208A, AND 209		36	75.00	32	18.75	24	15.00	26	15.00	38	15.00	17	11.25
CP03386 - ERICKSON HALL - ELEVATOR REPLACEMENT		36	75.00	32	18.75	24	15.00	26	15.00	38	15.00	17	11.25
CP04297 - CHEMISTRY - ALTERATIONS TO ROOMS 535, 536, 537		36	75.00	32	18.75	24	15.00	26	15.00	38	15.00	17	11.25
CP03384 - KEDZIE HALL - SOUTH - ELEVATOR REPLACEMENT		36	75.00	32	18.75	24	15.00	26	15.00	38	15.00	17	11.25
CP02029 - WELLS HALL - REPLACE ELEVATORS A2, A3, AND A4		36	75.00	32	18.75	24	15.00	26	15.00	38	15.00	17	11.25
CP06219 - VETERINARY MEDICAL CENTER - REMOVE LOADING DOCK AND SITE IMPROVEMENTS		36	75.00	32	18.75	24	15.00	26	15.00	38	15.00	17	11.25
CP03214 - SHAW LANE POWER PLANT - REMEDIATE SITE		36	75.00	32	18.75	24	15.00	26	15.00	38	15.00	17	11.25
CP05450 - ROADS - CRESCENT/MIDDLEVALE ROAD RECONSTRUCTION-PHASE II		46	74.38	32	18.75	15	17.25	65	13.50	34	15.50	74	9.38
CP06186 - PARKING - LOT 100 EXPANSION - OETMAN EXCAVATING		47	74.25	32	18.75	53	14.00	26	15.00	27	16.00	60	10.50
















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	Legend	Overall (100)		Quality (25)		Schedule (20)		Cost (20)		Project Management (20)		Close Out (15)	
CP Project Name	 80 to 100% (Good)  51 to 79% (Acceptable)  Below 51% (Unacceptable)	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points
CP06275 - PARKING - EXPAND ACCESSIBLE PARKING - PHASE 3		48	73.75	32	18.75	23	15.75	63	14.00	58	14.00	17	11.25
CP03234 - PRINTING SERVICES - ROOF REPLACEMENT		49	73.13	67	16.88	24	15.00	26	15.00	38	15.00	17	11.25
CP03207 - ENGINEERING RESEARCH COMPLEX - NMR ADDITION		50	73.00	32	18.75	62	13.00	26	15.00	38	15.00	17	11.25
CP03396 - T.B. SIMON POWER PLANT - REPLACE ROOFS 5, 6, 10, 11, AND 15		51	72.63	32	18.75	99	8.00	13	18.00	58	14.00	4	13.88
CP03383 - BAKER HALL - ELEVATOR REPLACEMENT*		52	72.00	32	18.75	24	15.00	78	12.00	38	15.00	17	11.25
CP05047 - CHEMISTRY - ALTERATIONS TO ROOM 511		52	72.00	32	18.75	24	15.00	78	12.00	38	15.00	17	11.25
CP03385 - FEE HALL - ELEVATOR REPLACEMENT		52	72.00	32	18.75	24	15.00	78	12.00	38	15.00	17	11.25
CP035002 - PARKING - LOTS 23/24 RECONSTRUCTION		55	71.81	32	18.75	70	11.88	26	15.00	34	15.50	59	10.69
CP06146 - STEAM DISTRIBUTION - NEW STEAM SERVICE FROM STM0180 TO UPLA BUILDING		56	71.69	31	19.06	51	14.63	78	12.00	20	17.00	77	9.00
CP04247 - PUBLIC SAFETY - REPLACE DX AIR CONDITIONING WITH CHILLER		57	71.00	74	16.25	53	14.00	13	18.00	77	13.00	68	9.75
CP02052 - HUBBARD HALL - REPLACE (6) PASSENGER ELEVATOR CARS & LANDING DOORS		58	70.00	67	16.88	61	13.25	26	15.00	58	14.00	56	10.88
CP06276 - PARKING - EXPAND ACCESSIBLE PARKING - PHASE 4		59	69.31	64	17.81	52	14.13	63	14.00	58	14.00	74	9.38
CP03100 - PSYCHOLOGY BUILDING - BUILDING RENOVATIONS		60	69.00	32	18.75	24	15.00	87	10.00	58	14.00	17	11.25
















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	Legend	Overall (100)		Quality (25)		Schedule (20)		Cost (20)		Project Management (20)		Close Out (15)	
CP Project Name	 80 to 100% (Good)  51 to 79% (Acceptable)  Below 51% (Unacceptable)	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points
CP06178 - SPARTAN VILLAGE/CHERRY LANE - ROOF REPLACEMENT, SP. VLG. 1410 - 1640, CHERRY LN. 807 - 815		60	69.00	32	18.75	77	10.00	26	15.00	58	14.00	17	11.25
CP02076 - VETERINARY MEDICAL CENTER - ONCOLOGY ADDITION		62	68.88	32	18.75	77	10.00	26	15.00	38	15.00	63	10.13
CP06197 - FARRALL HALL - ALTERATIONS TO ROOMS 100, 101 & 230		63	68.75	32	18.75	64	12.75	78	12.00	58	14.00	17	11.25
CP03073 - CLINICAL CENTER /LIFE SCIENCES- COIL REPLACEMENT - PHASE ONE		64	68.00	32	18.75	24	15.00	78	12.00	96	11.00	17	11.25
CP02079 - FOOD SCIENCE - HVAC RENOVATIONS		65	67.75	32	18.75	24	15.00	78	12.00	77	13.00	77	9.00
CP03242 - CENTRAL SERVICES - AIR CONDITION MUSEUM STORAGE AREAS		66	67.50	32	18.75	77	10.00	26	15.00	58	14.00	68	9.75
CP05132 - I.M. SPORTS WEST - ROOF REPLACEMENT		66	67.50	84	14.38	53	14.00	26	15.00	58	14.00	63	10.13
CP03422 - ENGINEERING RESEARCH COMPLEX - ADDITION NO. 2 - ENERGY & AUTOMOTIVE RESEARCH FACILITY		68	67.13	74	16.25	59	13.75	69	13.00	58	14.00	63	10.13
CP06446 - I.M. SPORTS EAST - IRRIGATION WELL		69	66.63	84	14.38	99	8.00	13	18.00	38	15.00	17	11.25
CP04014 - STEAM DISTRIBUTION - VAULT 299 TO SHAW HALL & ABRAMS PLANETARIUM		70	66.50	74	16.25	77	10.00	26	15.00	58	14.00	17	11.25
CP02044 - STEAM DISTRIBUTION - STEAM TUNNEL - VAULT 188 TO FARRALL HALL		71	65.50	67	16.88	24	15.00	87	10.00	38	15.00	80	8.63
CP04248 - OYER SPEECH AND HEARING - REPLACE A/C WITH CHILLER		72	65.38	64	17.81	71	11.38	69	13.00	58	14.00	76	9.19

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	Legend	Overall (100)		Quality (25)		Schedule (20)		Cost (20)		Project Management (20)		Close Out (15)	
CP Project Name	 80 to 100% (Good)  51 to 79% (Acceptable)  Below 51% (Unacceptable)	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points
CP05582 - T.B. SIMON POWER PLANT - ELEVATOR REPLACEMENT		73	64.88	24	20.63	18	16.25	87	10.00	87	12.00	110	6.00
CP03111 - I.M. SPORTS WEST - ADDITION NO. 1 - (COURTYARD INFILL)		74	64.75	32	18.75	21	16.00	106	8.00	77	13.00	77	9.00
CP06135 - FARRALL HALL - ALTERATIONS TO ROOM 115		74	64.75	82	15.00	94	9.25	1	20.00	77	13.00	85	7.50
CP05339 - NATURAL RESOURCES - ALTERATIONS TO LAB 201		76	63.38	84	14.38	92	9.75	26	15.00	77	13.00	17	11.25
CP03081 - VETERINARY MEDICAL CENTER - "PEGASUS" CRITICAL CARE CENTER - CONSTRUCT ORIGINAL BUILDING		77	62.38	74	16.25	76	10.25	69	13.00	38	15.00	83	7.88
CP04012 - STEAM DISTRIBUTION - VAULT 214 TO ERICKSON HALL AND INTERNATIONAL CENTER		78	61.75	74	16.25	73	11.00	69	13.00	58	14.00	85	7.50
CP06197 - FARRALL HALL - ALTERATIONS TO ROOMS 100, 101 & 230		79	60.75	74	16.25	77	10.00	26	15.00	87	12.00	85	7.50
CP03238 - WELLS HALL - ROOF REPLACEMENT		80	60.50	32	18.75	72	11.25	87	10.00	77	13.00	85	7.50
CP04015 - STEAM DISTRIBUTION - VAULT 15 TO BUS. COLLEGE COMPLEX (EPPELY WING) REPAIR VAULTS 61 & 78*		81	59.38	67	16.88	77	10.00	69	13.00	87	12.00	85	7.50
CP03121 - ENGINEERING BUILDING - CONVERT ROOM 2150 FROM CLASSROOM TO LABS		82	58.25	32	18.75	77	10.00	69	13.00	106	9.00	85	7.50
CP02066 - COMMUNICATION DISTRIBUTION - FIBER OPTIC BACKBONE - PHASE X		83	57.38	107	10.63	65	12.25	26	15.00	87	12.00	85	7.50
CP03066 - BRODY HALL - REPLACE ELECTRICAL SUBSTATIONS		84	56.13	84	14.38	65	12.25	87	10.00	87	12.00	85	7.50

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	Legend	Overall (100)		Quality (25)		Schedule (20)		Cost (20)		Project Management (20)		Close Out (15)	
CP Project Name	 80 to 100% (Good)  51 to 79% (Acceptable)  Below 51% (Unacceptable)	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points
CP03204 - CENTER FOR INTEGRATED PLANT SYSTEMS - POLYGREENHOUSE 2004		85	54.88	84	14.38	77	10.00	69	13.00	99	10.00	85	7.50
CP02080 - REGIONAL CHILLED WATER PLANT NO. 1 - REPLACE CHILLERS 1 & 2		86	54.25	82	15.00	101	7.75	87	10.00	58	14.00	85	7.50
CP06239 - PHYSICAL PLANT STORAGE BLDG NO 1 - ADDITION NO. 1		86	54.25	84	14.38	109	5.13	65	13.50	95	11.50	68	9.75
CP06082 - COMMUNICATION ARTS & SCIENCES - ALTERATIONS TO ROOMS 29 AND 30		88	54.00	94	12.50	77	10.00	87	10.00	58	14.00	85	7.50
CP05554 - INTERNATIONAL CENTER - ROOF REPLACEMENT - AREAS 4, 9, AND 10		89	53.56	106	10.94	118	3.13	26	15.00	58	14.00	60	10.50
CP04453 - ENGINEERING RESEARCH - CONCRETE LAB - ADD #1- MODIFICATIONS FOR TEST FURNACE		90	53.13	92	13.13	93	9.50	87	10.00	77	13.00	85	7.50
CP04135 - PLANT BIOLOGY LABORATORY - ALTERATIONS TO ROOM 255		91	53.00	80	15.31	116	3.38	65	13.50	75	13.50	105	7.31
CP05478 - PLANT BIOLOGY LABORATORY - ALTERATIONS TO ROOMS 151 & 155*		91	53.00	80	15.31	116	3.38	65	13.50	75	13.50	105	7.31
CP03418 - NATURAL RESOURCES - ROOF REPLACEMENT*		91	53.00	94	12.50	77	10.00	87	10.00	77	13.00	85	7.50
CP06473 - PSYCHOLOGY BUILDING - ALTERATIONS TO SUITE 136		94	52.50	104	11.88	69	12.00	106	8.00	87	12.00	80	8.63
CP03361 - WONDERS HALL - ELEVATOR REPLACEMENT		95	52.00	94	12.50	77	10.00	87	10.00	87	12.00	85	7.50
CP05400 - MANLY MILES - ALTERATIONS TO ROOMS 107 & 115		96	51.00	94	12.50	96	8.75	87	10.00	99	10.00	68	9.75



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	Legend	Overall (100)		Quality (25)		Schedule (20)		Cost (20)		Project Management (20)		Close Out (15)	
CP Project Name	 80 to 100% (Good)  51 to 79% (Acceptable)  Below 51% (Unacceptable)	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points
CP06179 - MANLY MILES - ALTERATIONS TO ROOMS 203 & 204		96	51.00	94	12.50	96	8.75	87	10.00	99	10.00	68	9.75
CP06048 - JENISON FIELDHOUSE - ROOF REPLACEMENT AREAS 1 THRU 7 AND 9 THRU 17		98	50.38	112	8.13	96	8.75	26	15.00	96	11.00	85	7.50
CP06049 - GROUNDS HEADQUARTERS - ROOF REPLACEMENT AREAS 1, 2, 3, AND 4		98	50.38	107	10.63	77	10.00	26	15.00	96	11.00	112	3.75
CP06090 - HOLMES HALL - ROOF REPLACEMENT AREAS 10, 11, 16 & 17 - MID MICHIGAN ROOFING, LLC		100	50.00	94	12.50	77	10.00	87	10.00	99	10.00	85	7.50
CP02067 - CAMPUS - CONVERT LIGHTING FROM T12 TO T8		101	49.88	84	14.38	77	10.00	113	5.00	77	13.00	85	7.50
CP02083 - SPARTAN STADIUM - SEATING EXPANSION		102	48.13	84	14.38	24	15.00	113	5.00	99	10.00	112	3.75
CP04441 - I.M. SPORTS WEST - ALTERATIONS TO ROOMS 130/130A, 142/142C & ROOMS 136 & 140		102	48.13	105	11.25	111	5.00	106	8.00	77	13.00	56	10.88
CP06091 - MUSIC PRACTICE BUILDING - ALTERATIONS TO ROOM 100		104	47.75	94	12.50	101	7.75	87	10.00	99	10.00	85	7.50
CP035018 - ROADS - CRESCENT/MIDDLEVALE ROADS RECONSTRUCTION -PHASE I		105	47.00	94	12.50	77	10.00	87	10.00	110	7.00	85	7.50
CP03239 - I.M. SPORTS CIRCLE - ROOF REPLACEMENT*		106	46.00	107	10.63	95	9.00	87	10.00	99	10.00	107	6.38
CP03050 - UNIVERSITY VILLAGE APARTMENTS - DATA ACCESS SERVICE		107	45.63	107	10.63	104	6.75	106	8.00	87	12.00	82	8.25
CP05640 - ROBERT D. ANGELL /UNIVERSITY SERVICES BUILDING ALTERATIONS TO MAIN LOBBY, ROOMS 101, 101A, 101D, 10		108	45.38	67	16.88	74	10.75	111	7.00	110	7.00	112	3.75

## 2008 Annual BOT Construction Report

	Legend	Overall (100)		Quality (25)		Schedule (20)		Cost (20)		Project Management (20)		Close Out (15)	
CP Project Name	 80 to 100% (Good)  51 to 79% (Acceptable)  Below 51% (Unacceptable)	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points	Rank	Points
CP05022 - ENGINEERING RESEARCH COMPLEX - RENOVATE CLEANROOM C16E		109	43.38	94	12.50	111	5.00	86	11.00	110	7.00	83	7.88
CP04028 - DEMONSTRATION HALL - REPLACE PIPING IN CRAWL SPACE		110	39.88	92	13.13	109	5.13	118	3.50	107	8.00	63	10.13
CP03243 - FARRALL HALL - ALTERATIONS TO ROOM 132, BSL-2 FOOD SAFETY LABORATORY		111	38.25	112	8.13	101	7.75	87	10.00	115	6.00	107	6.38
CP04316 - ENGINEERING BUILDING - ALTERATIONS TO ROOM 3540		112	36.63	112	8.13	107	6.00	111	7.00	107	8.00	85	7.50
CP02041 - T.B. SIMON POWER PLANT - UNITS 5 AND 6		113	35.00	107	10.63	107	6.00	87	10.00	116	5.00	118	3.38
CP03227 - CAMPUS - CONVERT LIGHTING FROM T12 TO T8 - PHASE II		113	35.00	94	12.50	104	6.75	113	5.00	110	7.00	112	3.75
CP06087 - GILTNER HALL - ALTERATIONS TO ROOMS 100, 100A, 157, 158, 158A - J. PEREZ CONSTRUCTION, INC.		115	34.25	116	6.25	111	5.00	87	10.00	110	7.00	110	6.00
CP03109 - BAKER HALL - REPLACE CHILLER AND SUBSTATION		116	32.88	112	8.13	111	5.00	106	8.00	107	8.00	112	3.75
CP035007 - ROADS - TROWBRIDGE ROAD - LANDSCAPING - 01102		117	29.38	116	6.25	104	6.75	113	5.00	116	5.00	107	6.38
CP05613 - MUSIC BUILDING - EXTERIOR PAINT		118	23.75	116	6.25	115	3.75	113	5.00	116	5.00	112	3.75
<b>Average Score for all 118 Projects Scored:</b>		<b>67.15</b>		<b>17.24</b>		<b>12.54</b>		<b>13.57</b>		<b>13.99</b>		<b>9.81</b>	

**Michigan State University  
Real Property Holdings  
As of July 1, 2007**

**Executive Summary**

Officially established on July 1, 1979, the Land Management Office is responsible for the management of University properties and facilities. These include the University farms located in East Lansing, the off-campus Michigan Agricultural Experiment Station properties, and other properties owned by Michigan State University (MSU) and the properties owned by the Michigan State University Foundation. MSU owned-lands comprise 23,585.165 acres; 2,738.392 acres are designated as research, education, and extension lands located south of Mt. Hope (including 169 buildings on these sites); lands north of Mt. Hope (main campus) consist of 2,049.577 acres; the golf course is 325 acres; 82.257 acres of campus lands are leased to others; off-campus properties include 18,384.249 acres, and disposable property is 5.691 acres.

Research, education, and extension properties off-campus face operational and maintenance challenges such as exterior repair/replacement; technology upgrades; high speed internet and video streaming; environmental enhancements directed at storm water management; encroachments; bio-security, bio-safety, and bio-containment concerns; and mechanical upgrades that include electrical, plumbing, and HVAC. With more than 240 buildings located at these facilities, the above listed items are placed on a five- to ten-year maintenance schedule. Approximately 98 off campus FTE are currently needed to manage these properties and an additional 20-80 temporary and on-call employees are used seasonally. Of the 31 sites included as research, education and extension properties, 17 have on-site managers.

Consistent with the University Real Estate Policy, University real estate is expected to serve the University's instructional, research, or outreach missions; provide protection for other University real estate; or be held for future such uses. When University real estate is not needed for one of these purposes, the property will be placed on the disposable property list, requiring Board of Trustee approval. Currently, the Hulett Road Property is on the disposable list.

The following summarizes real property activities during the period July 1, 2006 – June 30, 2007.

**Property Additions**

An approximate 1.5 acre parcel in Kent County was added to the real property portfolio as part of the College of Human Medicine Grand Rapids expansion project, at a cost of \$4,287,500. A medical/office building is located on the property, currently leased to an optometrist. The rest of the parcel is used primarily for surface parking (leased by Grand Valley State University and a private individual).

**Property Deletions**

The 5 acre parcel known as the Goldner Property (gifted in 2006) in Oakland County was sold September 6, 2006 for \$1,500,000. The sale proceeds are benefiting MSU's Beal Gardens.

**Mineral Leases and Minerals Released**

Mineral rights were reserved on the Goldner Property, as determined by the Board Finance Committee. No new leases were entered into.

**Primary Property Inventoried by County**

The addition of the 1.5 acre parcel in Kent County was added to the primary property list bringing the total to 23,585.165 acres.

### **Leased Properties and Land Leased or Licensed to Others (term of 10 years or more)**

The University leases, as tenant, a total of 580 acres necessary to support the Mission of the University and the College of Agriculture and Natural Resources, in particular the off-campus MAES research stations.

The University leases or licenses approximately 612 acres of off-campus MSU property to non-MSU tenants. Primarily, this land is not currently needed to satisfy the University's mission or sale of the property is prohibited though deed restrictions.

Leases of a term of 10 years or greater require Board of Trustee approval. Future long-term leases are being negotiated with the YMCA, Kalamazoo County and for College of Osteopathic Medicine space at the Macomb University Center and Detroit Medical Center. No other changes are anticipated in the next year for the current portfolio.

### **Disposable Properties**

With the completion of the Energy and Automotive Research Laboratories on campus, the program's former site on Hulett Road was placed on the **Disposable Properties** list. The Hulett Road property has been on the market since October 2006, listed at \$1.5 Million. Two billboards generating modest income are on the site.

### **Analysis of Off-Campus Primary, Disposable and Investment Holdings**

The Goldner Property was deleted and the Kent County property was added. Future considerations include potential gas and oil leases at the Martin Property, MacCready Forest and Wildlife Reserve, and Rogers Property. The River Terrace Property is listed as investment property with two residential leases in place; one on a month-to-month basis and the other scheduled to terminate July 31, 2008. This property's status should be reviewed annually to assess whether it should be placed on the **Disposable Properties** list. All other off-campus properties are not recommended to sell.

### **Agricultural Research Stations and Agricultural Land Available for Research**

Currently, there are 12 off-campus Agricultural Research Stations providing over 15,500 acres for agricultural research. Two leased off-campus stations provide another 220 agricultural research acres. No near future acquisitions are planned for the 12 Agricultural Research Stations; plans are underway to relocate the Saginaw Bean and Beet Farm (leased). Land used for agricultural research in East Lansing, south of Mt. Hope Road, remains stable at over 2,700 acres; environmental compliance and potential encroachment issues may impact the south campus acreage in future years.

### **Warranty Deeds to State Building Authority – Addendum #1**

The University has three State Building Authority bond-financed projects. The project site parcel is deeded to the State Building Authority and leased back to the University. The projects are: Anthony Hall Dairy Plant and Meat Lab (to be repaid 2032); Biomedical and Physical Sciences Building (to be repaid 2037); and Diagnostic Center for Population and Animal Health (to be repaid 2041). SBA bonds are typically issued for 35 years but the State may retire them before their maturity date.

### **Warranty Deeds to State Building Authority -- Addendum #2**

A fifty year lease between Michigan State University and the State of Michigan was entered into February 1956 for approximately six acres on Harrison Road. The Department of Agriculture constructed a lab on the parcel known as the Geagley Laboratory. In 2002, the parcel was deeded to

the State of Michigan in order for the State to convey the property to the State Building Authority to obtain bond financing for needed improvements. An "Agreement to Restore Title" requires the State to deed the parcel to Michigan State University at the time the property is conveyed back to the State from the State Building Authority. At that time, a lease will be entered into between Michigan State University (landlord) and the State (tenant) in order for the State to continue occupancy at the Geagley Laboratory. The "Agreement to Restore Title" is on file in the Michigan State University Office of General Counsel and the Land Management Office.

### **Summary**

The Michigan State University Real Property Holdings report is updated on an annual basis as of July 1 and provided to the Board of Trustees, for their review. Its purpose is to provide an overview of the various transactions that occurred during the fiscal year to comprise the current holdings.

**Supplement to**  
**Michigan State University**  
**Real Property Holdings**  
**As of July 1, 2007**

**FTE at Off-Campus Properties**

Property	FTE	Temporary Staff*
Brook Lodge	5	1-11
Clarksville Horticultural Experiment Station	3	1-10
Dobie Road Property	0	0
Dunbar Forest Experiment Station**	0	1
Hidden Lake Gardens	6	10
Kellogg Biological Station	30	1-20
Kellogg Forest	5	0
Lake City Experiment Station	3	1-2
Lux Arbor Reserve	1	0
MacCready Forest & Wildlife Research	0	0
Martin Property	0	0
Mason Research Farm	0	0
Montcalm Research Farm	1	0
Muck Soils Research Farm	1	1-5
Northwest Michigan Horticultural Research Station	4	1-5
River Terrace Property	0	0
Rogers Property	0	0
Russ Forest Experiment Station	0	0
Saginaw Bean and Beet Farm	2	0
Southwest Michigan Research & Extension Center	8	1-8
Tollgate Education Center	5	1-3
Trevor Nichols Research Complex	9.5	1-3
Upper Peninsula Experiment Station	12	1-5
Upper Peninsula Tree Improvement Center	6	0
WaWaSum Property	.75	0

\*Temporary employees at Experiment Stations vary seasonally.

\*\*Employees from the Upper Peninsula Tree Improvement Center oversee the Dunbar Forest Experiment Station.

**Michigan State University**

**REAL PROPERTY HOLDINGS**

**As of July 1, 2007**

**Prepared By:**

**Land Management Office  
for the  
Office of Vice President for Finance & Operations**

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## **Property Acreage Summary**

### **PRIMARY PROPERTY**

<b>Campus</b>		<b>5,195.225*Acres</b>
North of Mt. Hope	2,049.577	
Golf Course	325.000	
Research, Education and Extension South of Mt. Hope	2,738.392	
Campus Property Leased to Others	82.256	
<b>Off-Campus</b>		<b>18,384.249 Acres</b>
Off-Campus Leased to Others	530.323	

**DISPOSABLE PROPERTY** 5.691 Acres

**TOTAL DEEDED ACRES** 23,585.165 Acres

**PROPERTY LEASED TO MSU LONG-TERM** 580.000 Acres

**TOTAL LEASED AND DEEDED ACRES** 24,165.165 Acres

**\*See Addendum #1 -- Warranty Deeds To State Building Authority**

## **Property Additions**

### ***KENT COUNTY***

**College of Human Medicine - Grand Rapids**

**419 Sinclair Avenue, NE**

**410 Sinclair Avenue, NE**

**431 Michigan Street, NE**

**415 College Avenue, NE**

**1.5 Acres**

**Purchased**

**December 14, 2006**

**\$4,287,500.00**

## **Property Deletions**

***OAKLAND COUNTY***

**Goldner Property  
Section 32, Bloomfield Township  
5 Acres  
September 6, 2006  
Sale Price: \$1,500,000.00**

<b>Mineral Leases</b>	
<b><i>ANTRIM COUNTY</i></b>	<b>Mancelona Property</b> <b>Section 16, Mancelona Township</b> <b>Leased to Mercury Exploration Co.</b> <b>Lease is continued with producing well</b>
<b><i>LAPEER COUNTY</i></b>	<b>Homer Nowlin Property</b> <b>Sections 28 &amp; 33, Rich Township</b> <b>Leased to Total Petroleum, Inc.</b> <b>Lease is continued with producing well</b>
<b><i>OAKLAND COUNTY</i></b>	<b>Management Education Center</b> <b>Section 9, Troy Township</b> <b>Leased to West Bay Exploration Company</b> <b>Lease is continued with producing well</b>
<b>Minerals Reserved, Real Property Sold</b>	
<b><i>ALLEGAN COUNTY</i></b>	<b>Douglas Property</b> <b>Section 21, Saugatuck Township</b> <b>53.275 Acres</b> <b>Surface Titleholder: Orchard Valley Estates L.L.C.</b>
<b><i>ANTRIM COUNTY</i></b>	<b>Mancelona Property</b> <b>Section 16, Mancelona Township</b> <b>29.900 Acres</b> <b>Surface Titleholder: McDonald Corp.</b>
<b><i>CLINTON COUNTY</i></b>	<b>Jenison-Eagle Parcel 'A'</b> <b>Section 22, Eagle Township</b> <b>12.000 Acres</b> <b>Surface Titleholder: M/M Schafer</b>  <b>Jenison-Eagle Parcel 'C'</b> <b>Section 22, Eagle Township</b> <b>12.000 Acres</b> <b>Surface Titleholder: M/M Riley, III</b>  <b>Jenison-Eagle Parcel 'D'</b> <b>Sections 22 &amp; 27, Eagle Township</b> <b>61.300 Acres</b> <b>Surface Titleholder: M/M Schafer</b>

**Minerals Reserved, Real Property Sold (Continued)*****INGHAM COUNTY***

**Section 1, Delhi Township  
20.369 Acres  
Surface Titleholder: Albert A. White**

***LAPEER COUNTY***

**Section 28, Rich Township  
10.000 Acres, Nowlin Property  
Surface Titleholder: M/M Lott**

**Section 33, Rich Township  
303.000 Acres, Nowlin Property  
Surface Titleholder: M/M Adamic**

***LENAWEE COUNTY***

**MSU Merillat Equine Center  
Section 29, Adrian Township  
80.000 Acres  
Surface Titleholder: Wolf Creek Stables, LLC**

***MONROE COUNTY***

**Section 21, Milan Township  
80.000 Acres, Yoder Property  
Surface Titleholder: M/M Heath**

***OAKLAND COUNTY***

**Sections 2-11-12, Avon Township  
234.434 Acres  
Surface Titleholder: Several**

**Goldner Property  
Section 32, Bloomfield Township  
5 Acres  
Surface Titleholder: Sarveswararad & Vanee Talla**

***ONTONAGON COUNTY***

**Section 6, Bohemia Township & Section 12,  
Greenland Township  
78.000 Acres  
Surface Titleholder: M/M Malosh**

**Section 23, Bohemia Township  
40.000 Acres  
Surface Titleholder: Domitrovich Realty**

<b>Minerals Reserved, Real Property Sold (Continued)</b>	
<i>VAN BUREN COUNTY</i>	<b>Section 6, Geneva Township 29.000 Acres Surface Titleholder: B.R. Stegeman  Section 23, South Haven Township 53.230 Acres Surface Titleholder: Charles &amp; Jean Stein</b>
<b>TOTAL ACRES, MINERALS RESERVED: 1,101.508</b>	

## Primary Property Inventoried by County

### ***ALGER***

**Upper Peninsula Experiment Station  
Chatham**

**1,262.227 Acres**

### ***ALLEGAN***

**Trevor Nichols Research Complex  
Fennville**

**156.100 Acres**

### ***BARRY***

**W.K. Kellogg Biological Station (Lux Arbor Reserve)  
Hickory Corners**

**1,323.000 Acres**

### ***BERRIEN***

**Southwest Michigan Research & Extension Center  
Benton Harbor**

**350.000 Acres**

### ***CALHOUN***

**Martin Property (Rose-Dell Seed Orchard)  
Albion**

**160.000 Acres**

### ***CASS***

**Fred Russ Forest Experiment Station  
Decatur**

**938.750 Acres**

### ***CHIPPEWA***

**Dunbar Forest Experiment Station  
Sault Ste. Marie**

**5,759.815 Acres**

### ***CLINTON***

**Muck Soils Research Farm  
Laingsburg**

**447.048 Acres**

### ***CRAWFORD***

**Stranahan-Bell (Wa Wa Sum)  
Grayling**

**251.000 Acres**

### ***DELTA***

**Upper Peninsula Tree Improvement Center  
Escanaba**

**1,737.260 Acres**

**Primary Property Inventoried by County (Continued)*****INGHAM***

Michigan State University Campus East Lansing	5,195.225 Acres
Dobie Road Property Okemos	114.431 Acres
Sycamore Creek Property Holt	54.500 Acres
Jolly Road Engineering Research Facility and Civil Infrastructure Engineering Research Facility Okemos	3.260 Acres
Hulett Road Engineering Research Facility Okemos	5.691 Acres
MSU Sailing Club Lake Lansing	.76 Acres
Mason Research Farm Mason	117.000 Acres
River Terrace Property East Lansing	1.21 Acres
Ingham Total	5,492.077 Acres

***IONIA***

Clarksville Horticultural Experiment Station Clarksville	440.000 Acres
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***JACKSON***

MacCready Forest and Wildlife Reserve Clark Lake	408.000 Acres
Rogers Property Jackson	115.850 Acres
	523.850 Acres



**Primary Property Inventoried by County (Continued)*****KALAMAZOO***

**W.K. Kellogg Biological Station      1,685.930 Acres**  
**(including Farm & Bird Sanctuary)**  
**Hickory Corners**

**W.K. Kellogg Experimental Forest      715.995 Acres**  
**Augusta**

**Brook Lodge      633.240 Acres**  
**Augusta**

**Kalamazoo Total      3,035.165 Acres**

***KENT***

**College of Human Medicine      1.500 Acres**  
**Grand Rapids**

***LEELANAU***

**Leland Property      .700 Acres**  
**Leland**

***LENAWEE***

**Hidden Lake Gardens      756.618 Acres**  
**Tipton**

***MISSAUKEE***

**Lake City Experiment Station      810.010 Acres**  
**Lake City**

***MONTCALM***

**Montcalm Experimental Farm      57.250 Acres**  
**Lakeview**

**Primary Property Inventoried by County (Continued)*****OAKLAND***

**Management Education Center      24.327 Acres**  
**Troy**

**Tollgate Education Center      56.675 Acres**  
**Novi**

**Avon Players (Van Hoosen)      1.793 Acres**  
**Rochester**

**Oakland Total      82.795 Acres**

***TOTAL ACRES: 23,585.165***

# Oil and Gas Royalty Income

## Mancelona Property

1998 - 1999	\$ 5,068.62
1999 - 2000	3,390.42
2000 - 2001	6,547.95
2001 - 2002	4,789.45
2002 - 2003	5,958.69
2003 - 2004	6,833.60
2004 - 2005	7,415.27
2005 - 2006	10,337.62
2006 - 2007	7,192.83

## Homer Nowlin Property

1989 - 1990	\$ 98,404.78
1990 - 1991	153,008.72
1991 - 1992	79,323.99
1992 - 1993	110,311.26
1993 - 1994	67,355.68
1994 - 1995	91,965.81
1995 - 1996	91,421.59
1995 - 1996 Refund of Taxes	32,592.73
1996 - 1997	100,641.83
1997 - 1998	65,468.04
1998 - 1999	30,788.53
1999 - 2000	72,118.88
2000 - 2001	82,535.99
2001 - 2002	53,000.00
2002 - 2003	58,819.50
2003 - 2004	58,386.86
2004 - 2005	71,997.24
2005 - 2006	85,676.23
2006 - 2007	72,534.18

## Management Education Center

2002 - 2003	\$248,679.62
2003 - 2004	949,191.09
2004 - 2005	1,041,242.41
2005 - 2006	1,111,581.83
2006 - 2007	695,627.95

## **Leased Properties (Long-Term)**

### ***KALAMAZOO COUNTY***

**Trevor Nichols Research Complex  
(Known as Kalamazoo Orchard)  
45.000 acres leased since 1974  
Administered by Department of Entomology  
and Land Management Office**

**W.K. Kellogg Biological Station  
(Known as George L. Turner Property)  
215.000 acres leased since January 2001 (acreage reduced  
in 2006)  
Administered by W.K. Kellogg Biological Station**

### ***LEELANAU COUNTY***

**Northwest Michigan Horticulture Research Station  
80.000 acres leased since 1979  
Administered by Department of Horticulture  
and Land Management Office**

**Northwest Michigan Horticulture Research Station  
20.000 acres leased since 1986  
Administered by Department of Horticulture  
and Land Management Office**

### ***OAKLAND COUNTY***

**Americana Foundation at Tollgate Education Center  
100.000 acres leased since June 3, 1993  
Administered by Cooperative Extension Service  
and Land Management Office**

### ***SAGINAW COUNTY***

**Saginaw Valley Bean and Sugar Beet Research Farm  
120.000 acres leased since 1971  
Administered by Department of Crop & Soil Sciences  
and Land Management Office**

***TOTAL ACRES, LEASED PROPERTY: 580.000***

## Land Leased/Licensed To Others

<b><i>BARRY COUNTY</i></b>	<b>Prairieville Township Delton</b>	<b>.8 Acres</b>
<b><i>BERRIEN COUNTY</i></b>	<b>Berrien County Extension Service Benton Harbor</b>	<b>1.380 Acres</b>
<b><i>CASS COUNTY</i></b>	<b>Cass County Historical Commission Cassopolis</b>	<b>1.8 Acres</b>
	<b>Cass County Parks &amp; Recreation Commission Cassopolis</b>	<b>14.0 Acres</b>
	<b>Marcellus Community School Marcellus</b>	<b>21.45 Acres</b>
<b><i>CHIPPEWA COUNTY</i></b>	<b>Department of Natural Resources Bruce Township</b>	<b>9.4 Acres</b>
<b><i>DELTA COUNTY</i></b>	<b>Mead Corporation Escanaba</b>	<b>14.000 Acres</b>
<b><i>INGHAM COUNTY</i></b>	<b>Michigan State Police Headquarters East Lansing</b>	<b>13.000 Acres</b>
	<b>Michigan State University Federal Credit Union East Lansing</b>	<b>4.711 Acres</b>
	<b>Sewage Plant East Lansing</b>	<b>16.500 Acres</b>
	<b>Consumers Power East Lansing</b>	<b>.10 Acres</b>
	<b>Northstar Cooperative, Inc. East Lansing</b>	<b>9.71 Acres</b>

## Land Leased/Licensed (Continued)

	University Rehabilitation Alliance Alaiedon Township	35.000 Acres
	Candlewood/Vista I, L.L.C. Lansing	3.235 Acres
<i>KALAMAZOO COUNTY</i>	Gull Lake Bible Conference Hickory Corners	±10.00 Acres
	YMCA Kalamazoo	±455.0 Acres
<i>LEELANAU COUNTY</i>	Leland Property (Art School) Leland	.700 Acres
<i>OAKLAND COUNTY</i>	Van Hoosen (Avon Players) Rochester	1.793 Acres

*TOTAL ACRES, LEASED/LICENSED TO OTHERS: 612.579*

## Disposable Properties

***INGHAM COUNTY***

**Hulett Road Engineering  
Okemos**

**5.691 Acres**

***TOTAL ACRES, DISPOSABLE PROPERTY: 5.691 ACRES***

## Analysis of Off-Campus Primary, Disposable and Investment Holdings

PROPERTY	PURPOSE	SUPERVISION	STATUS
<i>Brook Lodge, Augusta, Kalamazoo County, 633.24 Acres</i>	Conference center, teaching, research and outreach.	Kellogg Center and Land Management Office	Not recommended to sell.
<i>Clarksville Horticultural Experiment Station, Clarksville, Ionia County, 440.000 Acres</i>	Horticulture research on small fruit and tree fruit. Herbicide testing on corn and soybeans.	Department of Horticulture and Land Management Office	Not recommended to sell.
<i>College of Human Medicine, Grand Rapids, Kent County, 1.5 Acres</i>	Medical School	College of Human Medicine	Not recommended to sell.
<i>Dobie Road Property, (Old Prison Farm), Okemos, Ingham County, 114.431 Acres</i>	Wildlife Research.	Department of Fisheries & Wildlife and Land Management Office	Not recommended to sell. Title restricted.
<i>Dunbar Forest Experiment Station, Sault Ste. Marie, Chippewa County, 5,759.815 Acres</i>	Forestry research and demonstration.	Department of Forestry and Land Management Office	Title restricted on 4,668.84 acres.
<i>Fred Russ Forest Experiment Station, Decatur, Cass County, 938.750 Acres</i>	Variety of forestry research in plantings and genetics and for demonstration and public use.	Department of Forestry and Land Management Office	Not recommended to sell. Title restricted on 269 acres.
<i>Hidden Lake Gardens, Tipton, Lenawee County, 756.618 Acres</i>	Arboretum and plant conservatory.	Land Management Office	Not recommended to sell.
<i>Hulett Road Engineering Research Facility, Okemos, Ingham County, 5.691 Acres</i>	Facilities and site for research by College of Engineering.	College of Engineering and Land Management Office	Property listed.
<i>Jolly Road Engineering Research Facility and Civil Infrastructure Engineering Research Facility, Okemos, Ingham County, 3.260 Acres</i>	Facilities and site for research by College of Engineering.	College of Engineering and Land Management Office	Not recommended to sell.
<i>Lake City Experiment Station, Lake City, Missaukee County, 810.010 Acres</i>	Research in beef cattle, forages, and potatoes.	Department of Animal Science and Land Management Office	Not recommended to sell. Title restricted.
<i>Leland Property, Leland, Leelanau County, .700 Acres</i>	Long-term lease to Leland Township.	Land Management Office	Not recommended to sell.



## Property Holdings (Continued)

PROPERTY	PURPOSE	SUPERVISION	STATUS
<i>MacCready Forest &amp; Wildlife Reserve</i> , Clark Lake, Jackson County, 408.000 Acres	Wildlife and Forestry demonstration.	Department of Forestry, Department of Fisheries & Wildlife and Land Management Office	Not recommended to sell.
<i>Management Education Center</i> , Troy, Oakland County, 24.327 Acres	Advanced management training center.	College of Business	Not recommended to sell.
<i>Martin Property</i> (Rose-Dell Seed Orchard), Calhoun County, 160.000 Acres	Forestry for a tree seed orchard and demonstration site.	Department of Forestry and Land Management Office	Not recommended to sell. Title restricted.
<i>Mason Research Farm</i> , Mason, Ingham County, 117.000 Acres	Research on cereal grains and soybeans.	Department of Crop & Soil Sciences and Land Management Office	Not recommended to sell.
<i>Montcalm Experimental Farm</i> , Lakeview, Montcalm County, 57.250 Acres	Field research in potato production and other cash crops.	Department of Crop & Soil Sciences and Land Management Office	Not recommended to sell.
<i>MSU Sailing Club</i> , Haslett, Ingham County, .76 Acres	Sailing and wind surfing lessons	Intramural Sports and Recreative Services	Not recommended to sell.
<i>Muck Soils Research Farm</i> , Laingsburg, Clinton County, 447.048 Acres	Research projects in production of vegetable and other crops in organic soils.	Department of Crop & Soil Sciences and Land Management Office	Not recommended to sell. Title restricted.
<i>River Terrace Property</i> , East Lansing, Ingham County, 1.21 Acres	Investment	Vice President for Finance and Operations and Land Management Office	Not recommended to sell.
<i>Rogers Property</i> , Jackson, Jackson County, 115.850 Acres	Research and teaching in Botanical and Horticultural Sciences.	Department of Plant Pathology and Land Management Office	Not recommended to sell.
<i>Southwest Michigan Research and Extension Center</i> , Benton Harbor, Berrien County, 350.000 Acres	Horticultural research and extension center.	Department of Horticulture, Agricultural Experiment Station, Cooperative Extension Service and Land Management Office	Not recommended to sell.

## Property Holdings (Continued)

PROPERTY	PURPOSE	SUPERVISION	STATUS
<i>Stranahan-Bell (Wa Wa Sum)</i> , Grayling, Crawford County, 251.000 Acres	Research on inland streams, reforestation, and small conferences.	Land Management Office	Not recommended to sell.
<i>Sycamore Creek</i> , Holt, Ingham County, 54.500 Acres	Support campus overall water management plan. Controlled access to Sycamore Creek flood plain.	Land Management Office	Not recommended to sell. Title restricted on 52 acres.
<i>Tollgate Education Center</i> , Novi, Oakland County, 56.675 Acres	Agricultural and environmental education and leadership training.	Cooperative Extension Service and Land Management Office	Not recommended to sell.
<i>Trevor Nichols Research Complex</i> , Fennville, Allegan County, 156.100 Acres	Serves as a major location for research on pests of fruit and field experience for students in Entomology.	Department of Entomology and Land Management Office	Not recommended to sell.
<i>Upper Peninsula Experiment Station</i> , Chatham, Alger County, 1,262.227 Acres	Research in dairy, forestry, and crops.	Department of Animal Science and Land Management Office	Not recommended to sell. Mineral rights reserved. Title restricted.
<i>Upper Peninsula Tree Improvement Center</i> , Escanaba, Delta County, 1,737.260 Acres	Research and demonstration in forestry and crops.	Department of Forestry and Land Management Office	Not recommended to sell.
<i>Van Hoosen Property</i> , Rochester, Oakland County, 1.793 Acres	Remaining land of Sara Van Hoosen gift acquired in 1956 leased to Avon Players.	Vice President for Finance and Operations and Land Management Office	Not recommended to sell.
<i>W.K. Kellogg Biological Station, Including Farm and Bird Sanctuary</i> , Hickory Corners, Kalamazoo County, 1,685.930 Acres	Teaching, research, and extension activities in the environmental sciences focusing on the interdependence of natural and managed landscapes. The programs treat integrated study of biology, wildlife, and production agriculture, including an animal input.	Director of Biological Station, College of Agriculture & Natural Resources, College of Natural Science and Land Management Office	Not recommended to sell. Title on original gift restricted.
<i>W.K. Kellogg Biological Station, Lux Arbor Reserve</i> , Delton, Barry County, 1,323.000 Acres	Research and education in the agricultural, biological, botanical, and horticultural sciences.	Director of Biological Station, College of Agriculture & Natural Resources, College of Natural Science and Land Management Office	Not recommended to sell.

## Property Holdings (Continued)

PROPERTY	PURPOSE	SUPERVISION	STATUS
<i>W.K. Kellogg Experimental Forest</i> , Augusta, Kalamazoo County, 715.995 Acres	Forestry research, teaching, demonstration, and public use.	Department of Forestry and Land Management Office	Not recommended to sell. Title restricted.

## Land Acquisitions by Decade Campus and Off-Campus

	<u>A C R E S</u>	
	<u>CAMPUS</u>	<u>OFF-CAMPUS</u>
Prior to 1920 .....	1,026.380	1,060.327
1920's .....	564.350	2,007.112
1930's .....	284.614	795.026
1940's .....	1,605.236	6,281.322
1950's .....	1,266.862	862.190
1960's .....	767.850	2,417.390
1970's .....	188.747	861.049
1980's .....	13.943	3,265.245
1990's .....	66.338	1,775.765
2000's .....	1.069	1,050.89

**Acres and Number of Transactions Involved in  
Assembling the Present Property Holdings**

	<b><u>NUMBER OF TRANSACTIONS</u></b>	<b><u>TOTAL ACREAGE</u></b>
University Campus .....	252	5,195.225
Off-Campus .....	125	18,384.249
Disposable Property .....	<u>1</u>	5.691
<i>TOTAL TRANSACTIONS:</i>	378	

# Agricultural Research Stations and Agricultural Land Available for Research

OFF-CAMPUS	<u>TOTAL ACREAGE</u>
12 Outlying Stations (owned) .....	15,683.385
2 Outlying Stations (leased) .....	220.000
Dobie Road Property, Okemos .....	114.431
Land Used for Agricultural Research - East Lansing .....	2,734.149
South of Mt. Hope Road	
Off-Campus Owned Land Used for Agricultural Research, .....	1,106.350
Not Designated as a Station	
Off-Campus Leased Land Used for Agricultural Research, .....	360.000
Not Designated as a Station	_____
<i>TOTAL ACREAGE:</i>	<i>20,218.315</i>

## Outlying Agricultural Research Stations

STATION/COUNTY	ADDRESS/PHONE	ADMINISTRATION	ACREAGE
<i>Clarksville Horticultural Experiment Station</i> (Ionia County)	9302 Portland Road Clarksville, MI 48815 (616) 693-2193	Philip Schwallier Coordinator  Gerald Skeltis Farm Manager	440.000 Acres University Owned
<i>Dunbar Forest Experiment Station</i> (Chippewa County)	12839 S. Scenic Drive Sault Ste. Marie, MI 49783 (906) 632-3932 or (906)786-1575	Dr. David MacFarlane Coordinator  Dr. Ray Miller Non-Resident Forester	5,759.815 Acres University Owned
<i>Fred Russ Forest Experiment Station</i> (Cass County)	20673 Marcellus Highway Decatur, MI 49045 (269) 782-5652	Dr. David MacFarlane Coordinator  Greg Kowalewski Non-Resident Forester	938.750 Acres University Owned
<i>Lake City Experiment Station</i> (Missaukee County)	5401 W. Jennings Road Lake City, MI 49651 (231) 839-4608	Dr. Dan Buskirk Coordinator  Doug Nielsen Farm Manager	810.010 Acres University Owned
<i>Montcalm Experimental Farm</i> (Montcalm County)	4747 McBride Road Lakeview, MI 48850 (989) 365-3473	Dr. David Douches Coordinator  Dick Crawford Research Technician	57.250 Acres University Owned
<i>Muck Soils Research Farm</i> (Clinton County)	Route 3 9370 E. Herbison Road Laingsburg, MI 48848 (517) 641-4062	Dr. Darryl Warncke Coordinator  Ronald Gnagey Farm Manager	447.048 Acres University Owned
<i>Northwest Michigan Horticultural Experiment Station</i> (Leelanau County)	6686 S. Center Highway Traverse City, MI 49684 (231) 946-1510	Nikki Rothwell Coordinator  William Klein Farm Manager	100.000 Acres Leased

## Agricultural Research Stations (Continued)

STATION/COUNTY	ADDRESS/PHONE	ADMINISTRATION	ACREAGE
<i>Saginaw Valley Bean and Sugar Beet Research Farm</i> (Saginaw County)	3066 S. Thomas Road Saginaw, MI 48603 (989) 781-1160	Dr. James Kelly Coordinator  Paul Horny Farm Manager	120.000 Acres Leased
<i>Southwest Michigan Research and Extension Center</i> (Berrien County)	1791 Hillandale Road Benton Harbor, MI 49022 (269) 944-1477	Dr. Thomas Zabadal Coordinator  Dave Francis Farm Manager	350.000 Acres University Owned
<i>Trevor Nichols Research Complex</i> (Allegan County)	6237 124th Avenue Fennville, MI 49408 (269) 561-5040	Dr. John Wise Coordinator  Matthew Daly Farm Manager	156.100 Acres University Owned
<i>Upper Peninsula Experiment Station</i> (Alger County)	E3774 University Drive P. O. Box 168 Chatham, MI 49816 (906) 439-5114	Dr. Herb Bucholtz Coordinator  Paul Naasz Operations Supervisor	1,262.227 Acres University Owned
<i>Upper Peninsula Tree Improvement Center</i> (Delta County)	6005 J Road Escanaba, MI 49829 (906) 786-1575	Dr. David MacFarlane Coordinator  Dr. Ray Miller Resident Forester	1,737.260 Acres University Owned
<i>W.K. Kellogg Biological Station</i> (Kalamazoo County)	3700 E. Gull Lake Drive Hickory Corners, MI 49060 (269) 671-2341	Dr. Katherine Gross Director	3,008.930 Total Acres University Owned
Farms	(269) 671-2509	Jim Bronson Farm Manager	939.754 Acres
Bird Sanctuary	(269) 671-2511	Joe Johnson Specialist	746.176 Acres
Lux Arbor Reserve (Barry County)	(269) 623-8613	Steve Norris Farm Manager	1,323.000 Acres
<i>W.K. Kellogg Experimental Forest</i> (Kalamazoo County)	7060 N. 42nd Street Augusta, MI 49012 (269) 731-4597	Dr. David MacFarlane Coordinator  Greg Kowalewski Resident Forester	715.995 Acres University Owned



# **ADDENDUM #1**

## **Warranty Deeds To State Building Authority**

**The following parcels have been or will be deeded to and leased back from the State Building Authority, for financing pursuant to earlier Board of Trustees approval.**

- 1. Anthony Hall Dairy Plant and Meats Lab**
- 2. Biomedical and Physical Sciences Building**
- 3. Diagnostic Center for Population and Animal Health**

## **ADDENDUM #2**

### **Deeds To State of Michigan**

**The following parcels have been deeded to the State of Michigan, pursuant to Board of Trustees approval, in connection with a State of Michigan financing of improvements. A written agreement obligates the State to deed the property back to MSU at a later date.**

- 1. The Geagley Laboratory**

**ADDENDUM #3**

**Location Maps**

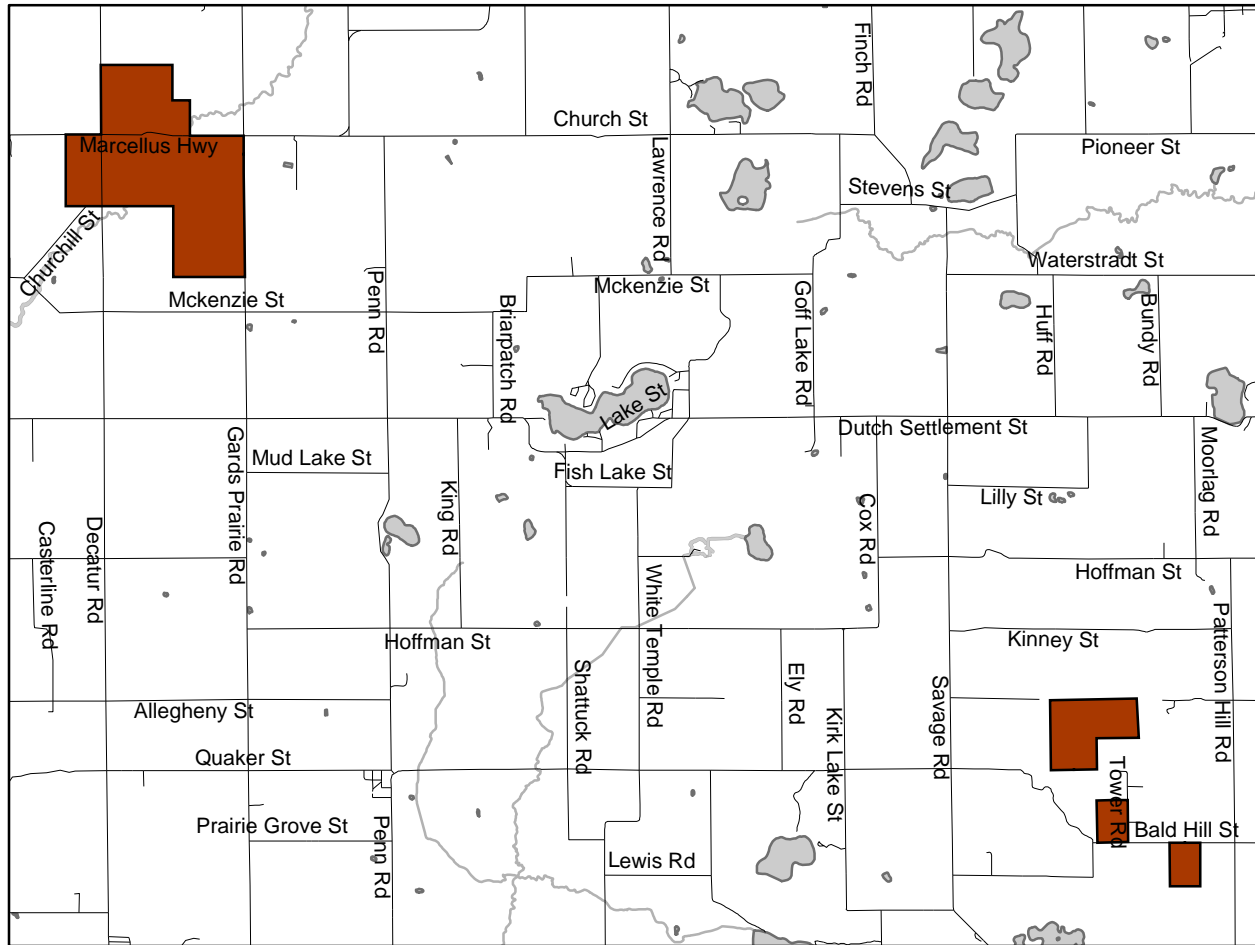
**of**

**Michigan State University Properties**

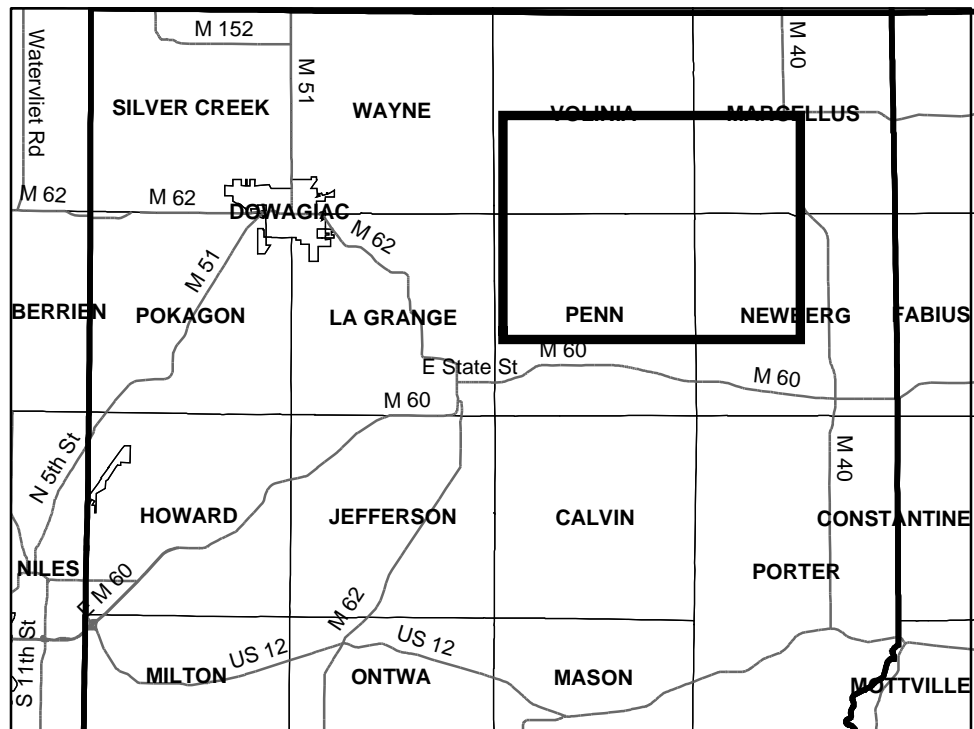
**Alphabetical by County**

# Fred Russ Forest Experiment Station

## Cass County, Newberg Township, Sections 16, 17, and 21; Volinia Township, Sections 20, 29 and 30

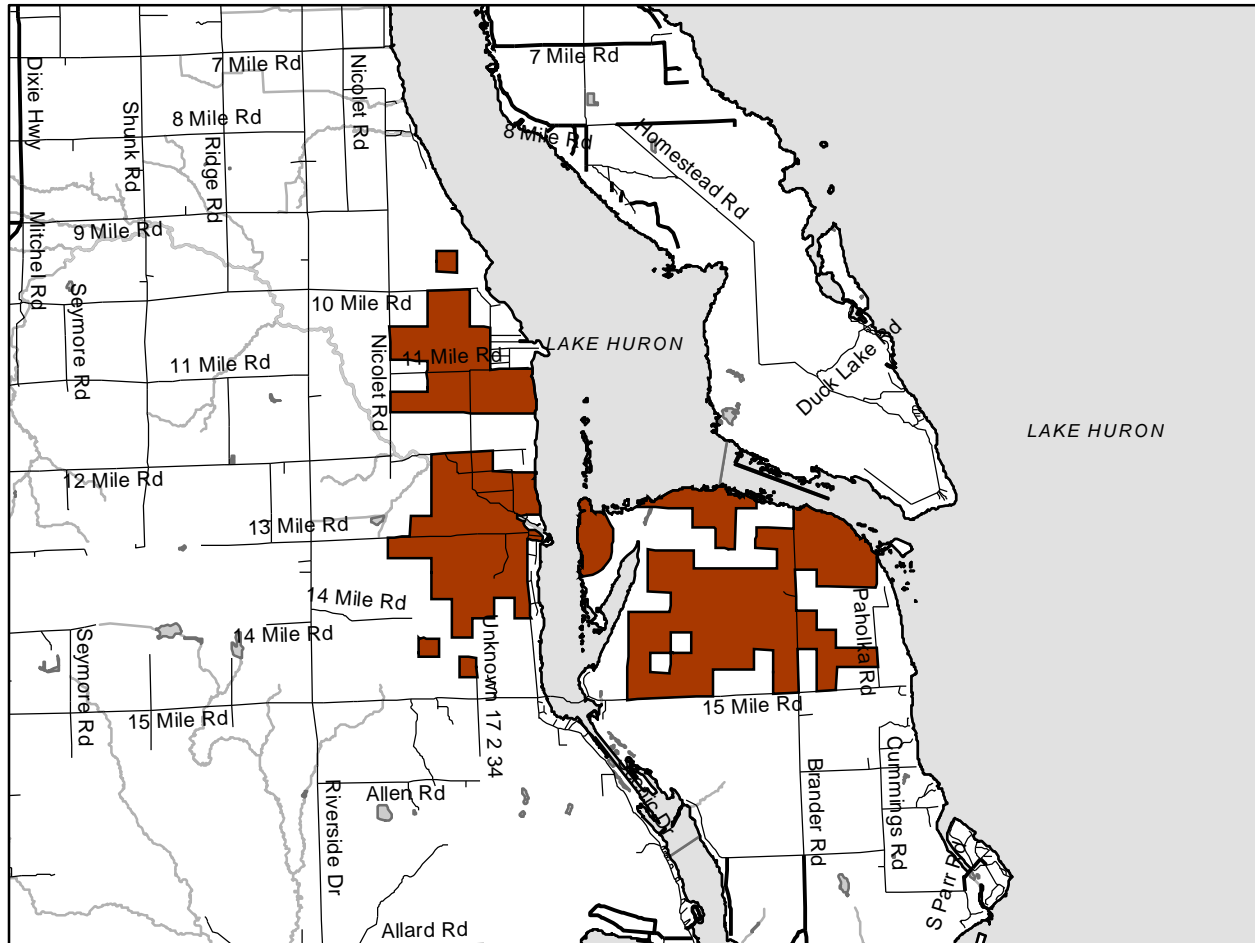


**County Locator**  
Cass County

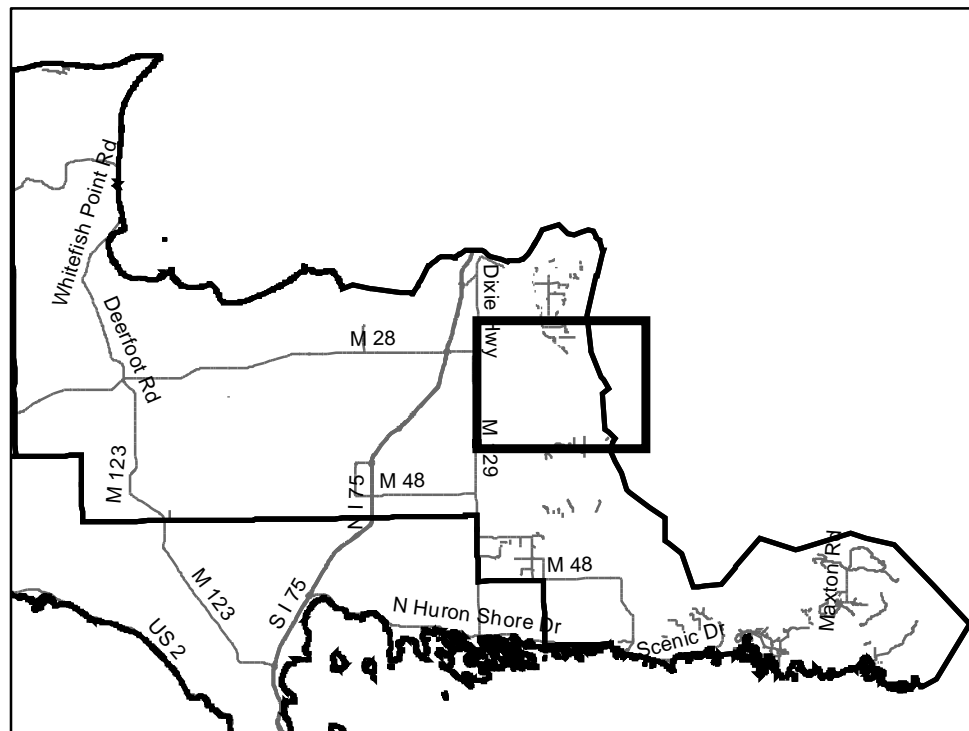
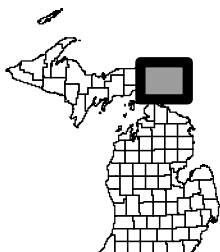


# Dunbar Forest Experiment Station

Chippewa County, Soo Twp. Sec.3,4,5,8,9,10,11,14,15 and 16;  
Bruce Twp. Sec.1,6,7,12,13,24,25,30,31 and 36

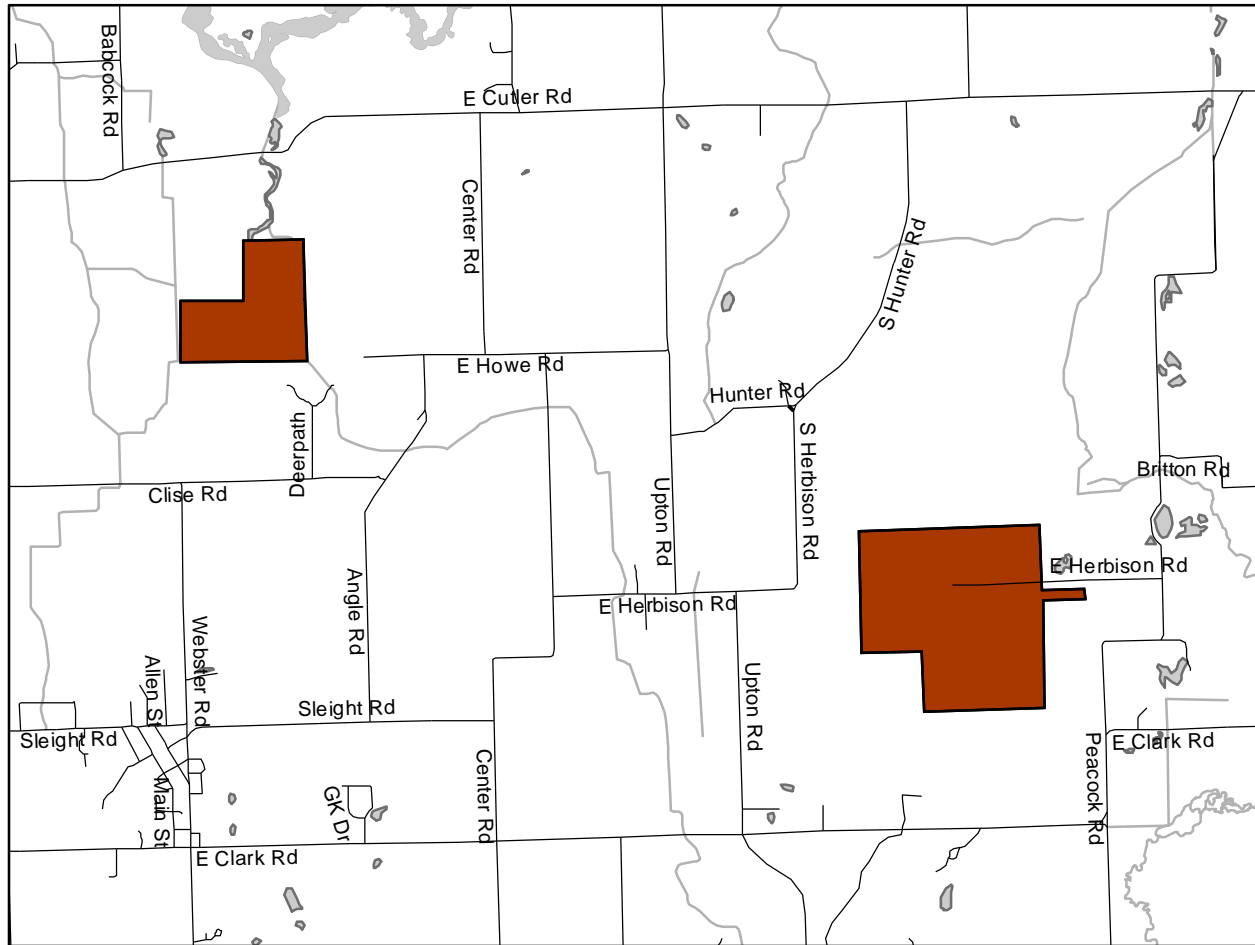


County Locator  
Chippewa County

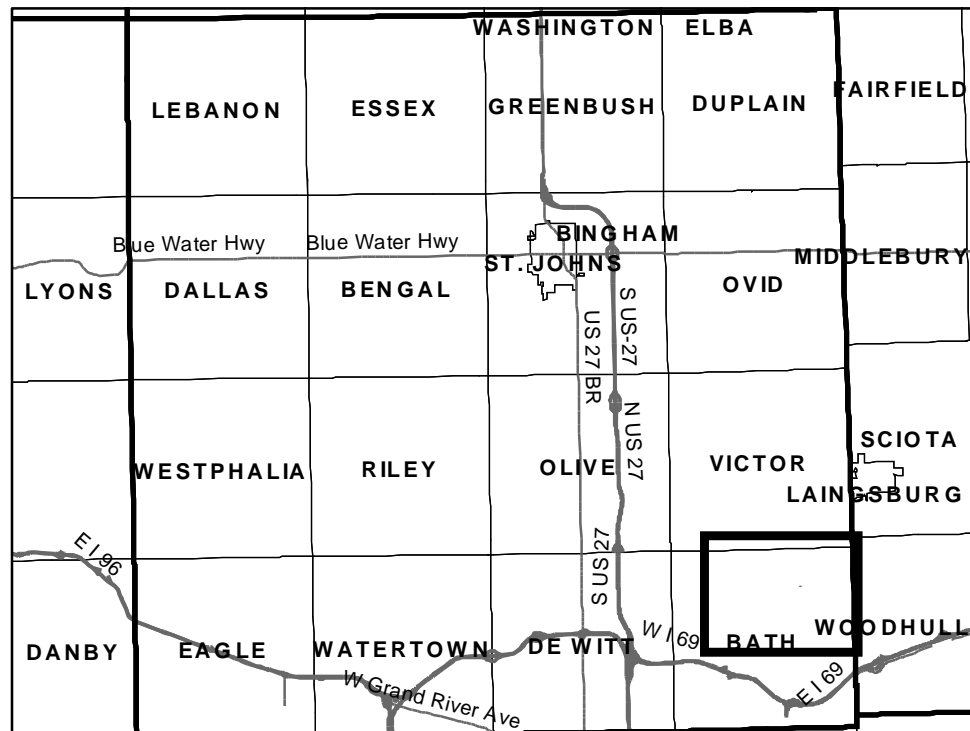


# Muck Soils Research Farm

Clinton County, Bath Township, Sections 4, 5, 11, 12, 13 and 14

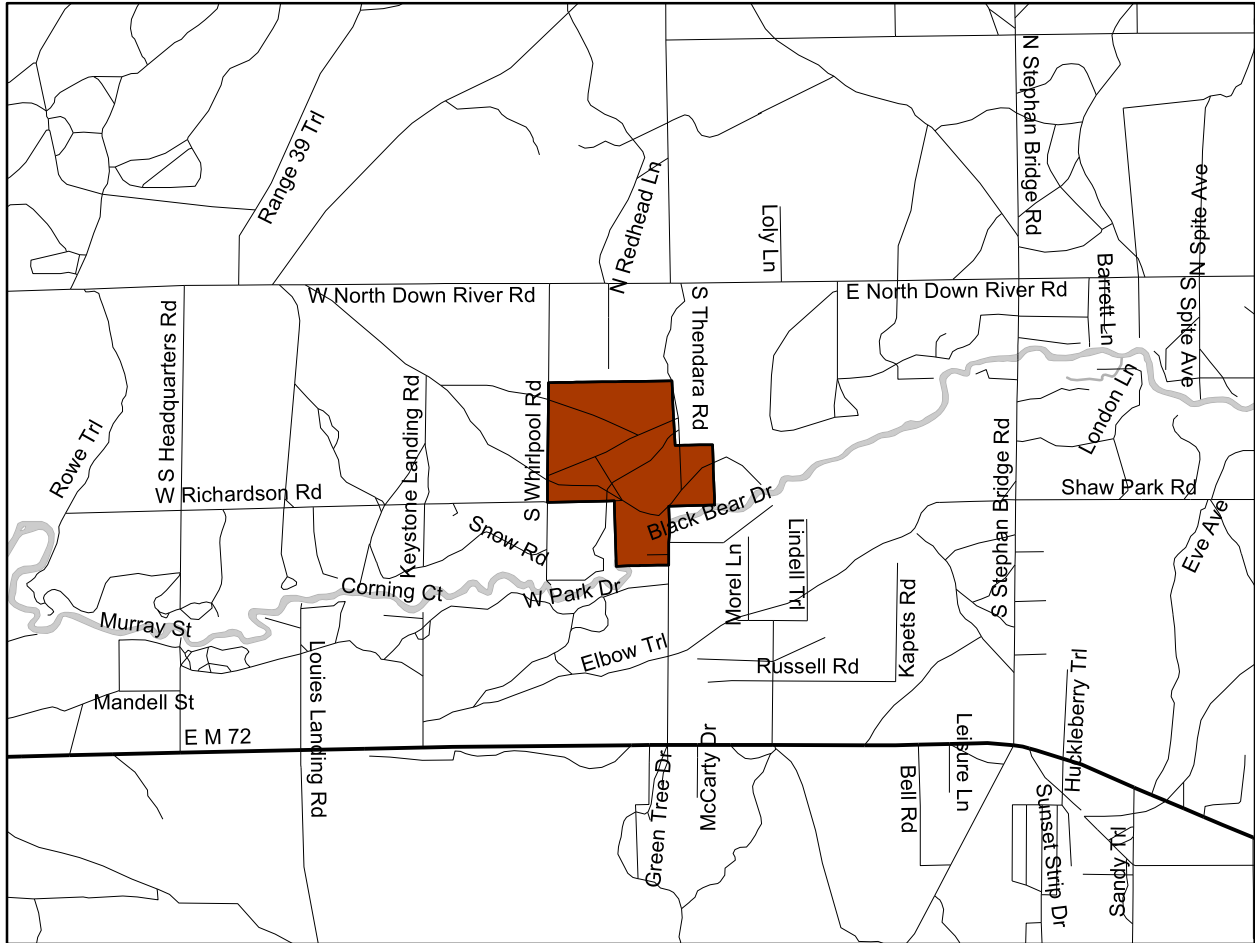


County Locator  
Clinton County

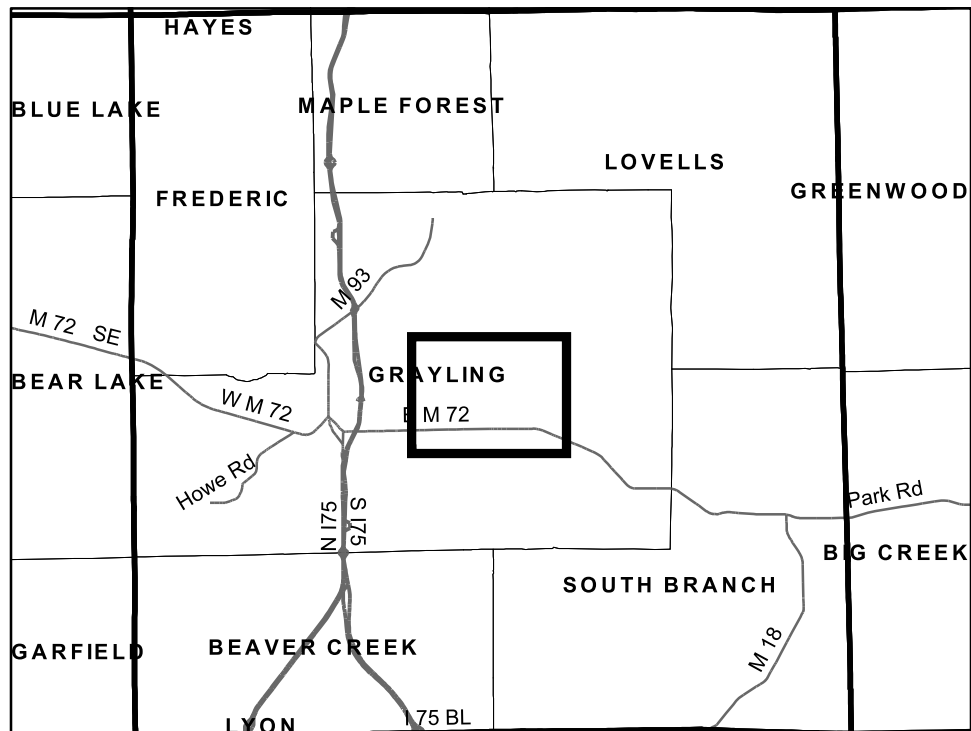


# Stranahan-Bell Property (Wa Wa Sum)

## Crawford County, Grayling Township, Sections 1, 6 and 12

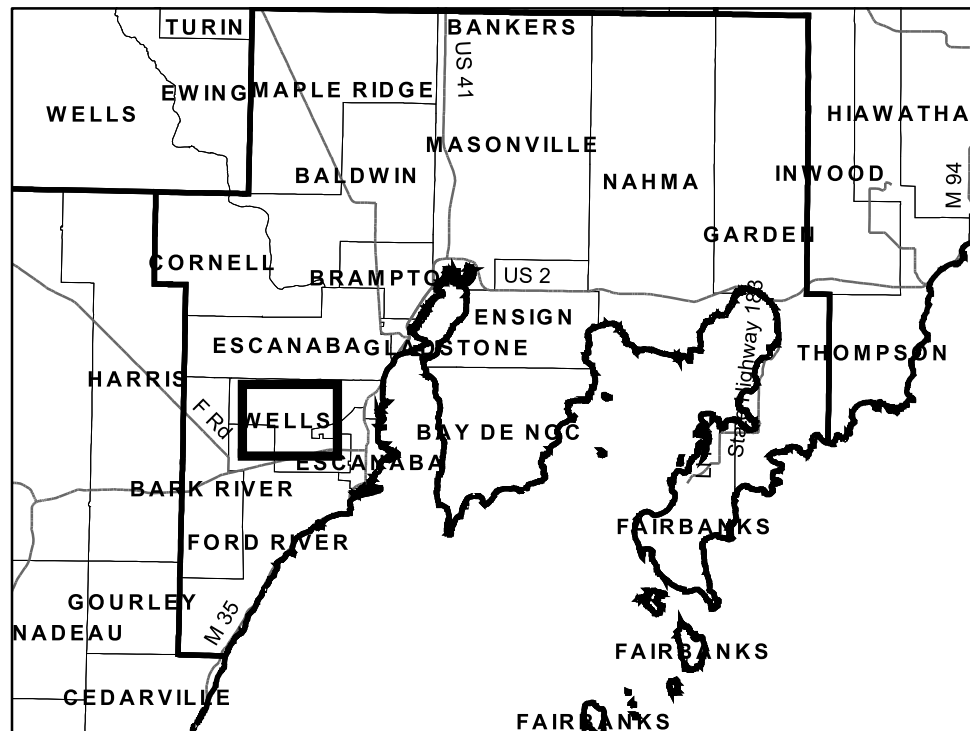
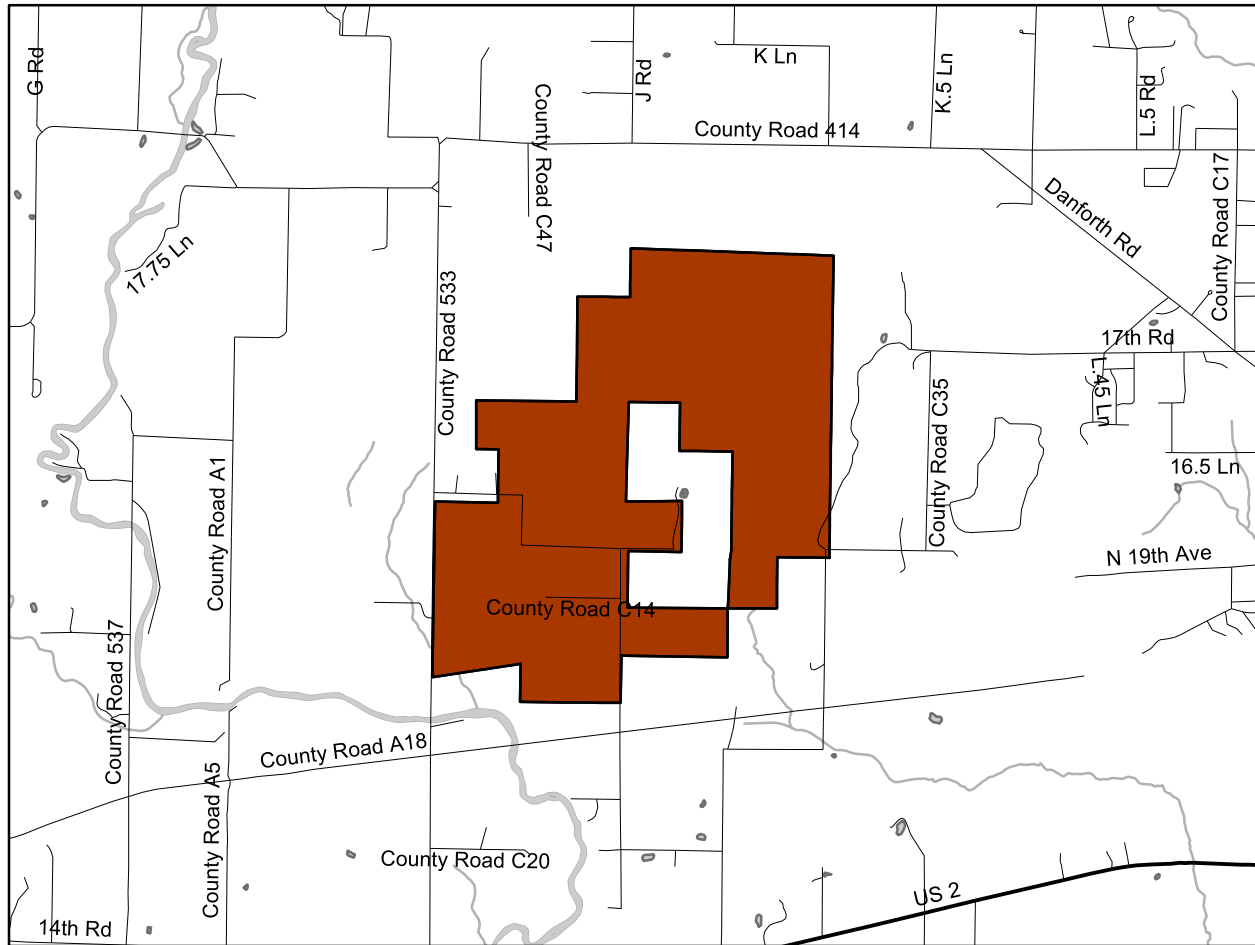


County Locator  
Crawford County



# Upper Peninsula Tree Improvement Center

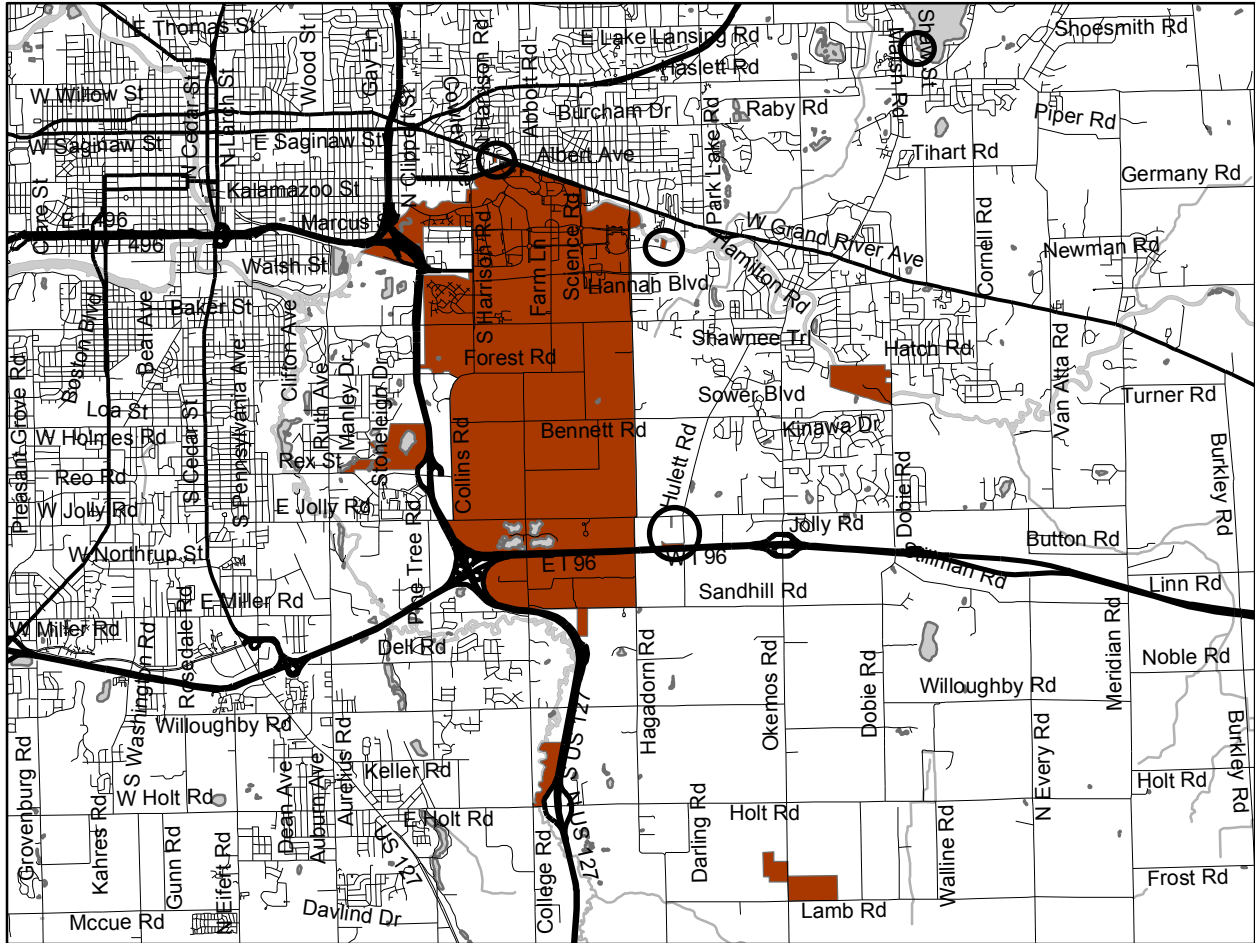
## Delta County, Wells Township, Sections 8, 17, 18, 19 and 20



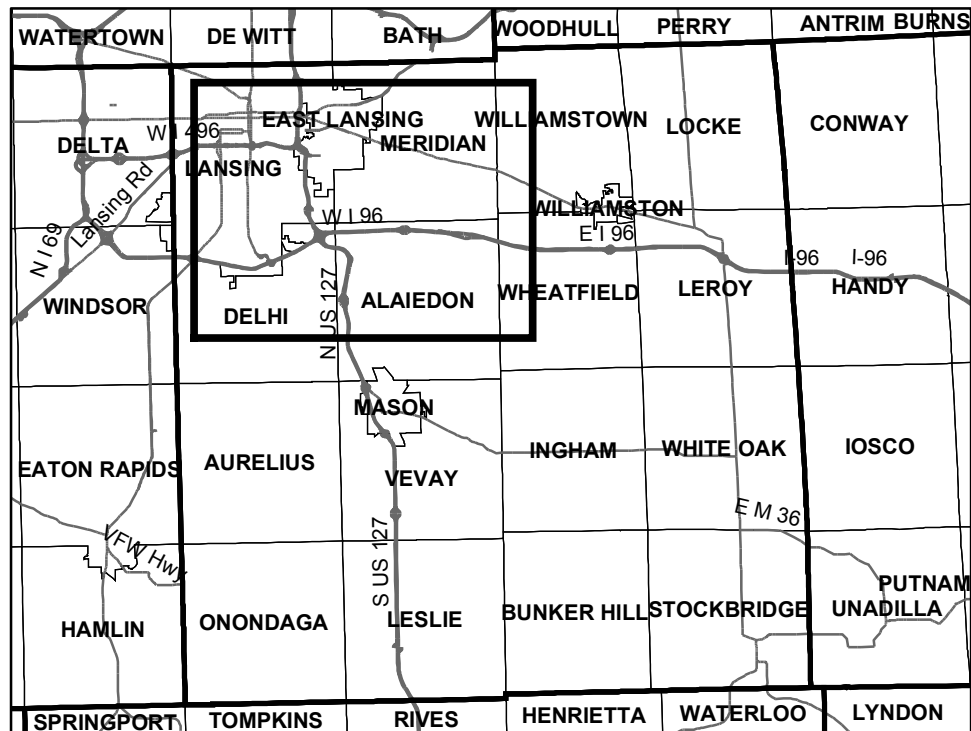


# Ingham County Properties

## Lansing, Meridian, Delhi and Alaeidon Townships

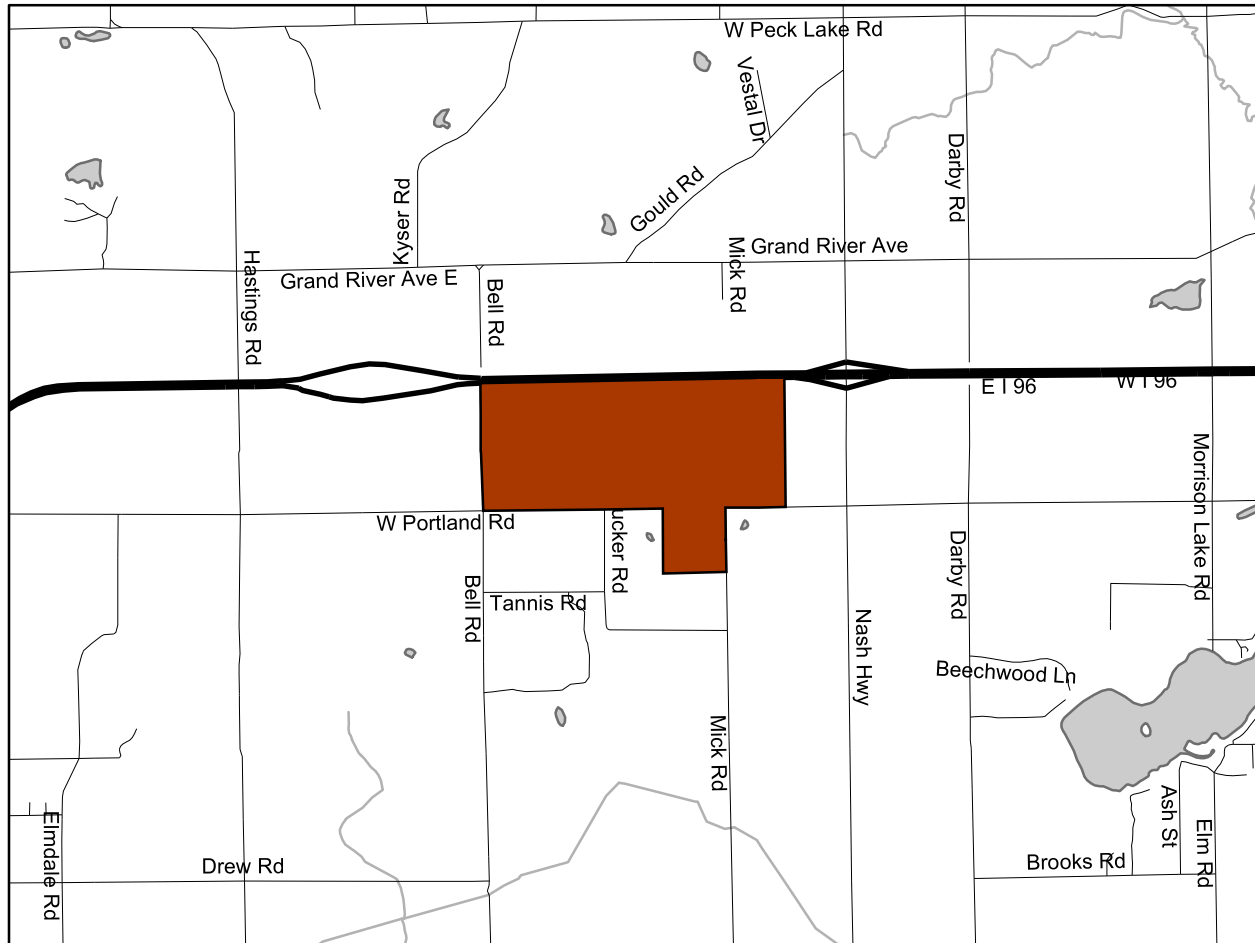


**County Locator**  
Ingham County

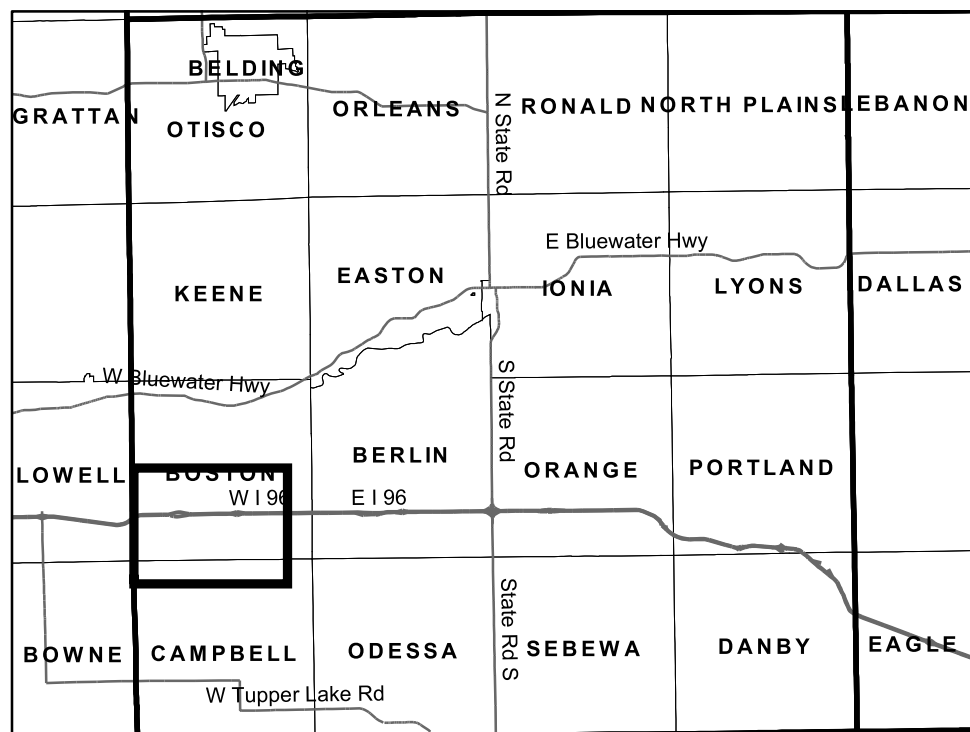


# Clarksville Horticultural Experiment Station

## Ionia County, Boston Township, Sections 27, 28 and 33

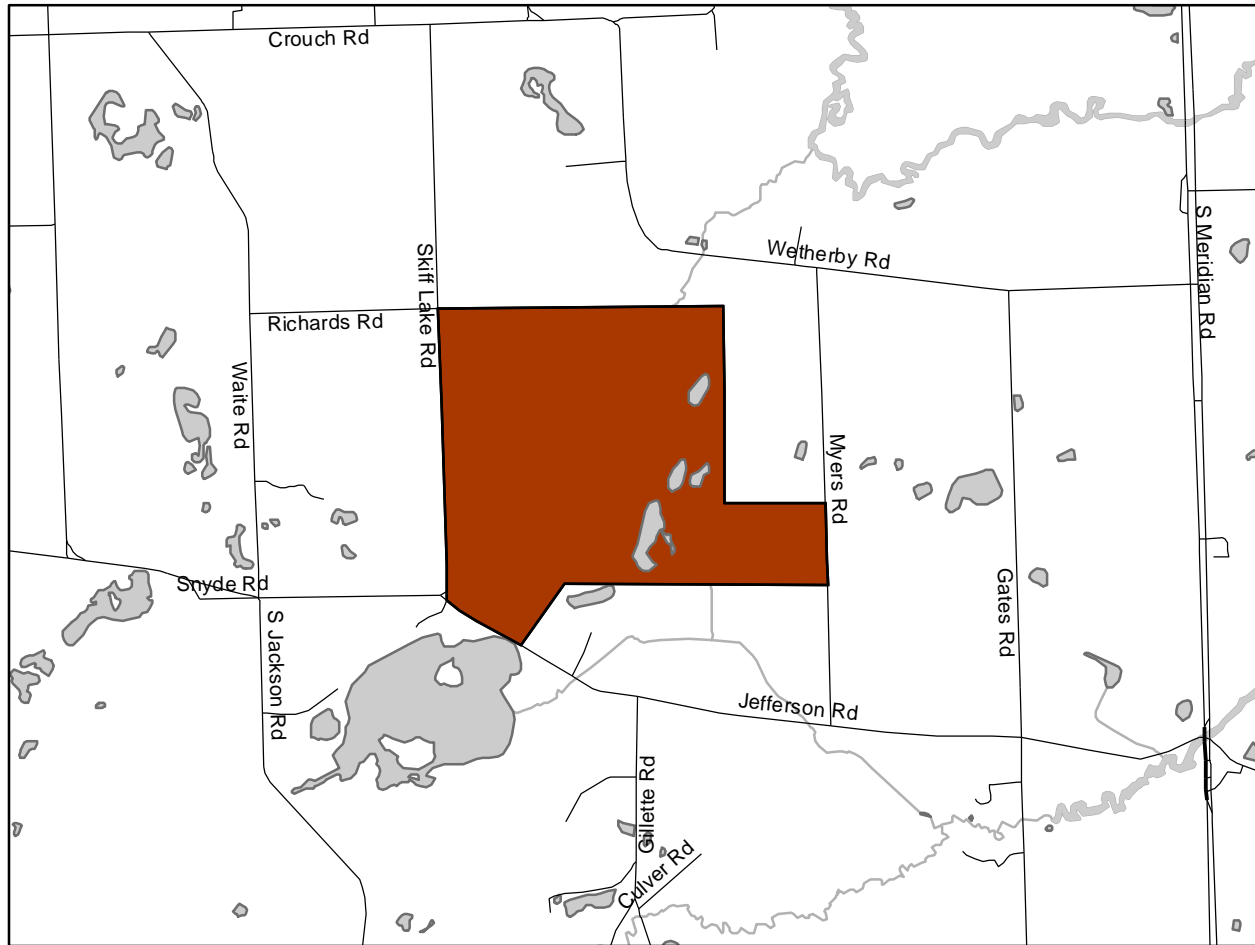


**County Locator**  
Ionia County

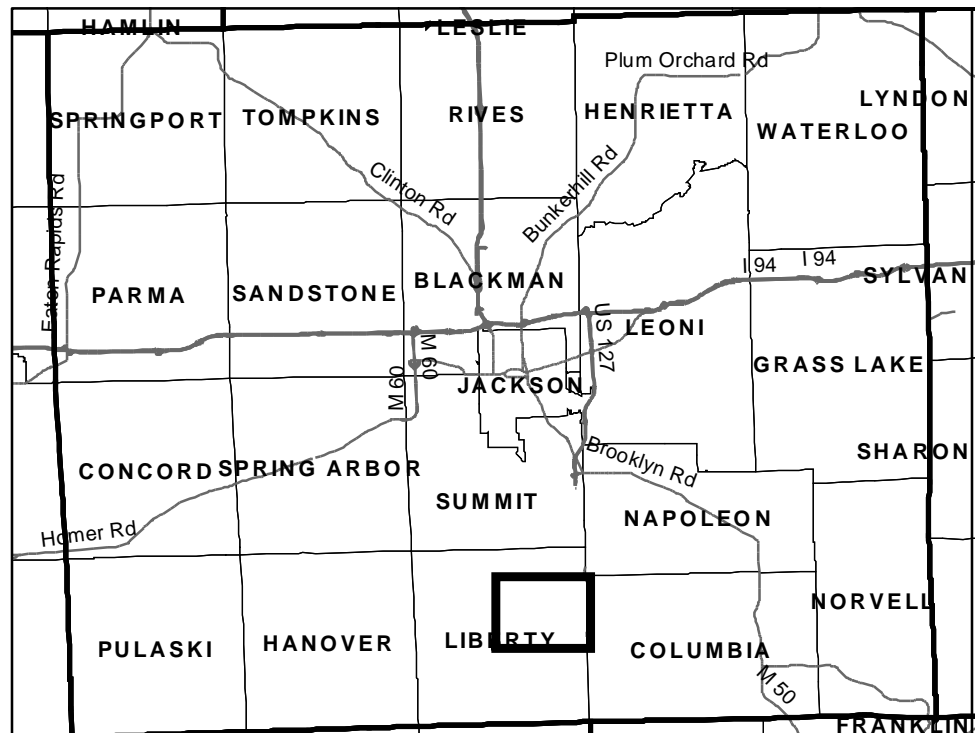


# MacCready Reserve

## Jackson County, Liberty Township, Sections 11 and 14

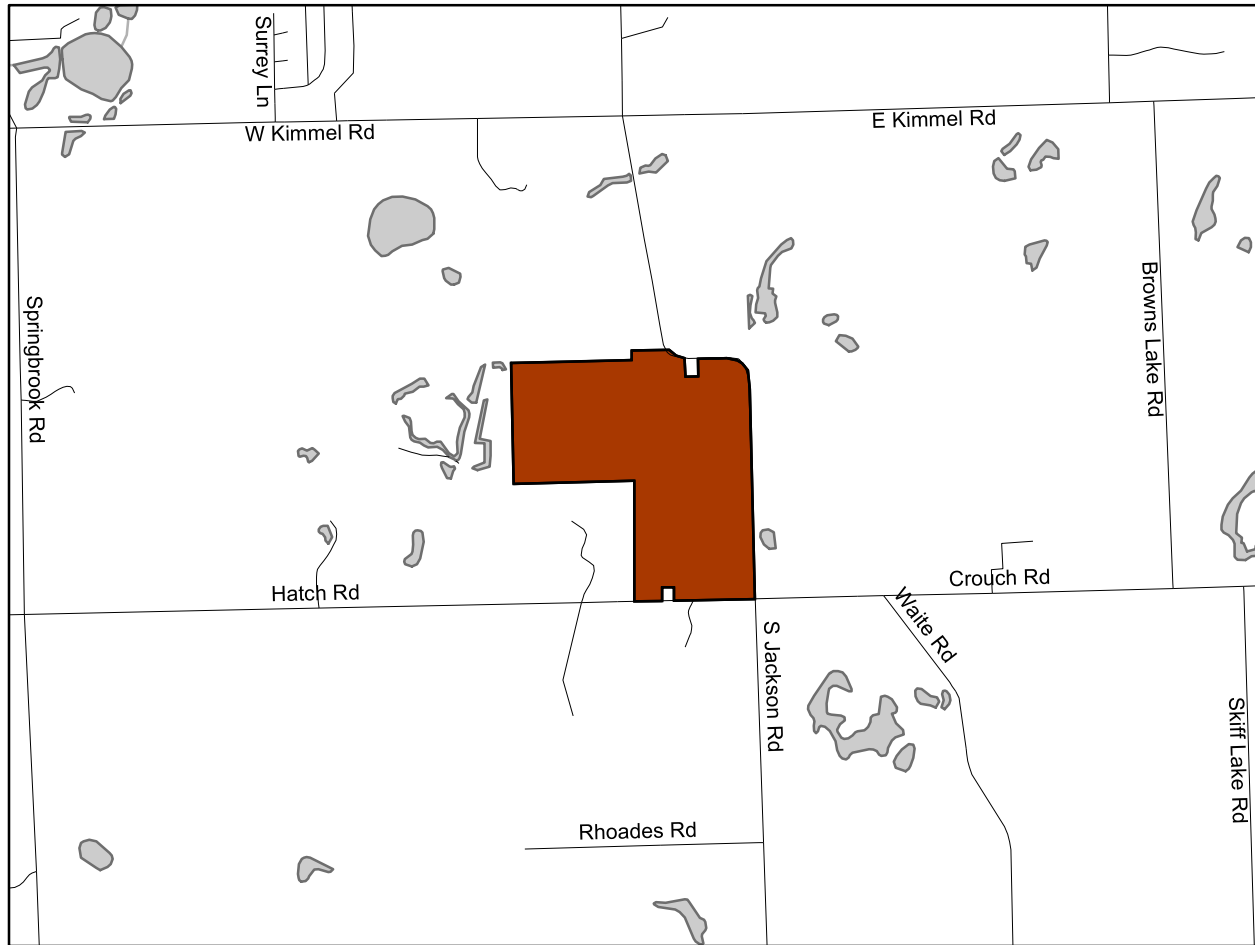


County Locator  
Jackson County

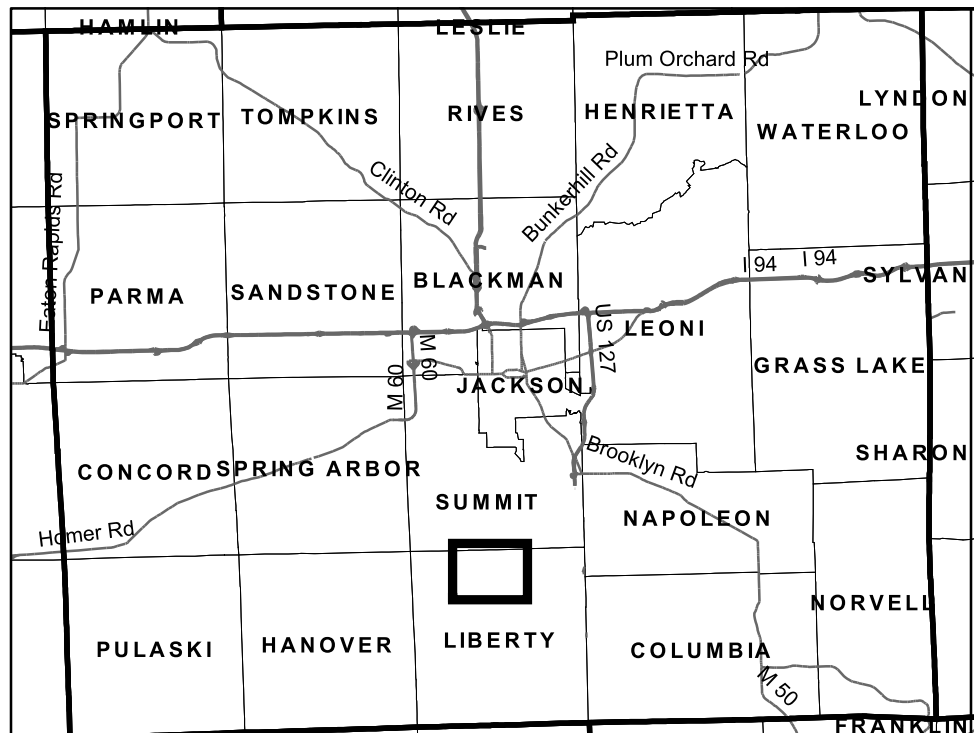
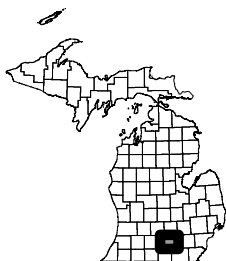


# Rogers Reserve

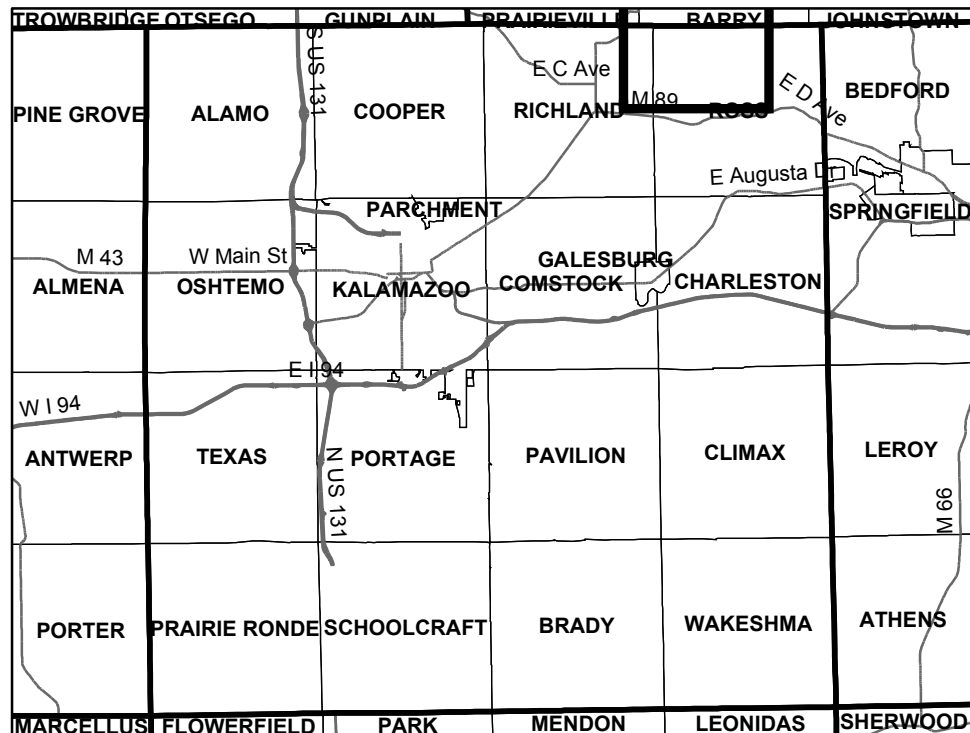
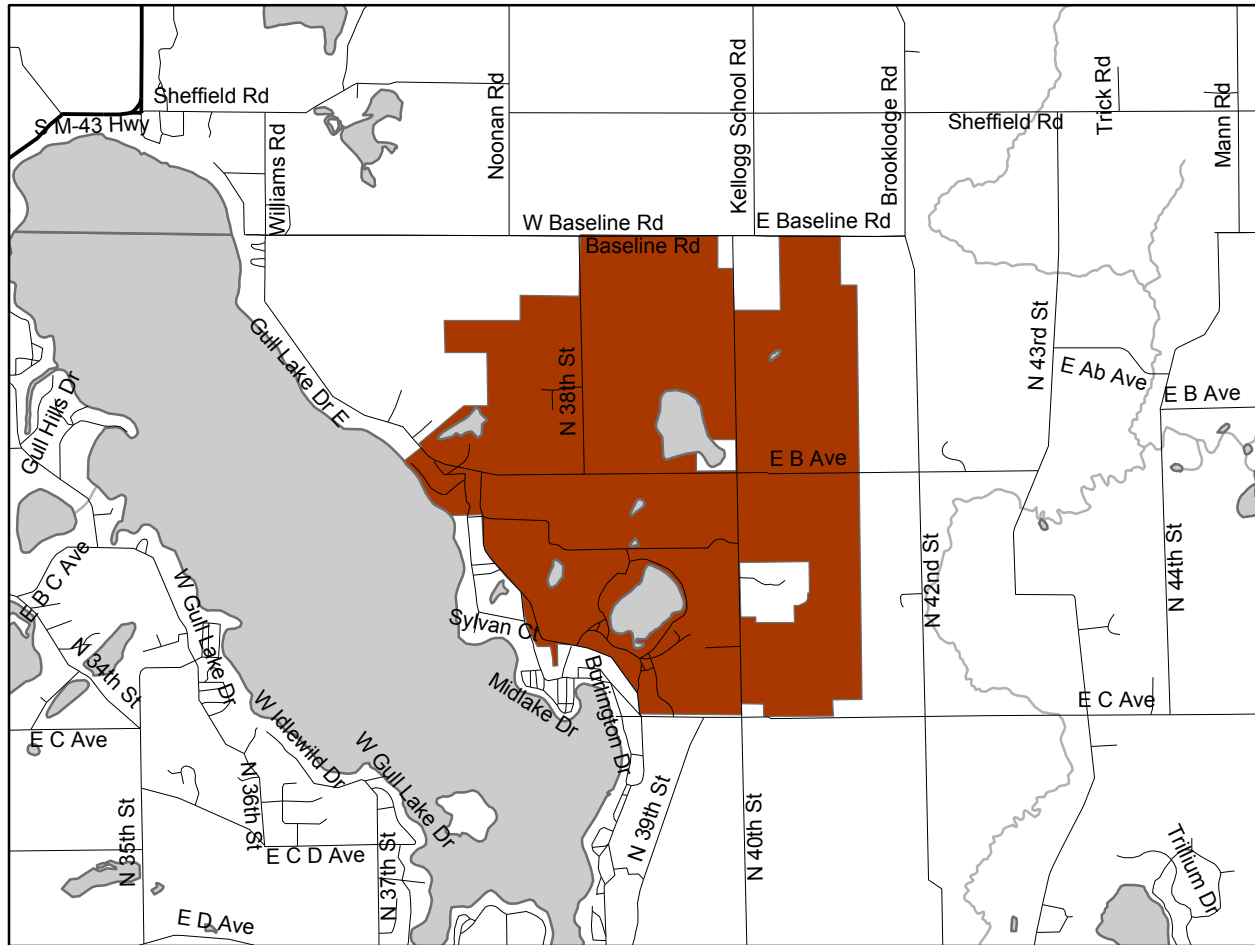
## Jackson County, Liberty Township, Section 4



**County Locator**  
Jackson County



**W.K. Kellogg Biological Station, Bird Sanctuary and Farm  
Kalamazoo County, City of South Gull Lake and Ross Township,  
Sections 4, 5, 6, 8 and 9**



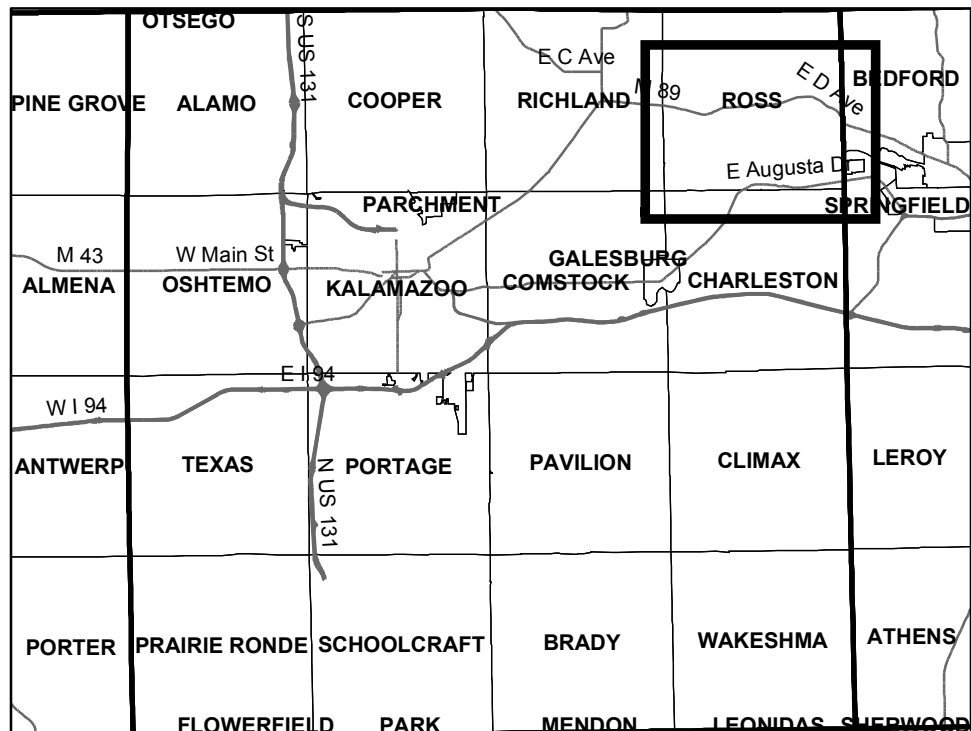
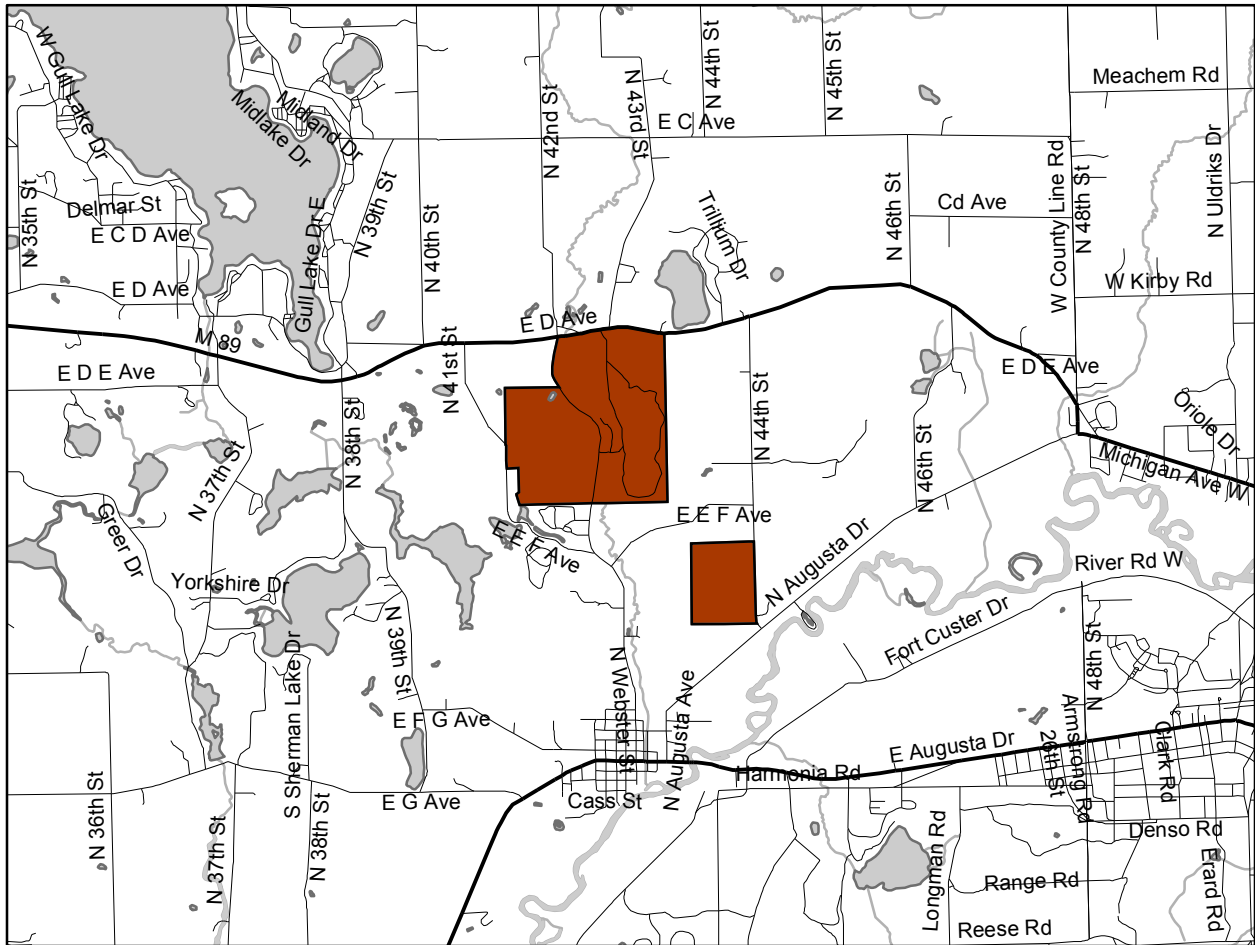
# County Locator

## Kalamazoo County



# W.K. Kellogg Experimental Forest

## Ross Township, Kalamazoo County, Sections 21, 22, 27 and 28

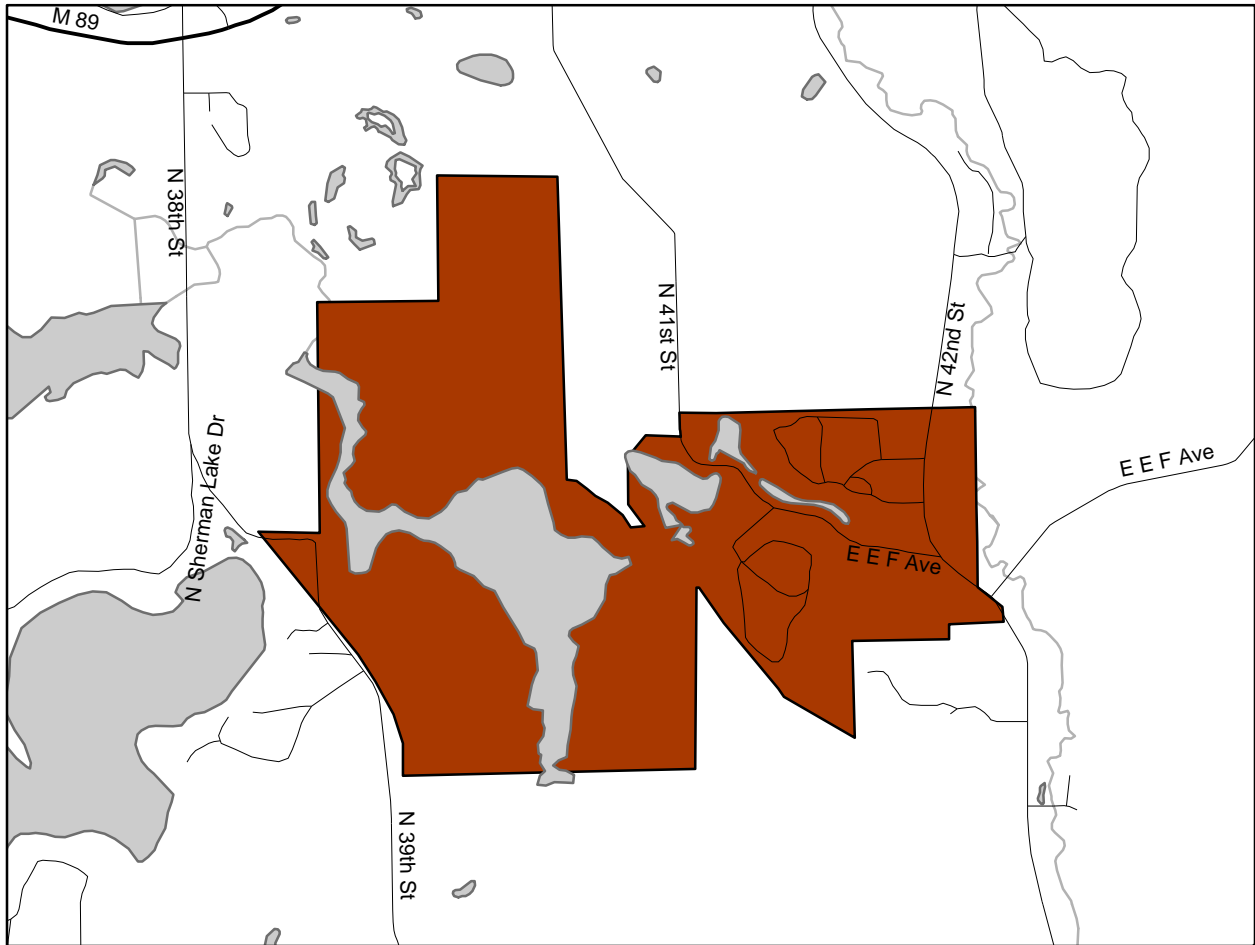


County Locator  
Kalamazoo

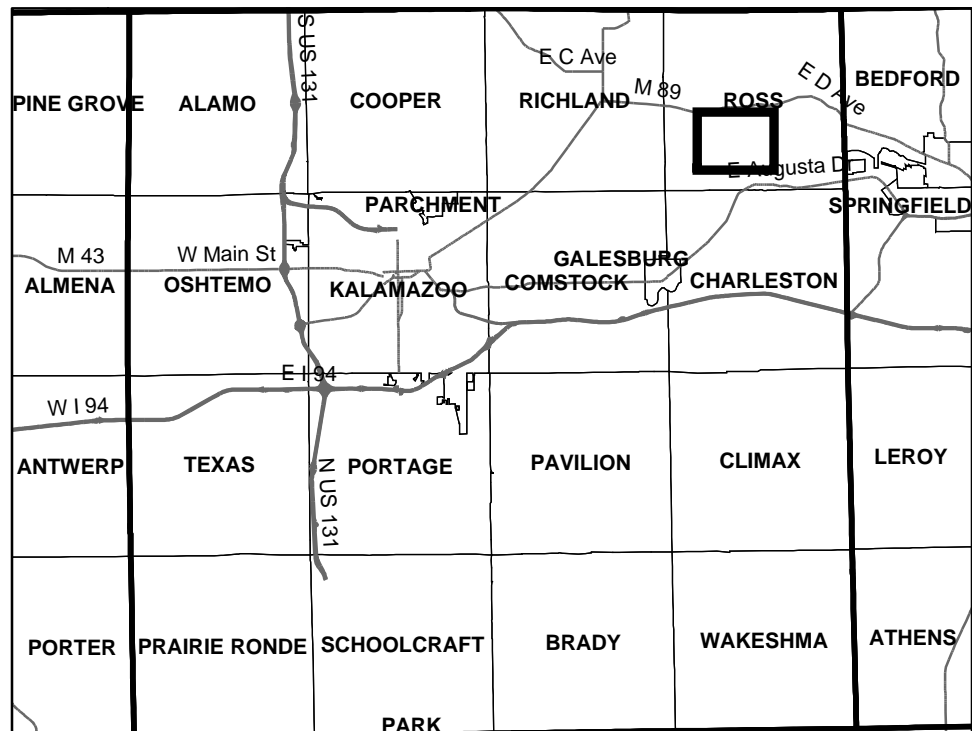


# Brook Lodge

## Kalamazoo County, Ross Township, Sections 21, 27, 28, and 29



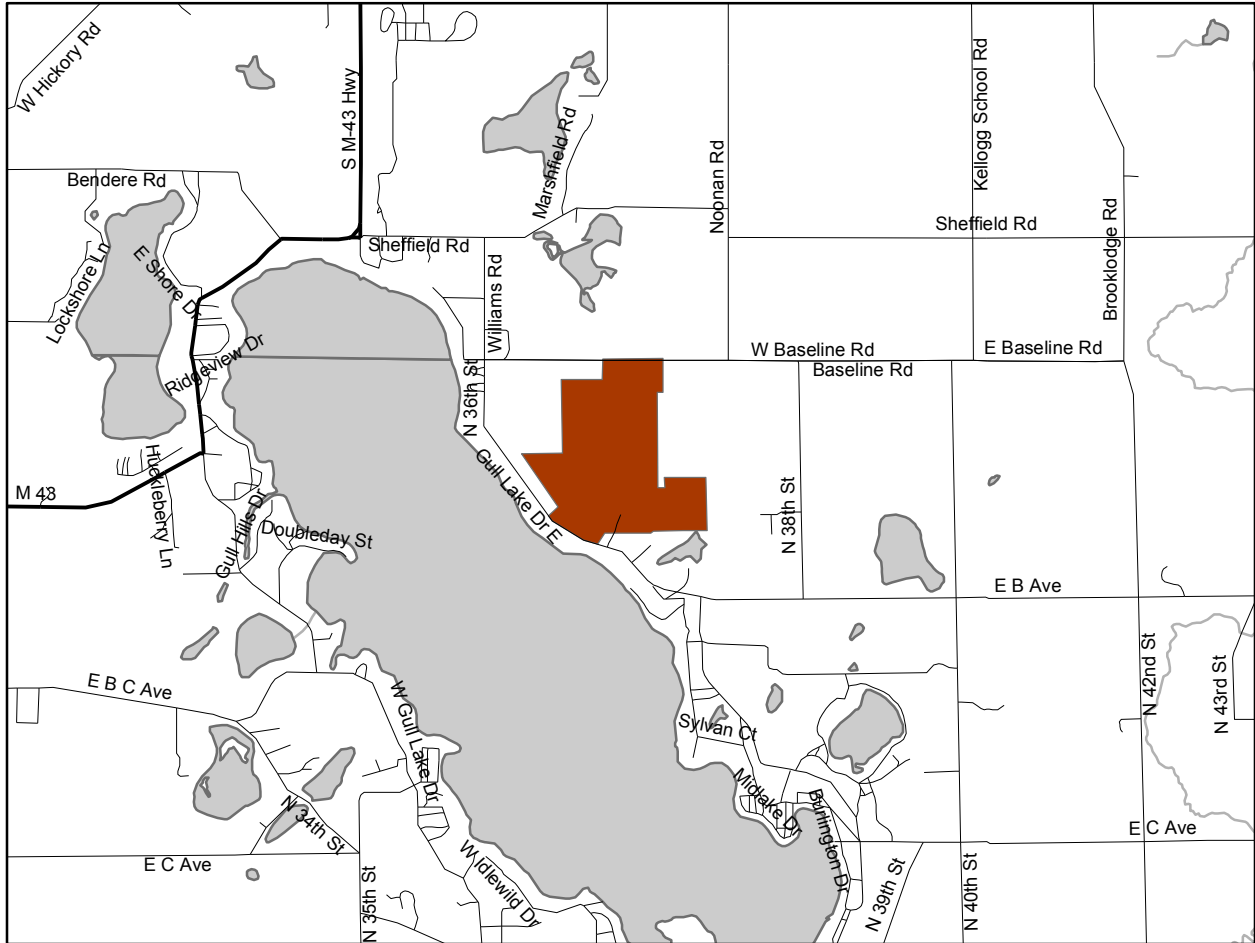
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Kalamazoo County



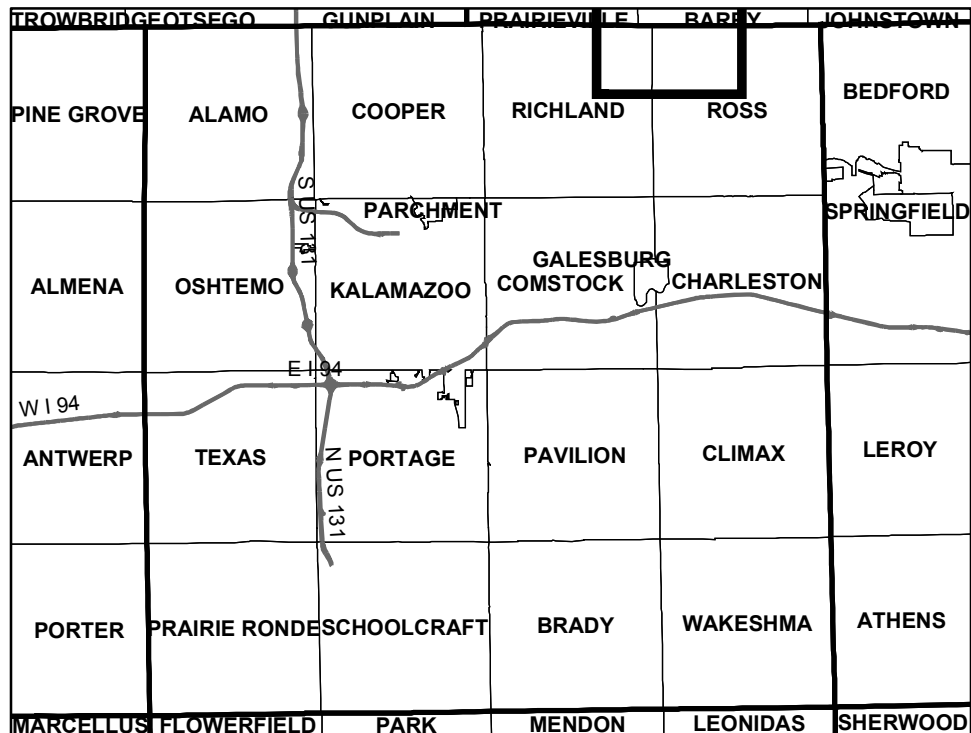


# Turner Property (Leased)

## Kalamazoo County, Ross Township, Section 6



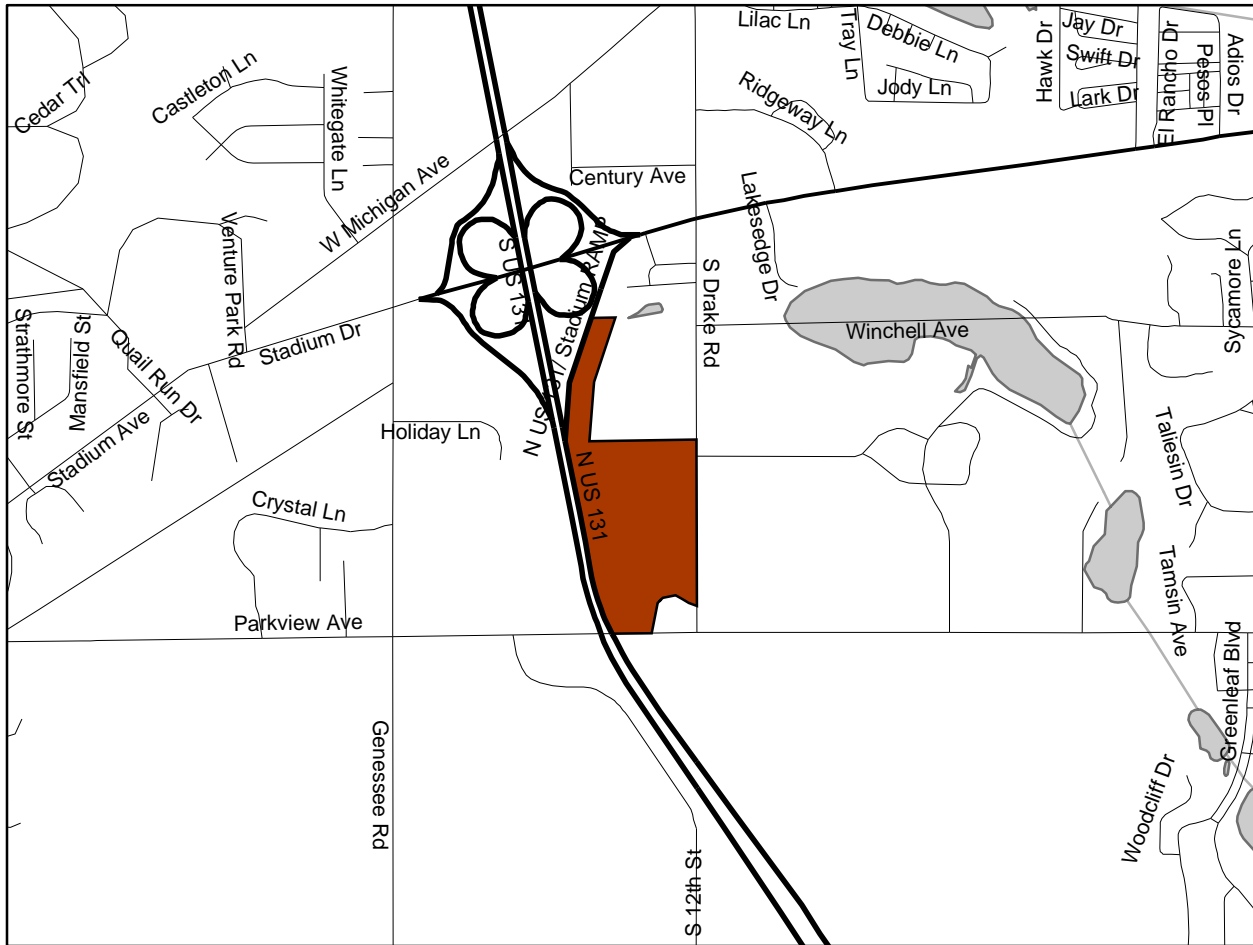
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Kalamazoo County



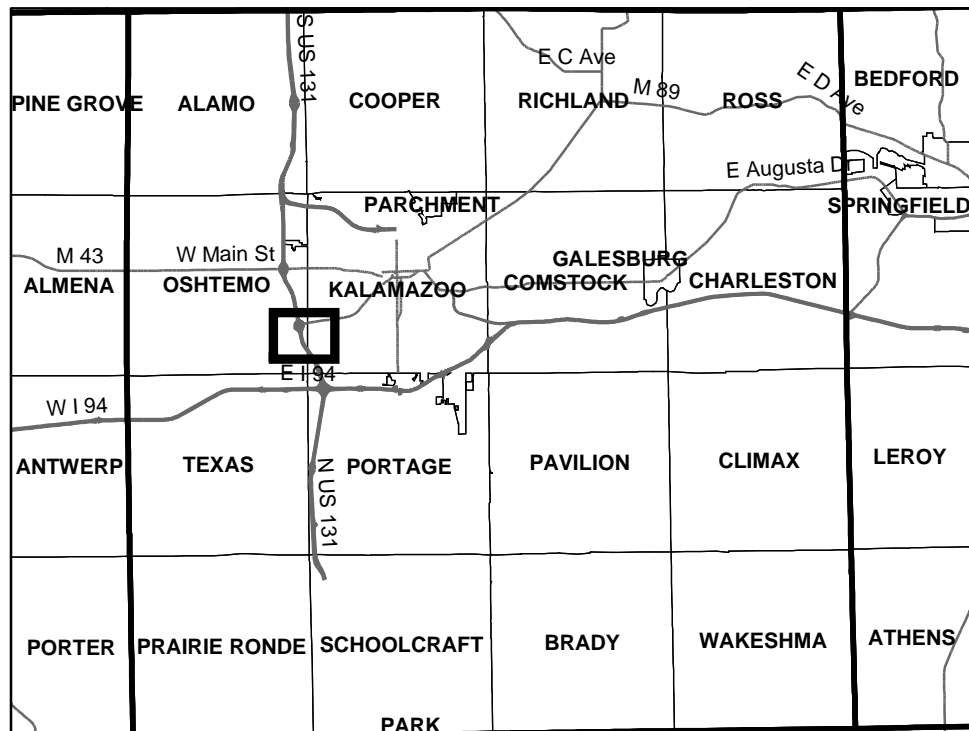


# Kalamazoo Orchard (Leased)

## Kalamazoo County, Oshtemo Township, Section 25

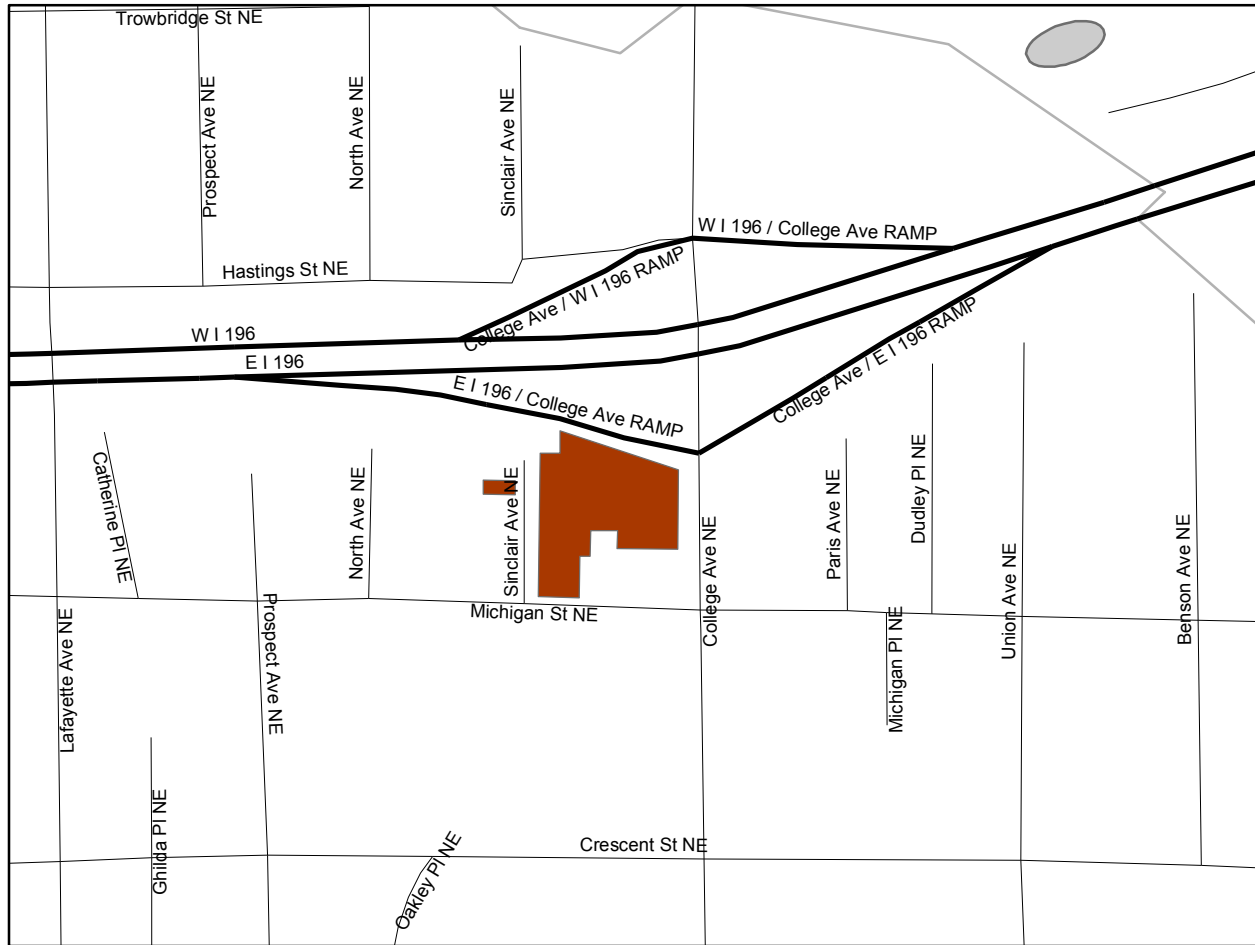


**County Locator**  
Kalamazoo County

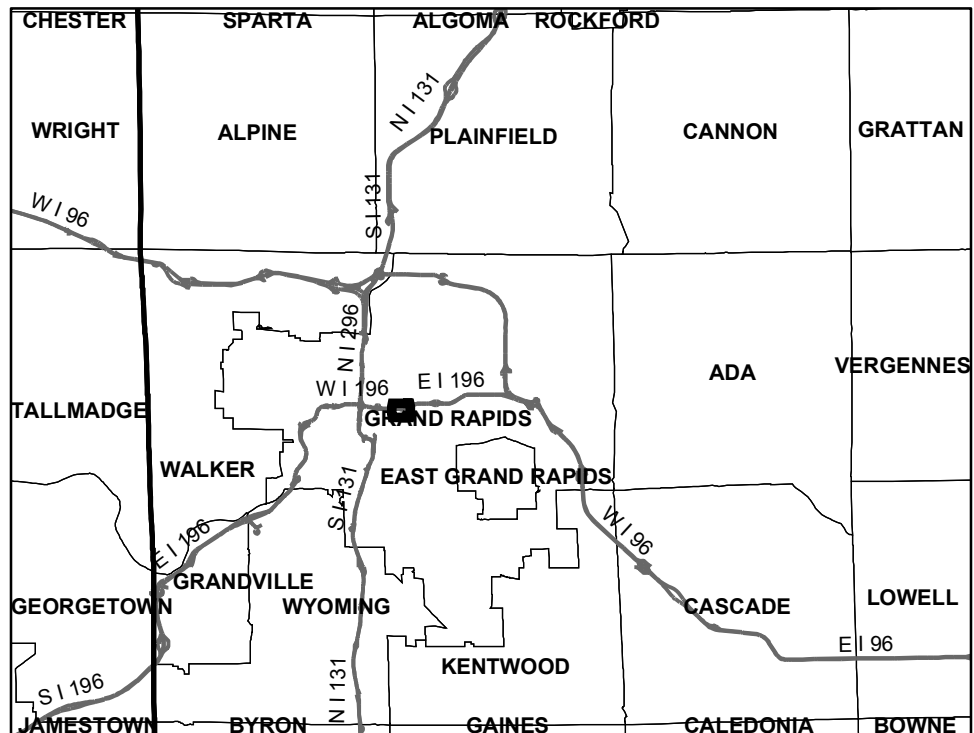
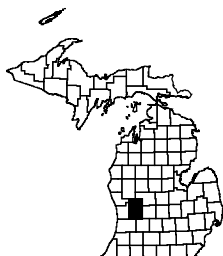


# College of Human Medicine

## Kent County, Grand Rapids Township, Section 19



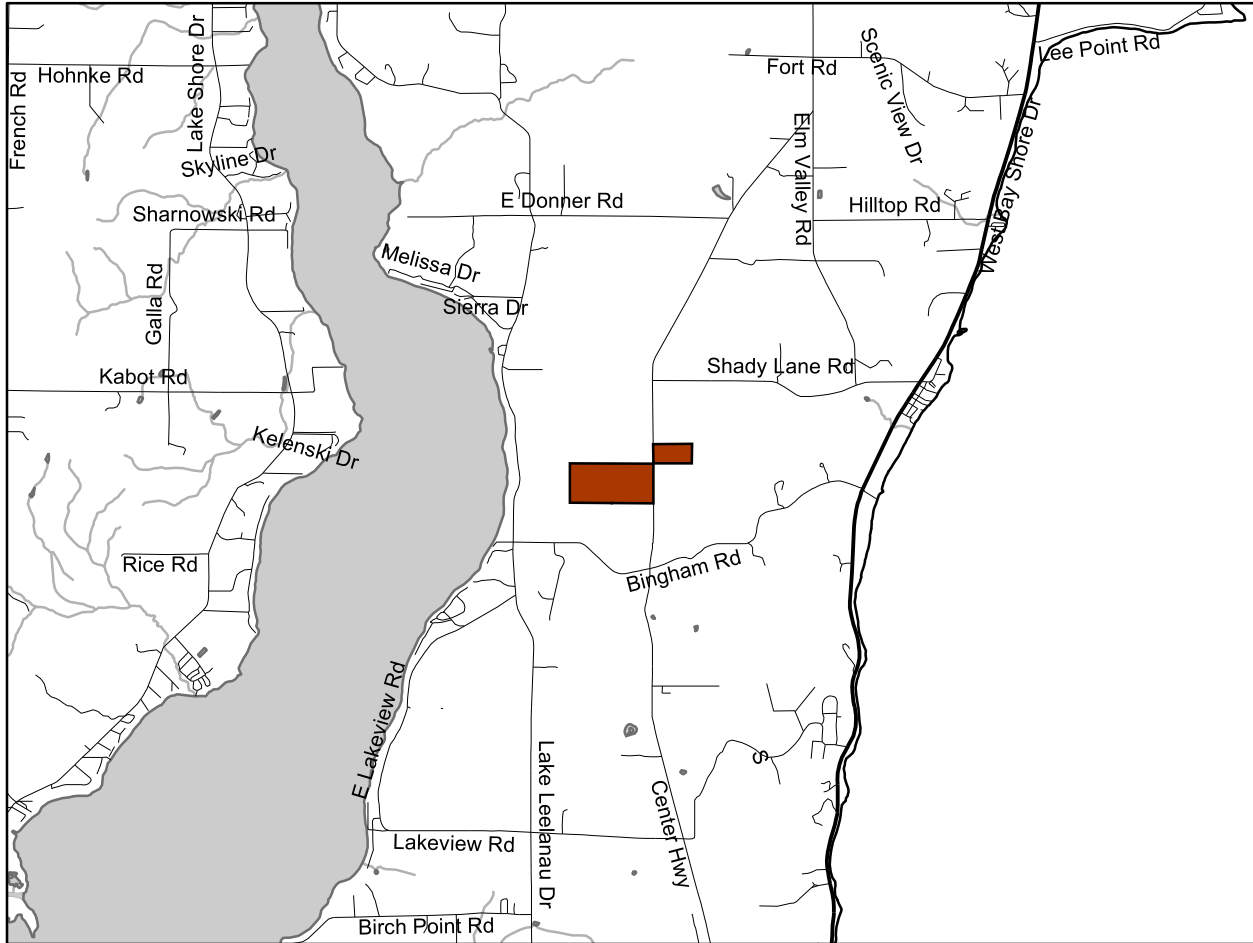
**County Locator**  
Kent County



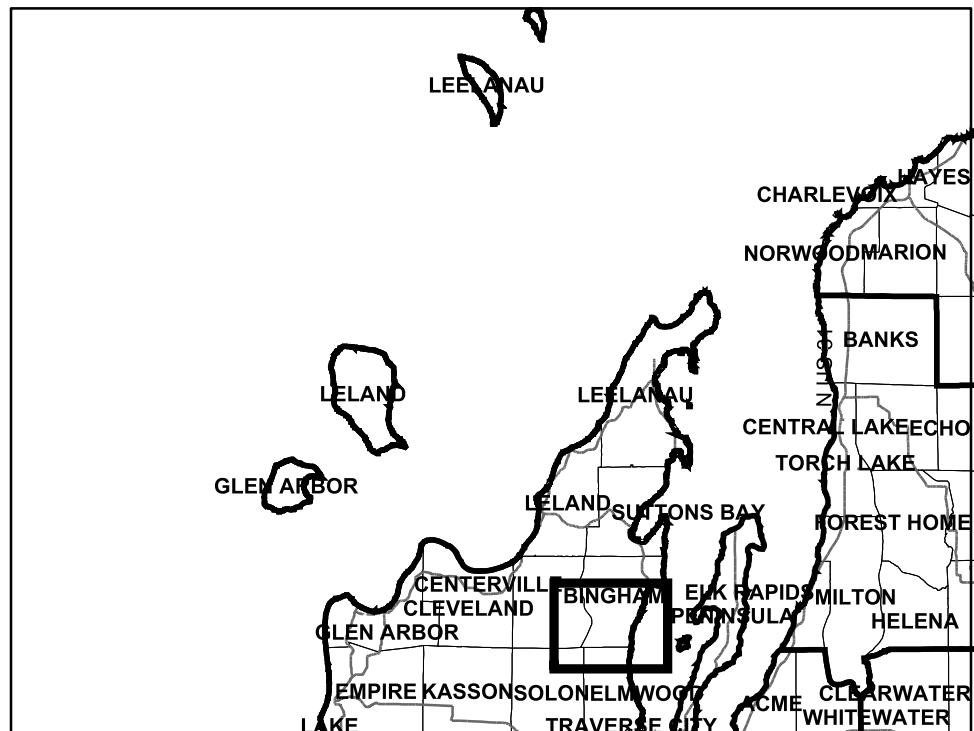
# Northwest Michigan Horticultural Research Station (Leased)

## Leelanau County, Bingham Township,

### Sections 29 and 30

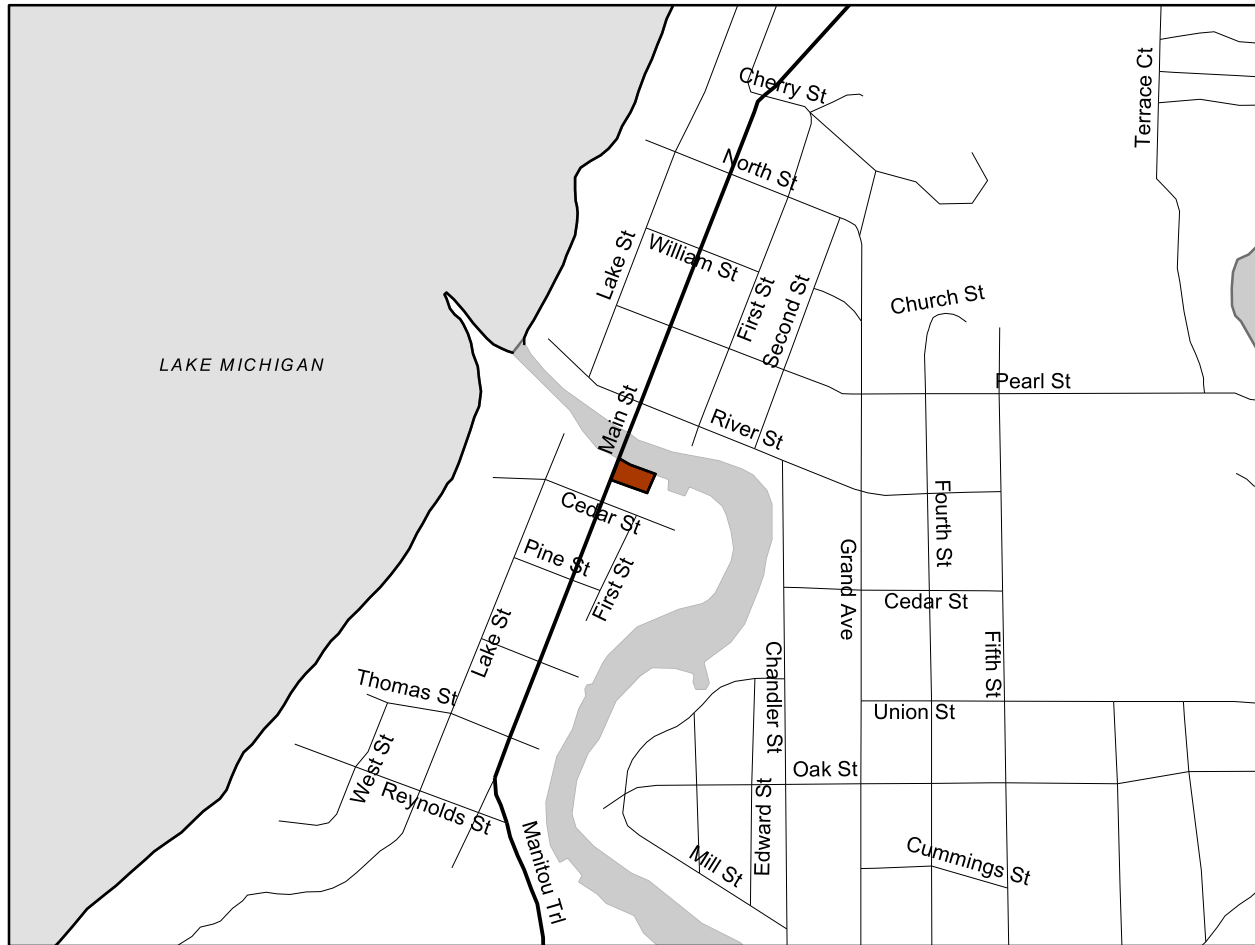


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Leelanau County

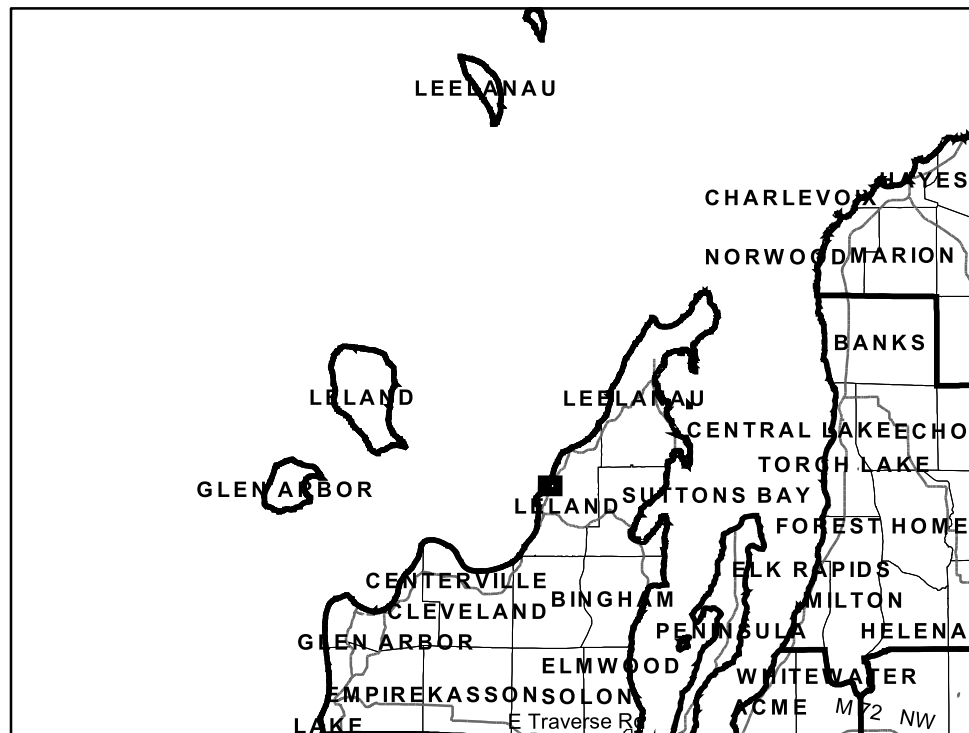


# Leland Property

## Leelanau County, Leland Township, Section 9

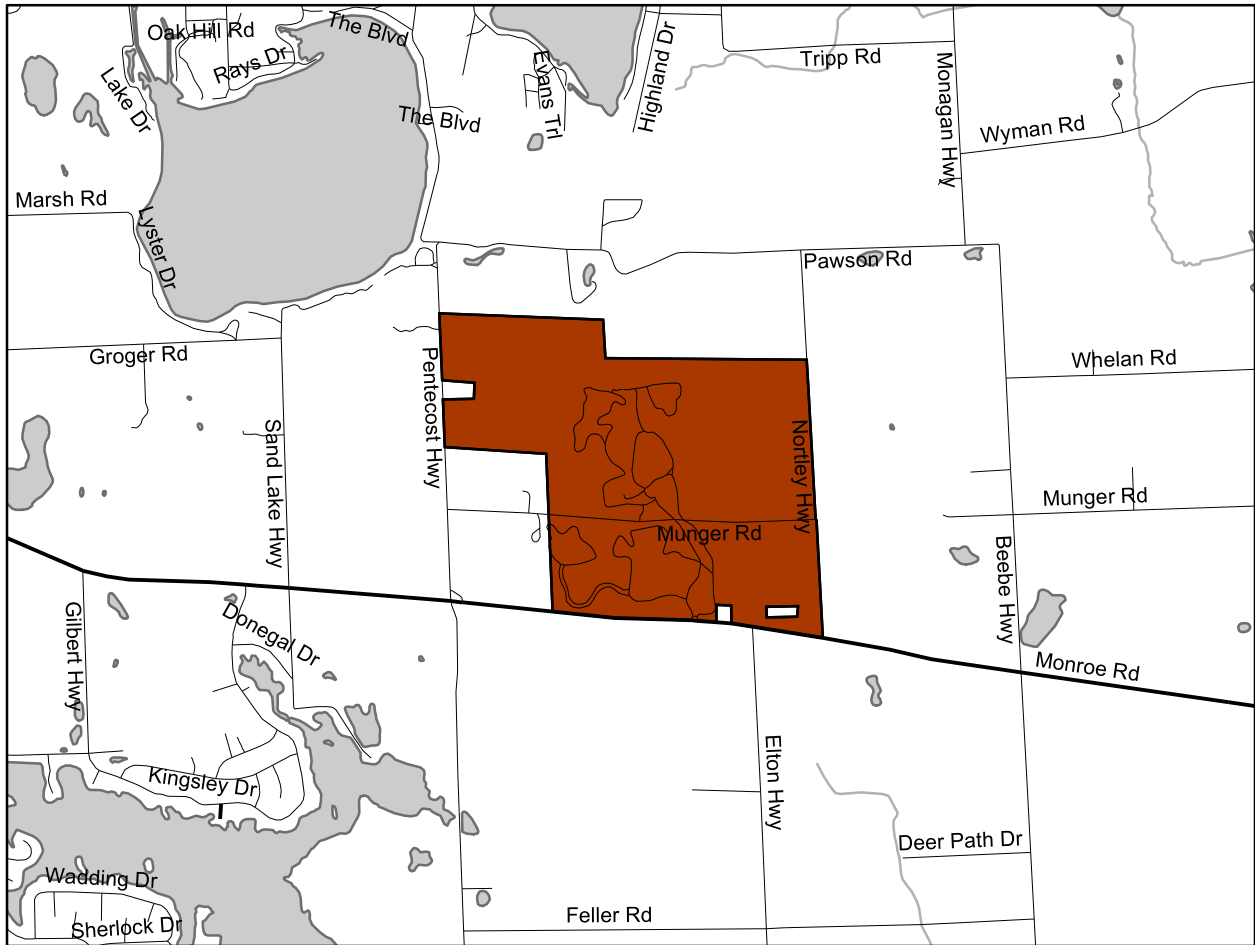


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Leelanau County

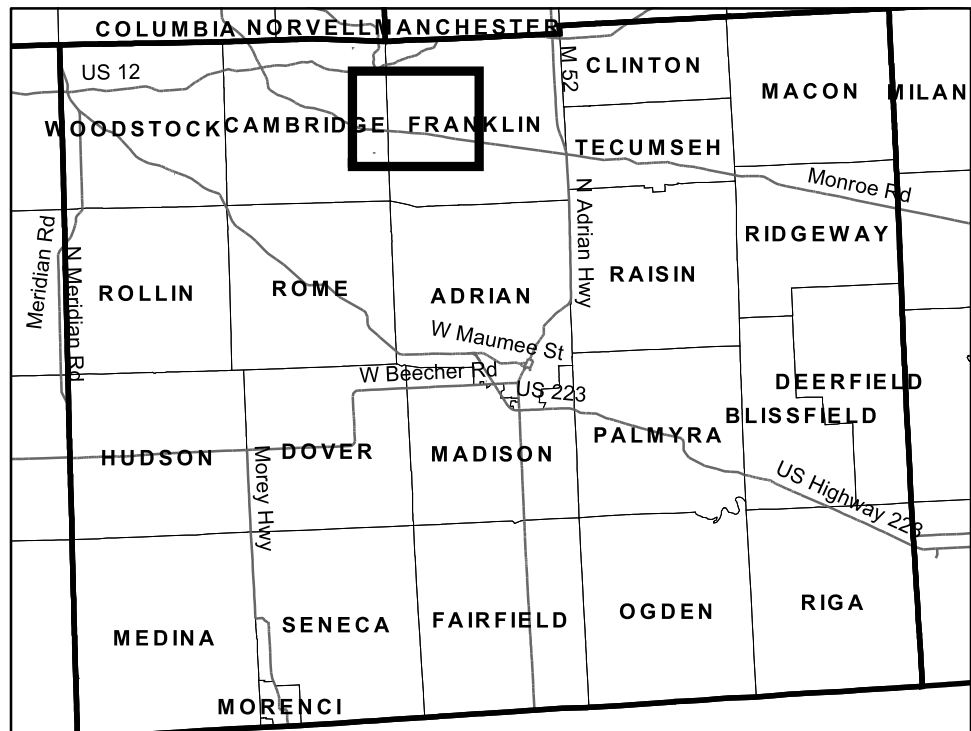


# Hidden Lake Gardens

Lenawee County, Franklin Township, Sections 17, 18, 19 and 20

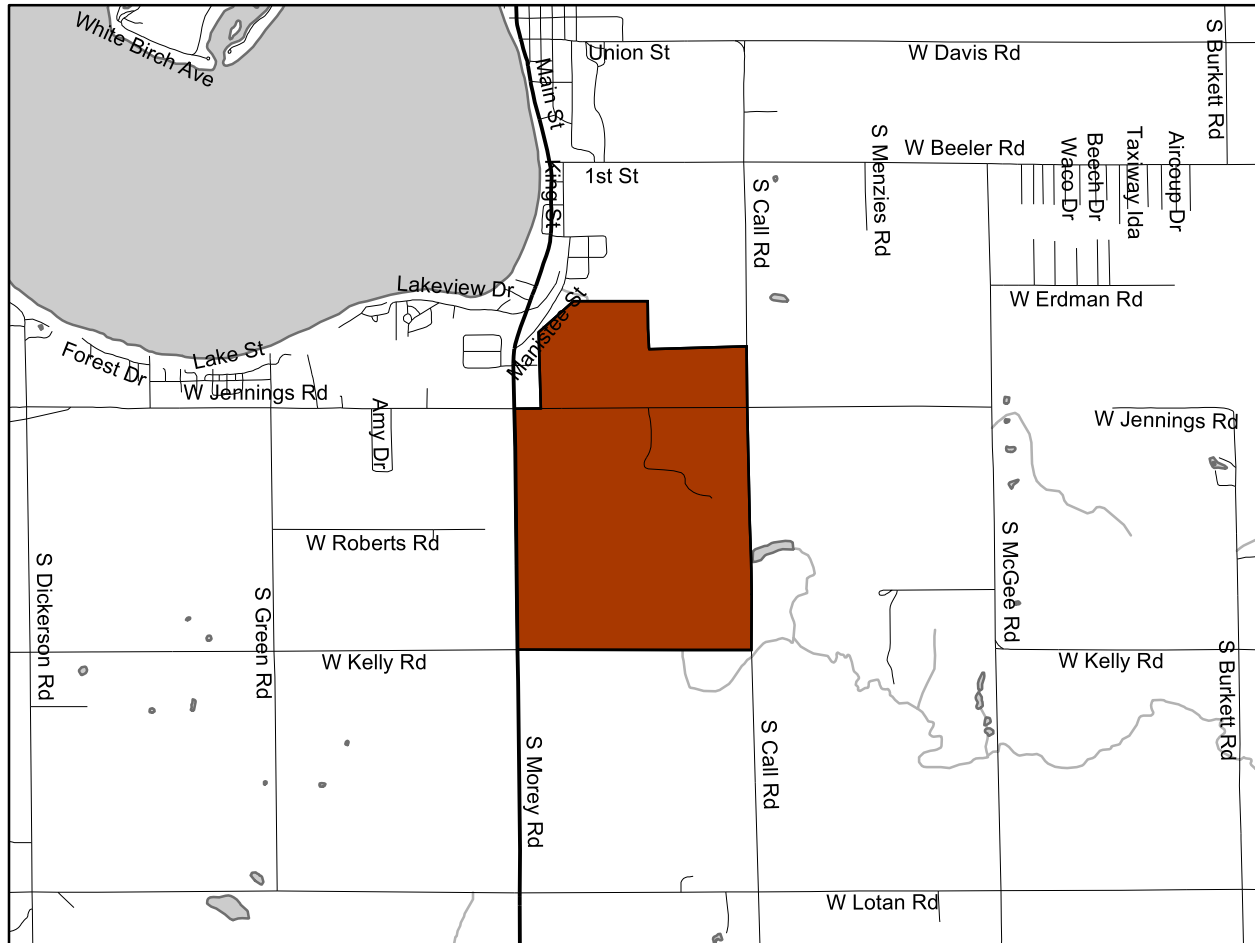


County Locator  
Lenawee County

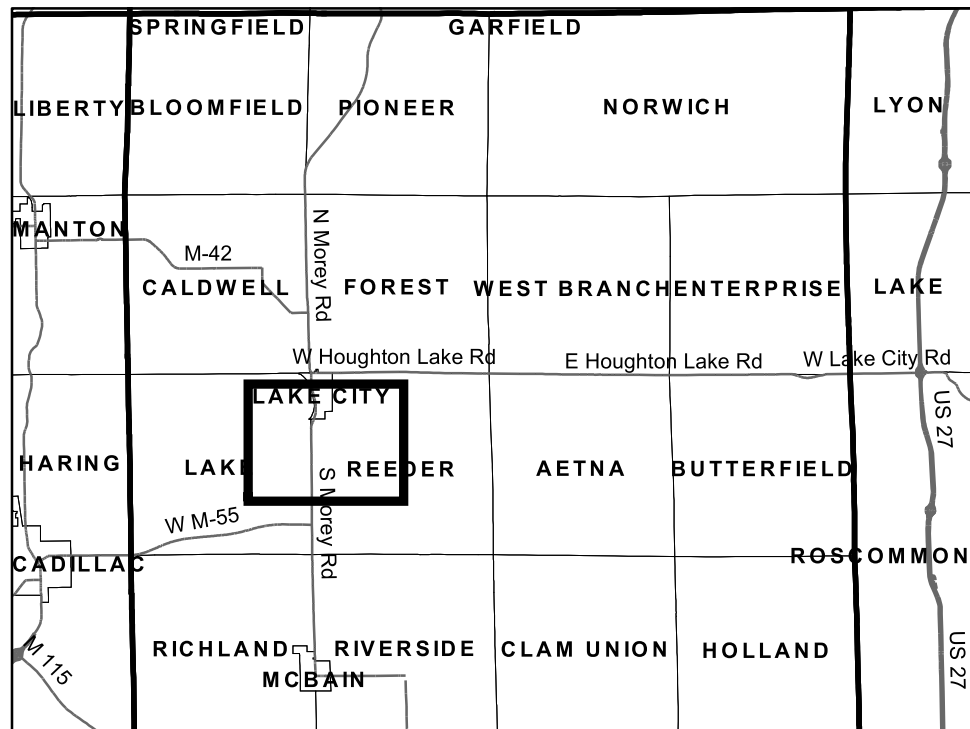


# Lake City Experiment Station

## Missaukee County, Reeder Township, Sections 7 and 18

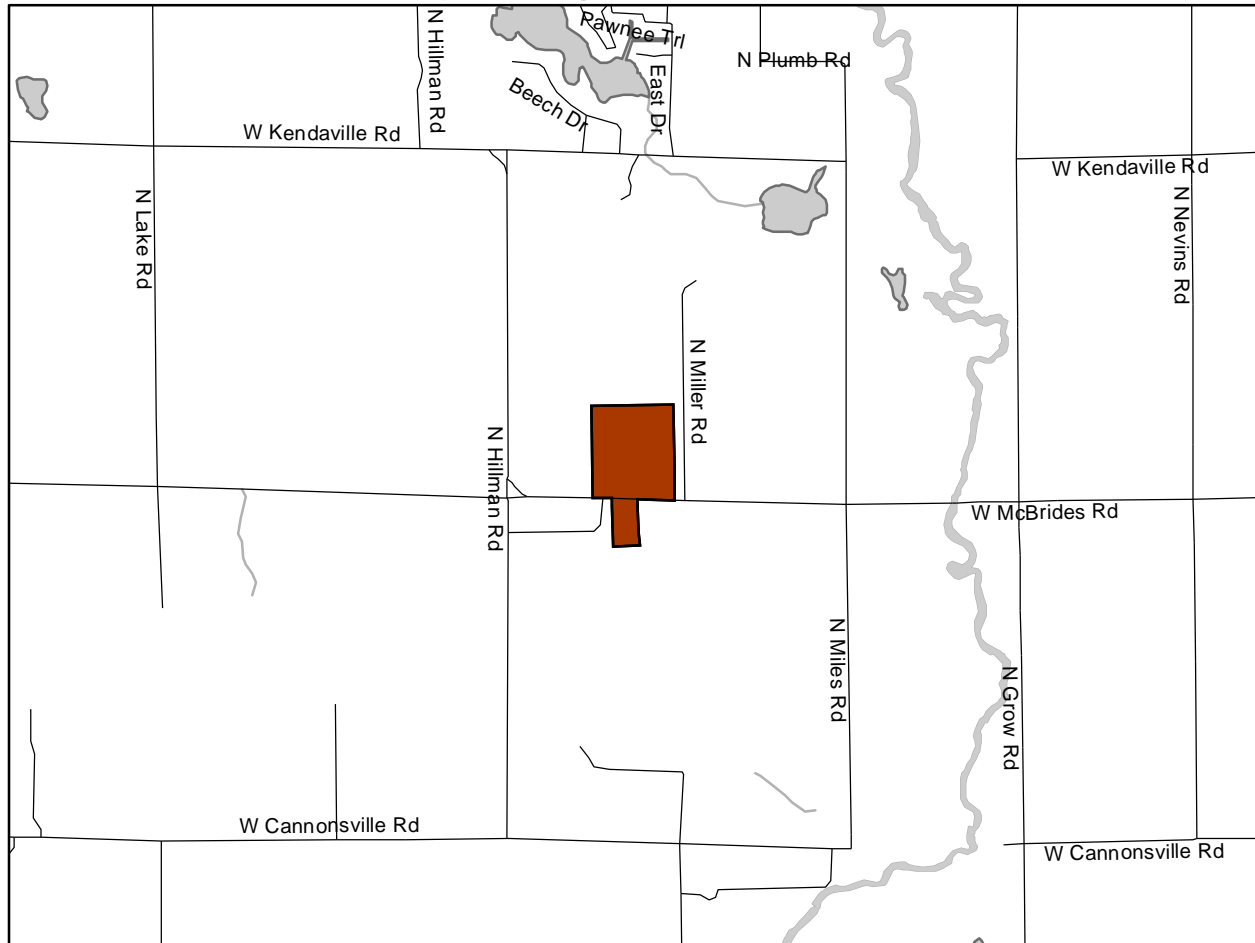


**County Locator**  
Missaukee County

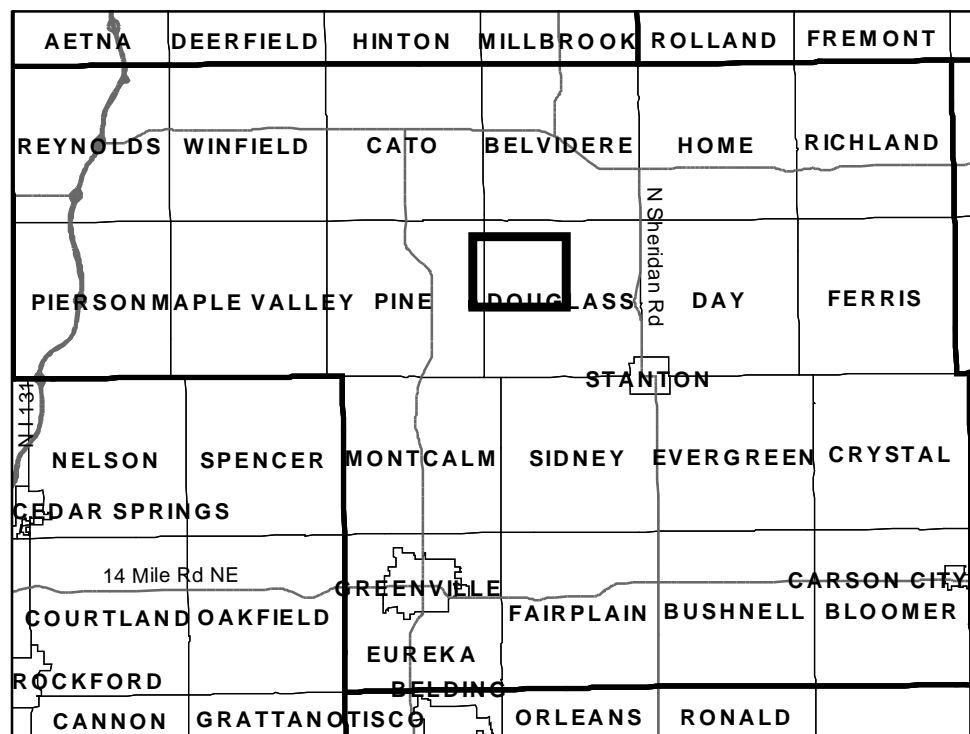
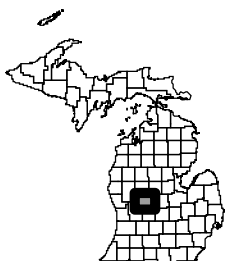


# Montcalm Research Farm

## Montcalm County, Douglass Township, Sections 8 and 17

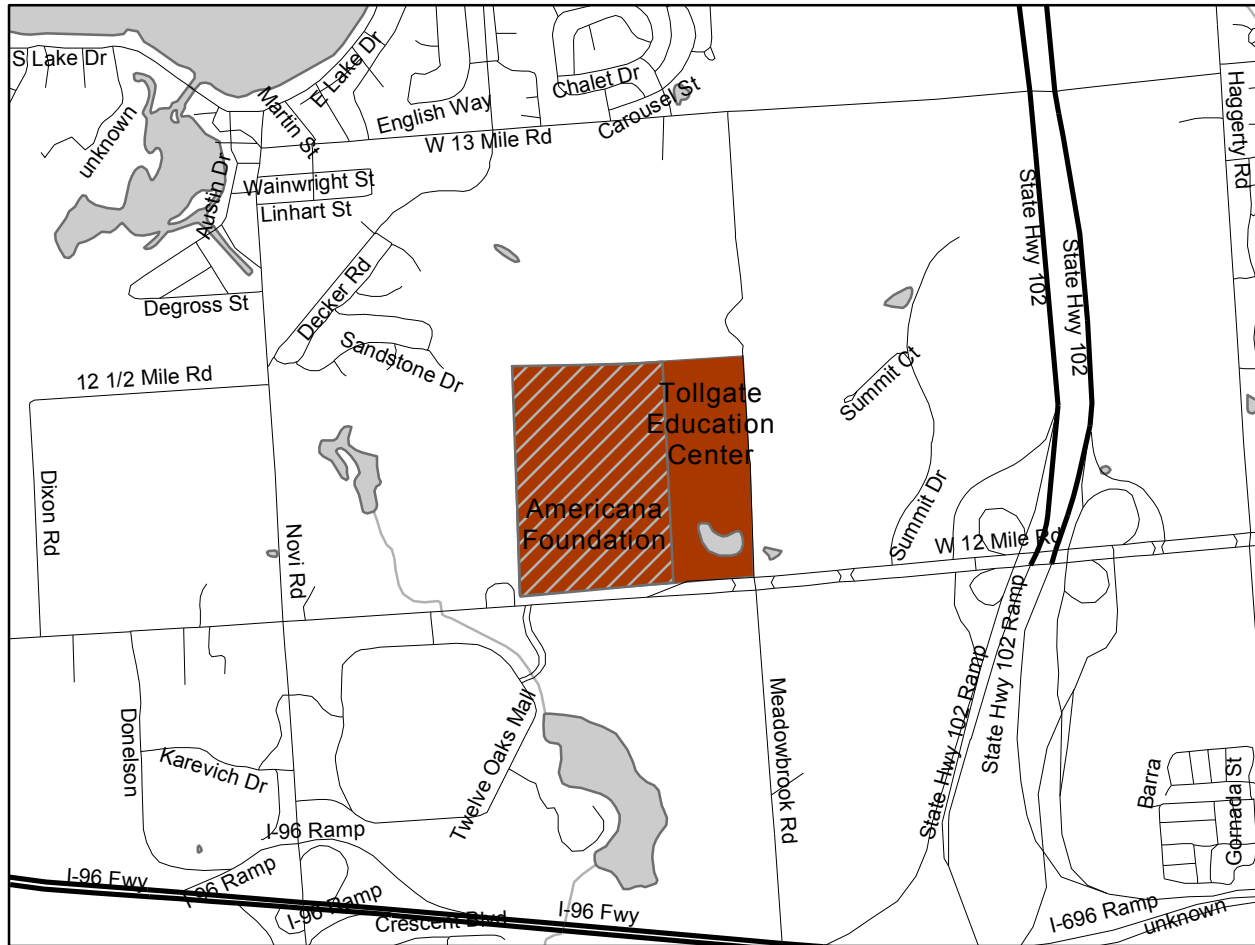


County Locator  
Montcalm County

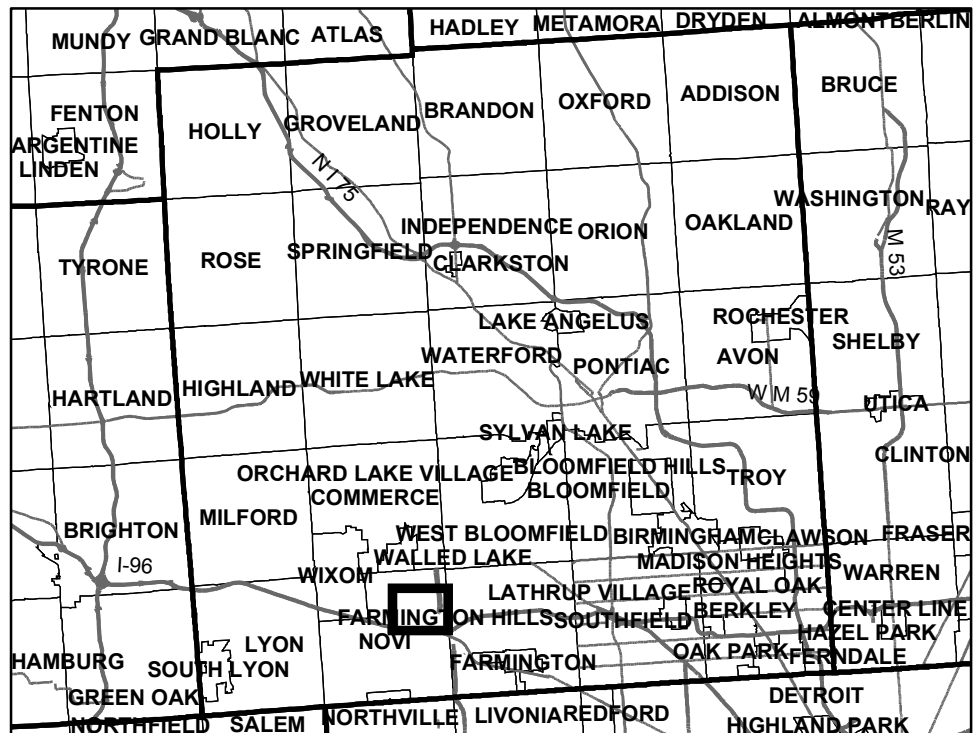


# Tollgate Education Center and Americana Foundation Property

## Oakland County, City of Novi, Section 11



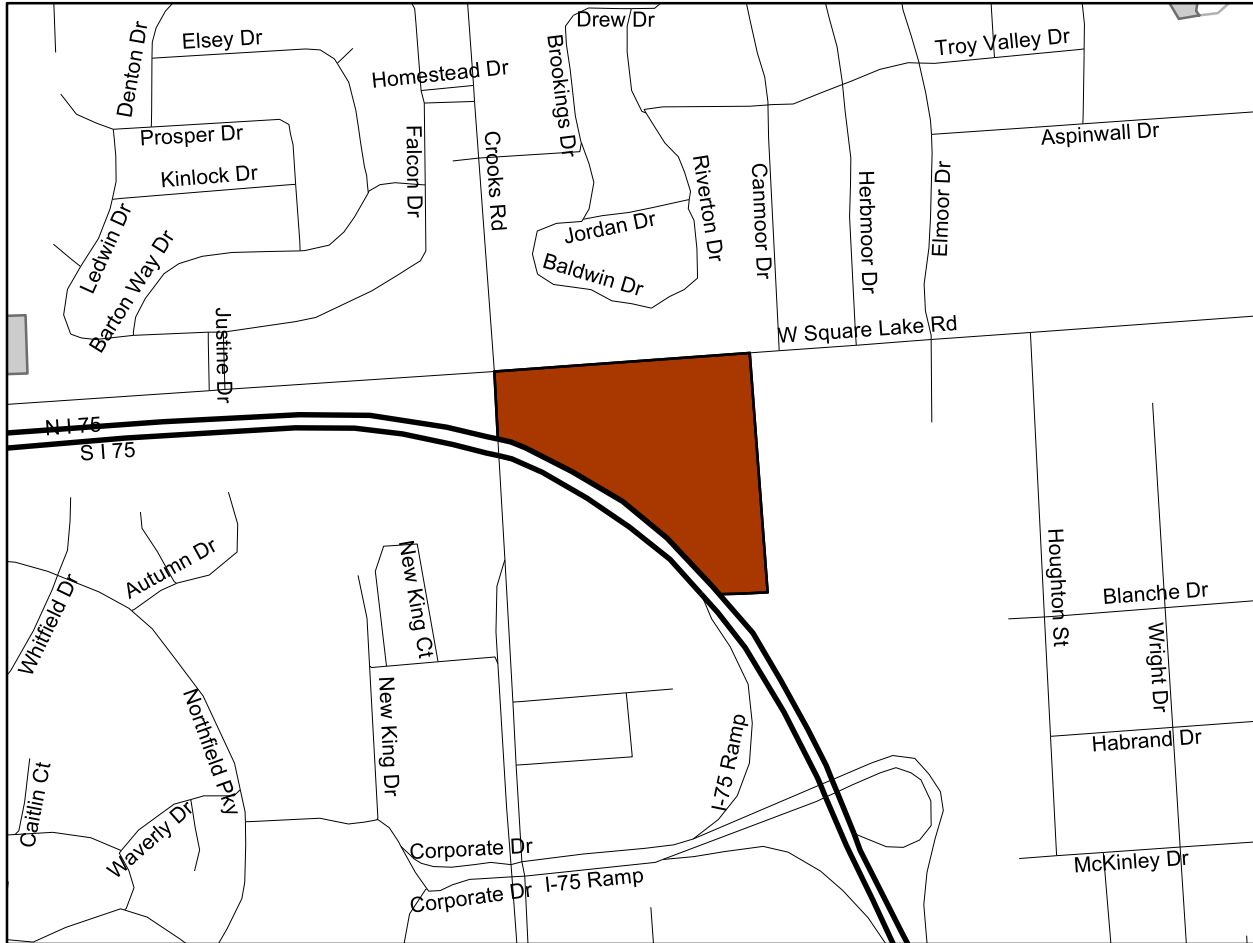
County Locator  
Oakland County



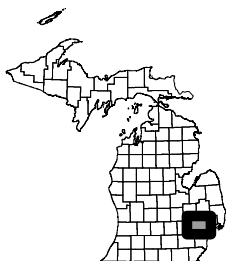


# Troy Management Education Center

## Oakland County, City of Troy, Section 9

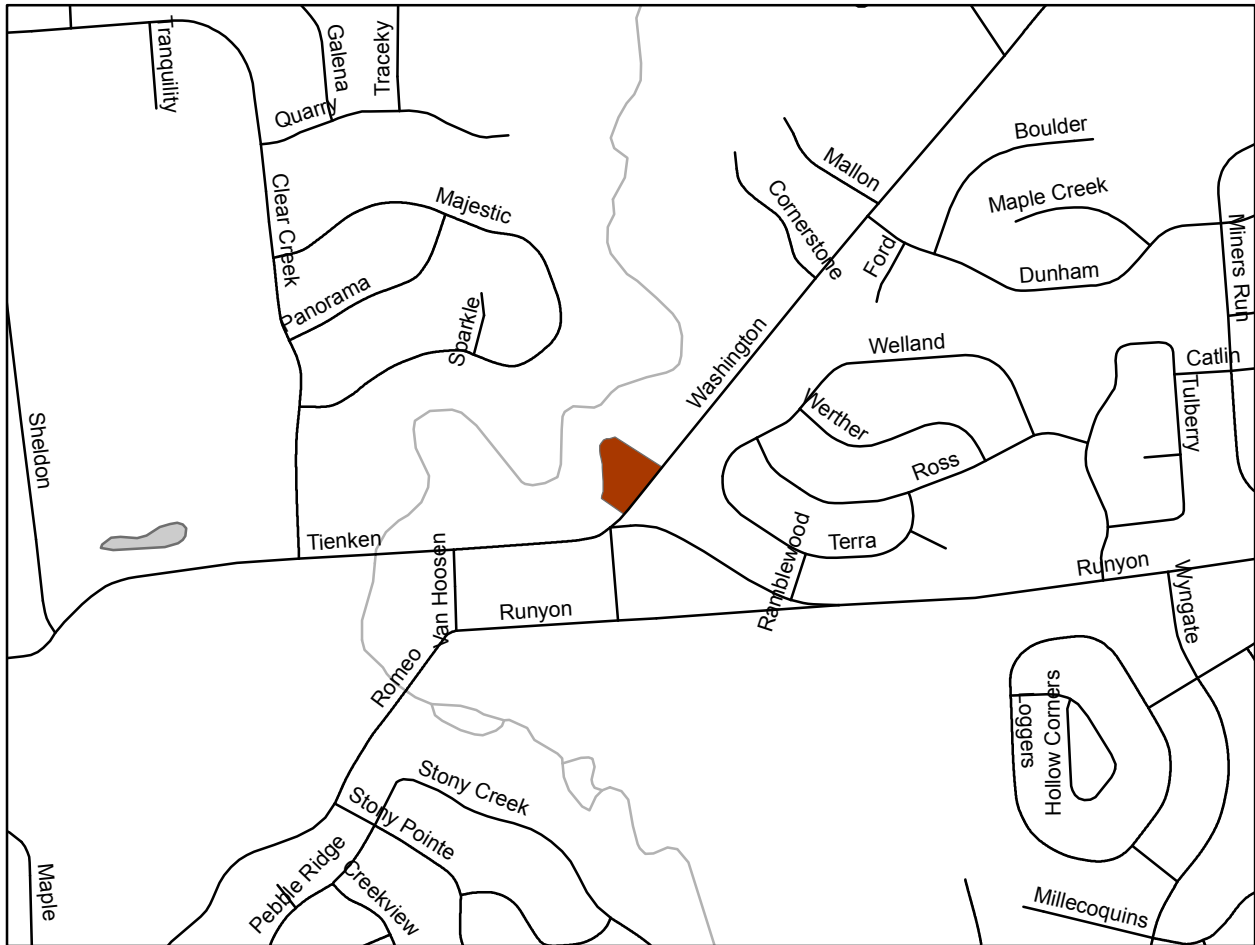


County Locator  
Oakland County



# Van Hoosen Property

## Oakland County, Avon Township, Section 1

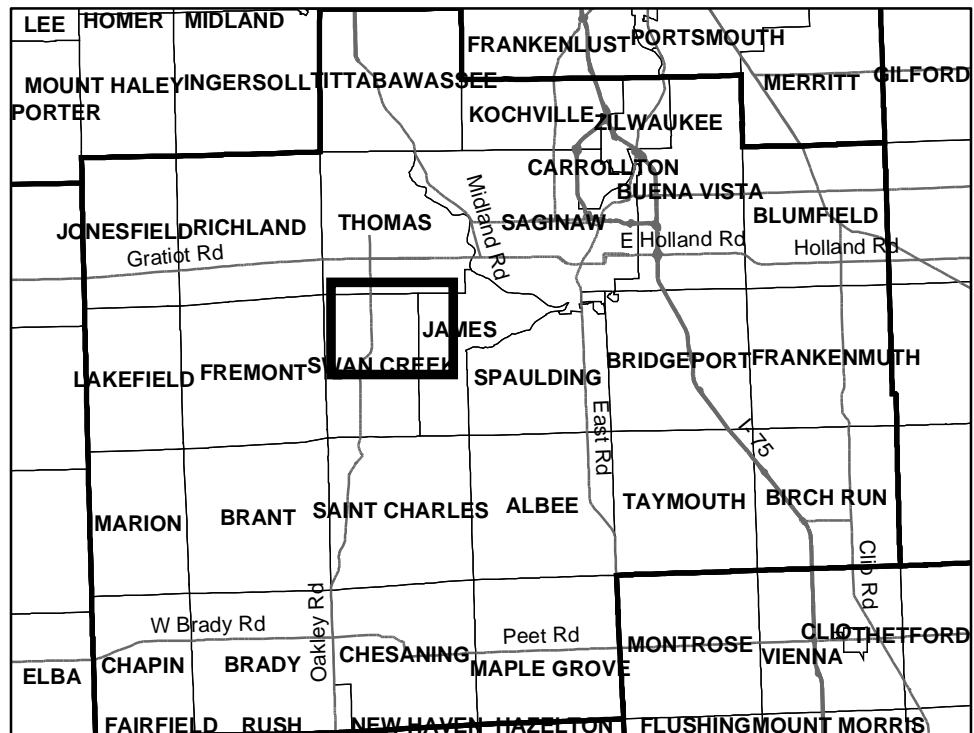
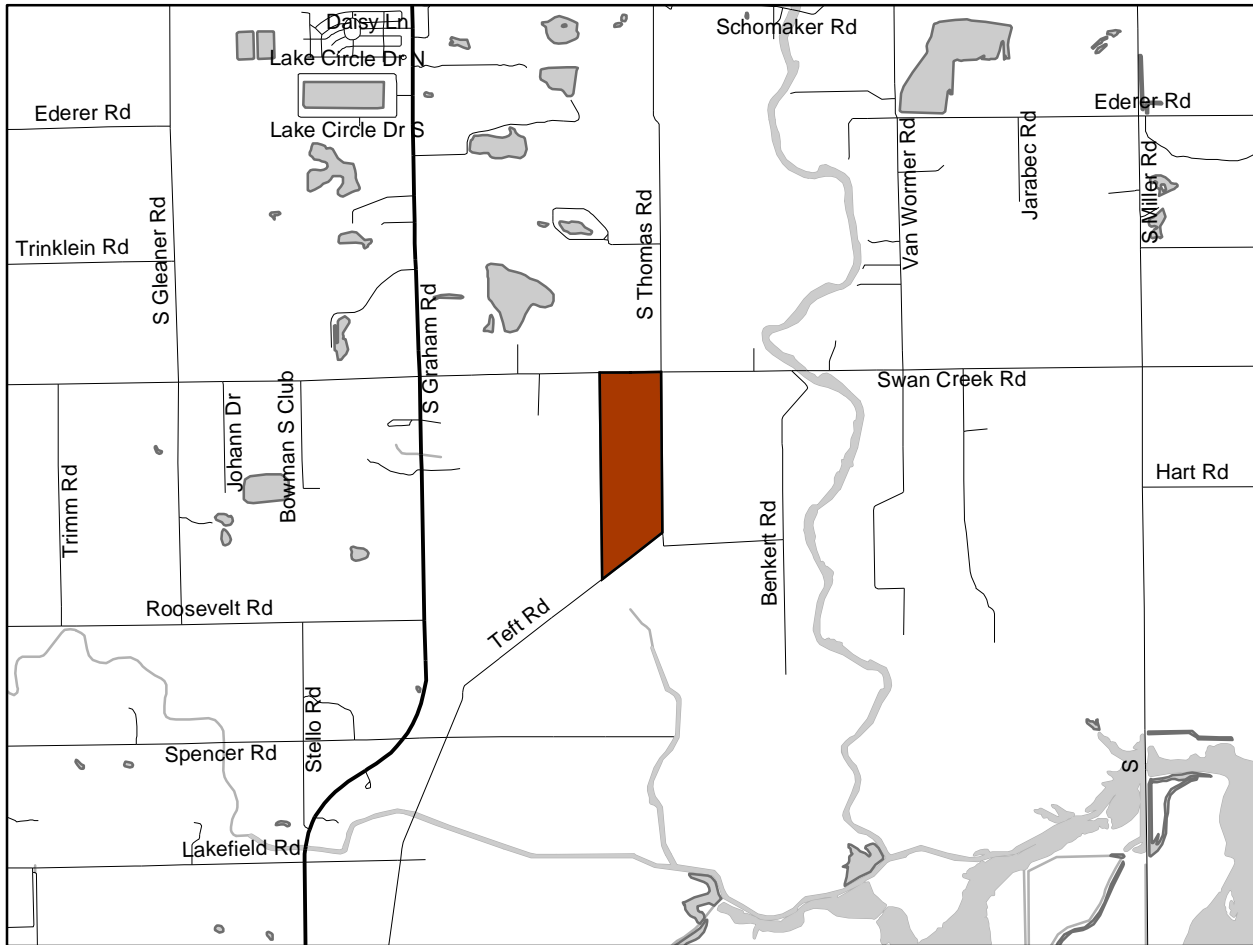


County Locator  
Oakland County



# Saginaw Valley Bean and Sugar Beet Research Farm (Leased)

## Saginaw County, Swan Creek Township, Section 9



County Locator  
Saginaw County



**Michigan State University**

# **REAL PROPERTY HOLDINGS**

**As of July 1, 2007**

**Prepared By:**

**Land Management Office  
for the  
Office of Vice President for Finance & Operations**

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## **Property Acreage Summary**

### **PRIMARY PROPERTY**

<b>Campus</b>		<b>5,195.225*Acres</b>
North of Mt. Hope	2,049.577	
Golf Course	325.000	
Research, Education and Extension South of Mt. Hope	2,738.392	
Campus Property Leased to Others	82.256	
<b>Off-Campus</b>		<b>18,384.249 Acres</b>
Off-Campus Leased to Others	530.323	

**DISPOSABLE PROPERTY** 5.691 Acres

**TOTAL DEEDED ACRES** 23,585.165 Acres

**PROPERTY LEASED TO MSU LONG-TERM** 580.000 Acres

**TOTAL LEASED AND DEEDED ACRES** 24,165.165 Acres

**\*See Addendum #1 -- Warranty Deeds To State Building Authority**

## **Property Additions**

### ***KENT COUNTY***

**College of Human Medicine - Grand Rapids**

**419 Sinclair Avenue, NE**

**410 Sinclair Avenue, NE**

**431 Michigan Street, NE**

**415 College Avenue, NE**

**1.5 Acres**

**Purchased**

**December 14, 2006**

**\$4,287,500.00**

## **Property Deletions**

***OAKLAND COUNTY***

**Goldner Property  
Section 32, Bloomfield Township  
5 Acres  
September 6, 2006  
Sale Price: \$1,500,000.00**



<b>Mineral Leases</b>	
<b><i>ANTRIM COUNTY</i></b>	<b>Mancelona Property</b> <b>Section 16, Mancelona Township</b> <b>Leased to Mercury Exploration Co.</b> <b>Lease is continued with producing well</b>
<b><i>LAPEER COUNTY</i></b>	<b>Homer Nowlin Property</b> <b>Sections 28 &amp; 33, Rich Township</b> <b>Leased to Total Petroleum, Inc.</b> <b>Lease is continued with producing well</b>
<b><i>OAKLAND COUNTY</i></b>	<b>Management Education Center</b> <b>Section 9, Troy Township</b> <b>Leased to West Bay Exploration Company</b> <b>Lease is continued with producing well</b>
<b>Minerals Reserved, Real Property Sold</b>	
<b><i>ALLEGAN COUNTY</i></b>	<b>Douglas Property</b> <b>Section 21, Saugatuck Township</b> <b>53.275 Acres</b> <b>Surface Titleholder: Orchard Valley Estates</b> <b>L.L.C.</b>
<b><i>ANTRIM COUNTY</i></b>	<b>Mancelona Property</b> <b>Section 16, Mancelona Township</b> <b>29.900 Acres</b> <b>Surface Titleholder: McDonald Corp.</b>
<b><i>CLINTON COUNTY</i></b>	<b>Jenison-Eagle Parcel 'A'</b> <b>Section 22, Eagle Township</b> <b>12.000 Acres</b> <b>Surface Titleholder: M/M Schafer</b>  <b>Jenison-Eagle Parcel 'C'</b> <b>Section 22, Eagle Township</b> <b>12.000 Acres</b> <b>Surface Titleholder: M/M Riley, III</b>  <b>Jenison-Eagle Parcel 'D'</b> <b>Sections 22 &amp; 27, Eagle Township</b> <b>61.300 Acres</b> <b>Surface Titleholder: M/M Schafer</b>

**Minerals Reserved, Real Property Sold (Continued)**

<b><i>INGHAM COUNTY</i></b>	<b>Section 1, Delhi Township 20.369 Acres Surface Titleholder: Albert A. White</b>
<b><i>LAPEER COUNTY</i></b>	<b>Section 28, Rich Township 10.000 Acres, Nowlin Property Surface Titleholder: M/M Lott  Section 33, Rich Township 303.000 Acres, Nowlin Property Surface Titleholder: M/M Adamic</b>
<b><i>LENAWEE COUNTY</i></b>	<b>MSU Merillat Equine Center Section 29, Adrian Township 80.000 Acres Surface Titleholder: Wolf Creek Stables, LLC</b>
<b><i>MONROE COUNTY</i></b>	<b>Section 21, Milan Township 80.000 Acres, Yoder Property Surface Titleholder: M/M Heath</b>
<b><i>OAKLAND COUNTY</i></b>	<b>Sections 2-11-12, Avon Township 234.434 Acres Surface Titleholder: Several  Goldner Property Section 32, Bloomfield Township 5 Acres Surface Titleholder: Sarveswararad &amp; Vanee Talla</b>
<b><i>ONTONAGON COUNTY</i></b>	<b>Section 6, Bohemia Township &amp; Section 12, Greenland Township 78.000 Acres Surface Titleholder: M/M Malosh  Section 23, Bohemia Township 40.000 Acres Surface Titleholder: Domitrovich Realty</b>

<b>Minerals Reserved, Real Property Sold (Continued)</b>	
<i>VAN BUREN COUNTY</i>	<b>Section 6, Geneva Township 29.000 Acres Surface Titleholder: B.R. Stegeman  Section 23, South Haven Township 53.230 Acres Surface Titleholder: Charles &amp; Jean Stein</b>
<b>TOTAL ACRES, MINERALS RESERVED: 1,101.508</b>	

## Primary Property Inventoried by County

***ALGER***

Upper Peninsula Experiment Station  
Chatham

1,262.227 Acres

***ALLEGAN***

Trevor Nichols Research Complex  
Fennville

156.100 Acres

***BARRY***

W.K. Kellogg Biological Station (Lux Arbor Reserve)  
Hickory Corners

1,323.000 Acres

***BERRIEN***

Southwest Michigan Research & Extension Center  
Benton Harbor

350.000 Acres

***CALHOUN***

Martin Property (Rose-Dell Seed Orchard)  
Albion

160.000 Acres

***CASS***

Fred Russ Forest Experiment Station  
Decatur

938.750 Acres

***CHIPPEWA***

Dunbar Forest Experiment Station  
Sault Ste. Marie

5,759.815 Acres

***CLINTON***

Muck Soils Research Farm  
Laingsburg

447.048 Acres

***CRAWFORD***

Stranahan-Bell (Wa Wa Sum)  
Grayling

251.000 Acres

***DELTA***

Upper Peninsula Tree Improvement Center  
Escanaba

1,737.260 Acres

**Primary Property Inventoried by County (Continued)*****INGHAM***

Michigan State University Campus East Lansing	5,195.225 Acres
Dobie Road Property Okemos	114.431 Acres
Sycamore Creek Property Holt	54.500 Acres
Jolly Road Engineering Research Facility and Civil Infrastructure Engineering Research Facility Okemos	3.260 Acres
Hulett Road Engineering Research Facility Okemos	5.691 Acres
MSU Sailing Club Lake Lansing	.76 Acres
Mason Research Farm Mason	117.000 Acres
River Terrace Property East Lansing	1.21 Acres
Ingham Total	5,492.077 Acres

***IONIA***

Clarksville Horticultural Experiment Station Clarksville	440.000 Acres
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***JACKSON***

MacCready Forest and Wildlife Reserve Clark Lake	408.000 Acres
Rogers Property Jackson	115.850 Acres
	523.850 Acres

**Primary Property Inventoried by County (Continued)*****KALAMAZOO***

**W.K. Kellogg Biological Station      1,685.930 Acres**  
**(including Farm & Bird Sanctuary)**  
**Hickory Corners**

**W.K. Kellogg Experimental Forest      715.995 Acres**  
**Augusta**

**Brook Lodge      633.240 Acres**  
**Augusta**

**Kalamazoo Total      3,035.165 Acres**

***KENT***

**College of Human Medicine      1.500 Acres**  
**Grand Rapids**

***LEELANAU***

**Leland Property      .700 Acres**  
**Leland**

***LENAWEE***

**Hidden Lake Gardens      756.618 Acres**  
**Tipton**

***MISSAUKEE***

**Lake City Experiment Station      810.010 Acres**  
**Lake City**

***MONTCALM***

**Montcalm Experimental Farm      57.250 Acres**  
**Lakeview**

**Primary Property Inventoried by County (Continued)*****OAKLAND***

**Management Education Center      24.327 Acres**  
**Troy**

**Tollgate Education Center      56.675 Acres**  
**Novi**

**Avon Players (Van Hoosen)      1.793 Acres**  
**Rochester**

**Oakland Total      82.795 Acres**

***TOTAL ACRES: 23,585.165***

# **Oil and Gas Royalty Income**

## **Mancelona Property**

<b>1998 - 1999</b>	<b>\$ 5,068.62</b>
<b>1999 - 2000</b>	<b>3,390.42</b>
<b>2000 - 2001</b>	<b>6,547.95</b>
<b>2001 - 2002</b>	<b>4,789.45</b>
<b>2002 - 2003</b>	<b>5,958.69</b>
<b>2003 - 2004</b>	<b>6,833.60</b>
<b>2004 - 2005</b>	<b>7,415.27</b>
<b>2005 - 2006</b>	<b>10,337.62</b>
<b>2006 - 2007</b>	<b>7,192.83</b>

## **Homer Nowlin Property**

<b>1989 - 1990</b>	<b>\$ 98,404.78</b>
<b>1990 - 1991</b>	<b>153,008.72</b>
<b>1991 - 1992</b>	<b>79,323.99</b>
<b>1992 - 1993</b>	<b>110,311.26</b>
<b>1993 - 1994</b>	<b>67,355.68</b>
<b>1994 - 1995</b>	<b>91,965.81</b>
<b>1995 - 1996</b>	<b>91,421.59</b>
<b>1995 - 1996 Refund of Taxes</b>	<b>32,592.73</b>
<b>1996 - 1997</b>	<b>100,641.83</b>
<b>1997 - 1998</b>	<b>65,468.04</b>
<b>1998 - 1999</b>	<b>30,788.53</b>
<b>1999 - 2000</b>	<b>72,118.88</b>
<b>2000 - 2001</b>	<b>82,535.99</b>
<b>2001 - 2002</b>	<b>53,000.00</b>
<b>2002 - 2003</b>	<b>58,819.50</b>
<b>2003 - 2004</b>	<b>58,386.86</b>
<b>2004 - 2005</b>	<b>71,997.24</b>
<b>2005 - 2006</b>	<b>85,676.23</b>
<b>2006 - 2007</b>	<b>72,534.18</b>

## **Management Education Center**

<b>2002 - 2003</b>	<b>\$248,679.62</b>
<b>2003 - 2004</b>	<b>949,191.09</b>
<b>2004 - 2005</b>	<b>1,041,242.41</b>
<b>2005 - 2006</b>	<b>1,111,581.83</b>
<b>2006 - 2007</b>	<b>695,627.95</b>



## **Leased Properties (Long-Term)**

### ***KALAMAZOO COUNTY***

**Trevor Nichols Research Complex  
(Known as Kalamazoo Orchard)  
45.000 acres leased since 1974  
Administered by Department of Entomology  
and Land Management Office**

**W.K. Kellogg Biological Station  
(Known as George L. Turner Property)  
215.000 acres leased since January 2001 (acreage reduced  
in 2006)  
Administered by W.K. Kellogg Biological Station**

### ***LEELANAU COUNTY***

**Northwest Michigan Horticulture Research Station  
80.000 acres leased since 1979  
Administered by Department of Horticulture  
and Land Management Office**

**Northwest Michigan Horticulture Research Station  
20.000 acres leased since 1986  
Administered by Department of Horticulture  
and Land Management Office**

### ***OAKLAND COUNTY***

**Americana Foundation at Tollgate Education Center  
100.000 acres leased since June 3, 1993  
Administered by Cooperative Extension Service  
and Land Management Office**

### ***SAGINAW COUNTY***

**Saginaw Valley Bean and Sugar Beet Research Farm  
120.000 acres leased since 1971  
Administered by Department of Crop & Soil Sciences  
and Land Management Office**

***TOTAL ACRES, LEASED PROPERTY: 580.000***

## Land Leased/Licensed To Others

<b><i>BARRY COUNTY</i></b>	<b>Prairieville Township Delton</b>	<b>.8 Acres</b>
<b><i>BERRIEN COUNTY</i></b>	<b>Berrien County Extension Service Benton Harbor</b>	<b>1.380 Acres</b>
<b><i>CASS COUNTY</i></b>	<b>Cass County Historical Commission Cassopolis</b>	<b>1.8 Acres</b>
	<b>Cass County Parks &amp; Recreation Commission Cassopolis</b>	<b>14.0 Acres</b>
	<b>Marcellus Community School Marcellus</b>	<b>21.45 Acres</b>
<b><i>CHIPPEWA COUNTY</i></b>	<b>Department of Natural Resources Bruce Township</b>	<b>9.4 Acres</b>
<b><i>DELTA COUNTY</i></b>	<b>Mead Corporation Escanaba</b>	<b>14.000 Acres</b>
<b><i>INGHAM COUNTY</i></b>	<b>Michigan State Police Headquarters East Lansing</b>	<b>13.000 Acres</b>
	<b>Michigan State University Federal Credit Union East Lansing</b>	<b>4.711 Acres</b>
	<b>Sewage Plant East Lansing</b>	<b>16.500 Acres</b>
	<b>Consumers Power East Lansing</b>	<b>.10 Acres</b>
	<b>Northstar Cooperative, Inc. East Lansing</b>	<b>9.71 Acres</b>

## Land Leased/Licensed (Continued)

	University Rehabilitation Alliance Alaiedon Township	35.000 Acres
	Candlewood/Vista I, L.L.C. Lansing	3.235 Acres
<i>KALAMAZOO COUNTY</i>	Gull Lake Bible Conference Hickory Corners	±10.00 Acres
	YMCA Kalamazoo	±455.0 Acres
<i>LEELANAU COUNTY</i>	Leland Property (Art School) Leland	.700 Acres
<i>OAKLAND COUNTY</i>	Van Hoosen (Avon Players) Rochester	1.793 Acres

*TOTAL ACRES, LEASED/LICENSED TO OTHERS: 612.579*

## Disposable Properties

***INGHAM COUNTY***

**Hulett Road Engineering  
Okemos**

**5.691 Acres**

***TOTAL ACRES, DISPOSABLE PROPERTY: 5.691 ACRES***

## Analysis of Off-Campus Primary, Disposable and Investment Holdings

PROPERTY	PURPOSE	SUPERVISION	STATUS
<i>Brook Lodge, Augusta, Kalamazoo County, 633.24 Acres</i>	Conference center, teaching, research and outreach.	Kellogg Center and Land Management Office	Not recommended to sell.
<i>Clarksville Horticultural Experiment Station, Clarksville, Ionia County, 440.000 Acres</i>	Horticulture research on small fruit and tree fruit. Herbicide testing on corn and soybeans.	Department of Horticulture and Land Management Office	Not recommended to sell.
<i>College of Human Medicine, Grand Rapids, Kent County, 1.5 Acres</i>	Medical School	College of Human Medicine	Not recommended to sell.
<i>Dobie Road Property, (Old Prison Farm), Okemos, Ingham County, 114.431 Acres</i>	Wildlife Research.	Department of Fisheries & Wildlife and Land Management Office	Not recommended to sell. Title restricted.
<i>Dunbar Forest Experiment Station, Sault Ste. Marie, Chippewa County, 5,759.815 Acres</i>	Forestry research and demonstration.	Department of Forestry and Land Management Office	Title restricted on 4,668.84 acres.
<i>Fred Russ Forest Experiment Station, Decatur, Cass County, 938.750 Acres</i>	Variety of forestry research in plantings and genetics and for demonstration and public use.	Department of Forestry and Land Management Office	Not recommended to sell. Title restricted on 269 acres.
<i>Hidden Lake Gardens, Tipton, Lenawee County, 756.618 Acres</i>	Arboretum and plant conservatory.	Land Management Office	Not recommended to sell.
<i>Hulett Road Engineering Research Facility, Okemos, Ingham County, 5.691 Acres</i>	Facilities and site for research by College of Engineering.	College of Engineering and Land Management Office	Property listed.
<i>Jolly Road Engineering Research Facility and Civil Infrastructure Engineering Research Facility, Okemos, Ingham County, 3.260 Acres</i>	Facilities and site for research by College of Engineering.	College of Engineering and Land Management Office	Not recommended to sell.
<i>Lake City Experiment Station, Lake City, Missaukee County, 810.010 Acres</i>	Research in beef cattle, forages, and potatoes.	Department of Animal Science and Land Management Office	Not recommended to sell. Title restricted.
<i>Leland Property, Leland, Leelanau County, .700 Acres</i>	Long-term lease to Leland Township.	Land Management Office	Not recommended to sell.

## Property Holdings (Continued)

PROPERTY	PURPOSE	SUPERVISION	STATUS
<i>MacCready Forest &amp; Wildlife Reserve</i> , Clark Lake, Jackson County, 408.000 Acres	Wildlife and Forestry demonstration.	Department of Forestry, Department of Fisheries & Wildlife and Land Management Office	Not recommended to sell.
<i>Management Education Center</i> , Troy, Oakland County, 24.327 Acres	Advanced management training center.	College of Business	Not recommended to sell.
<i>Martin Property (Rose-Dell Seed Orchard)</i> , Calhoun County, 160.000 Acres	Forestry for a tree seed orchard and demonstration site.	Department of Forestry and Land Management Office	Not recommended to sell. Title restricted.
<i>Mason Research Farm</i> , Mason, Ingham County, 117.000 Acres	Research on cereal grains and soybeans.	Department of Crop & Soil Sciences and Land Management Office	Not recommended to sell.
<i>Montcalm Experimental Farm</i> , Lakeview, Montcalm County, 57.250 Acres	Field research in potato production and other cash crops.	Department of Crop & Soil Sciences and Land Management Office	Not recommended to sell.
<i>MSU Sailing Club</i> , Haslett, Ingham County, .76 Acres	Sailing and wind surfing lessons	Intramural Sports and Recreative Services	Not recommended to sell.
<i>Muck Soils Research Farm</i> , Laingsburg, Clinton County, 447.048 Acres	Research projects in production of vegetable and other crops in organic soils.	Department of Crop & Soil Sciences and Land Management Office	Not recommended to sell. Title restricted.
<i>River Terrace Property</i> , East Lansing, Ingham County, 1.21 Acres	Investment	Vice President for Finance and Operations and Land Management Office	Not recommended to sell.
<i>Rogers Property</i> , Jackson, Jackson County, 115.850 Acres	Research and teaching in Botanical and Horticultural Sciences.	Department of Plant Pathology and Land Management Office	Not recommended to sell.
<i>Southwest Michigan Research and Extension Center</i> , Benton Harbor, Berrien County, 350.000 Acres	Horticultural research and extension center.	Department of Horticulture, Agricultural Experiment Station, Cooperative Extension Service and Land Management Office	Not recommended to sell.

## Property Holdings (Continued)

PROPERTY	PURPOSE	SUPERVISION	STATUS
<i>Stranahan-Bell (Wa Wa Sum)</i> , Grayling, Crawford County, 251.000 Acres	Research on inland streams, reforestation, and small conferences.	Land Management Office	Not recommended to sell.
<i>Sycamore Creek</i> , Holt, Ingham County, 54.500 Acres	Support campus overall water management plan. Controlled access to Sycamore Creek flood plain.	Land Management Office	Not recommended to sell. Title restricted on 52 acres.
<i>Tollgate Education Center</i> , Novi, Oakland County, 56.675 Acres	Agricultural and environmental education and leadership training.	Cooperative Extension Service and Land Management Office	Not recommended to sell.
<i>Trevor Nichols Research Complex</i> , Fennville, Allegan County, 156.100 Acres	Serves as a major location for research on pests of fruit and field experience for students in Entomology.	Department of Entomology and Land Management Office	Not recommended to sell.
<i>Upper Peninsula Experiment Station</i> , Chatham, Alger County, 1,262.227 Acres	Research in dairy, forestry, and crops.	Department of Animal Science and Land Management Office	Not recommended to sell. Mineral rights reserved. Title restricted.
<i>Upper Peninsula Tree Improvement Center</i> , Escanaba, Delta County, 1,737.260 Acres	Research and demonstration in forestry and crops.	Department of Forestry and Land Management Office	Not recommended to sell.
<i>Van Hoosen Property</i> , Rochester, Oakland County, 1.793 Acres	Remaining land of Sara Van Hoosen gift acquired in 1956 leased to Avon Players.	Vice President for Finance and Operations and Land Management Office	Not recommended to sell.
<i>W.K. Kellogg Biological Station, Including Farm and Bird Sanctuary</i> , Hickory Corners, Kalamazoo County, 1,685.930 Acres	Teaching, research, and extension activities in the environmental sciences focusing on the interdependence of natural and managed landscapes. The programs treat integrated study of biology, wildlife, and production agriculture, including an animal input.	Director of Biological Station, College of Agriculture & Natural Resources, College of Natural Science and Land Management Office	Not recommended to sell. Title on original gift restricted.
<i>W.K. Kellogg Biological Station, Lux Arbor Reserve</i> , Delton, Barry County, 1,323.000 Acres	Research and education in the agricultural, biological, botanical, and horticultural sciences.	Director of Biological Station, College of Agriculture & Natural Resources, College of Natural Science and Land Management Office	Not recommended to sell.

## Property Holdings (Continued)

PROPERTY	PURPOSE	SUPERVISION	STATUS
<i>W.K. Kellogg Experimental Forest</i> , Augusta, Kalamazoo County, 715.995 Acres	Forestry research, teaching, demonstration, and public use.	Department of Forestry and Land Management Office	Not recommended to sell. Title restricted.



# Land Acquisitions by Decade Campus and Off-Campus

	<u>A C R E S</u>	
	<u>CAMPUS</u>	<u>OFF-CAMPUS</u>
Prior to 1920 .....	1,026.380	1,060.327
1920's .....	564.350	2,007.112
1930's .....	284.614	795.026
1940's .....	1,605.236	6,281.322
1950's .....	1,266.862	862.190
1960's .....	767.850	2,417.390
1970's .....	188.747	861.049
1980's .....	13.943	3,265.245
1990's .....	66.338	1,775.765
2000's .....	1.069	1,050.89

# **Acres and Number of Transactions Involved in Assembling the Present Property Holdings**

	<u>NUMBER OF TRANSACTIONS</u>	<u>TOTAL ACREAGE</u>
University Campus .....	252	5,195.225
Off-Campus .....	125	18,384.249
Disposable Property .....	<u>1</u>	5.691
<i>TOTAL TRANSACTIONS:</i>	378	

# Agricultural Research Stations and Agricultural Land Available for Research

OFF-CAMPUS	<u>TOTAL ACREAGE</u>
12 Outlying Stations (owned) .....	15,683.385
2 Outlying Stations (leased) .....	220.000
Dobie Road Property, Okemos .....	114.431
Land Used for Agricultural Research - East Lansing .....	2,734.149
South of Mt. Hope Road	
Off-Campus Owned Land Used for Agricultural Research, .....	1,106.350
Not Designated as a Station	
Off-Campus Leased Land Used for Agricultural Research, .....	360.000
Not Designated as a Station	<hr/>
<i>TOTAL ACREAGE:</i>	<i>20,218.315</i>

## Outlying Agricultural Research Stations

STATION/COUNTY	ADDRESS/PHONE	ADMINISTRATION	ACREAGE
<i>Clarksville Horticultural Experiment Station</i> (Ionia County)	9302 Portland Road Clarksville, MI 48815 (616) 693-2193	Philip Schwallier Coordinator  Gerald Skeltis Farm Manager	440.000 Acres University Owned
<i>Dunbar Forest Experiment Station</i> (Chippewa County)	12839 S. Scenic Drive Sault Ste. Marie, MI 49783 (906) 632-3932 or (906)786-1575	Dr. David MacFarlane Coordinator  Dr. Ray Miller Non-Resident Forester	5,759.815 Acres University Owned
<i>Fred Russ Forest Experiment Station</i> (Cass County)	20673 Marcellus Highway Decatur, MI 49045 (269) 782-5652	Dr. David MacFarlane Coordinator  Greg Kowalewski Non-Resident Forester	938.750 Acres University Owned
<i>Lake City Experiment Station</i> (Missaukee County)	5401 W. Jennings Road Lake City, MI 49651 (231) 839-4608	Dr. Dan Buskirk Coordinator  Doug Nielsen Farm Manager	810.010 Acres University Owned
<i>Montcalm Experimental Farm</i> (Montcalm County)	4747 McBride Road Lakeview, MI 48850 (989) 365-3473	Dr. David Douches Coordinator  Dick Crawford Research Technician	57.250 Acres University Owned
<i>Muck Soils Research Farm</i> (Clinton County)	Route 3 9370 E. Herbison Road Laingsburg, MI 48848 (517) 641-4062	Dr. Darryl Warncke Coordinator  Ronald Gnagey Farm Manager	447.048 Acres University Owned
<i>Northwest Michigan Horticultural Experiment Station</i> (Leelanau County)	6686 S. Center Highway Traverse City, MI 49684 (231) 946-1510	Nikki Rothwell Coordinator  William Klein Farm Manager	100.000 Acres Leased

## Agricultural Research Stations (Continued)

STATION/COUNTY	ADDRESS/PHONE	ADMINISTRATION	ACREAGE
<i>Saginaw Valley Bean and Sugar Beet Research Farm</i> (Saginaw County)	3066 S. Thomas Road Saginaw, MI 48603 (989) 781-1160	Dr. James Kelly Coordinator  Paul Horny Farm Manager	120.000 Acres Leased
<i>Southwest Michigan Research and Extension Center</i> (Berrien County)	1791 Hillandale Road Benton Harbor, MI 49022 (269) 944-1477	Dr. Thomas Zabadal Coordinator  Dave Francis Farm Manager	350.000 Acres University Owned
<i>Trevor Nichols Research Complex</i> (Allegan County)	6237 124th Avenue Fennville, MI 49408 (269) 561-5040	Dr. John Wise Coordinator  Matthew Daly Farm Manager	156.100 Acres University Owned
<i>Upper Peninsula Experiment Station</i> (Alger County)	E3774 University Drive P. O. Box 168 Chatham, MI 49816 (906) 439-5114	Dr. Herb Bucholtz Coordinator  Paul Naasz Operations Supervisor	1,262.227 Acres University Owned
<i>Upper Peninsula Tree Improvement Center</i> (Delta County)	6005 J Road Escanaba, MI 49829 (906) 786-1575	Dr. David MacFarlane Coordinator  Dr. Ray Miller Resident Forester	1,737.260 Acres University Owned
<i>W.K. Kellogg Biological Station</i> (Kalamazoo County)	3700 E. Gull Lake Drive Hickory Corners, MI 49060 (269) 671-2341	Dr. Katherine Gross Director	3,008.930 Total Acres University Owned
Farms	(269) 671-2509	Jim Bronson Farm Manager	939.754 Acres
Bird Sanctuary	(269) 671-2511	Joe Johnson Specialist	746.176 Acres
Lux Arbor Reserve (Barry County)	(269) 623-8613	Steve Norris Farm Manager	1,323.000 Acres
<i>W.K. Kellogg Experimental Forest</i> (Kalamazoo County)	7060 N. 42nd Street Augusta, MI 49012 (269) 731-4597	Dr. David MacFarlane Coordinator  Greg Kowalewski Resident Forester	715.995 Acres University Owned

# **ADDENDUM #1**

## **Warranty Deeds To State Building Authority**

**The following parcels have been or will be deeded to and leased back from the State Building Authority, for financing pursuant to earlier Board of Trustees approval.**

- 1. Anthony Hall Dairy Plant and Meats Lab**
- 2. Biomedical and Physical Sciences Building**
- 3. Diagnostic Center for Population and Animal Health**

## **ADDENDUM #2**

### **Deeds To State of Michigan**

**The following parcels have been deeded to the State of Michigan, pursuant to Board of Trustees approval, in connection with a State of Michigan financing of improvements. A written agreement obligates the State to deed the property back to MSU at a later date.**

- 1. The Geagley Laboratory**

**ADDENDUM #3**

**Location Maps**

**of**

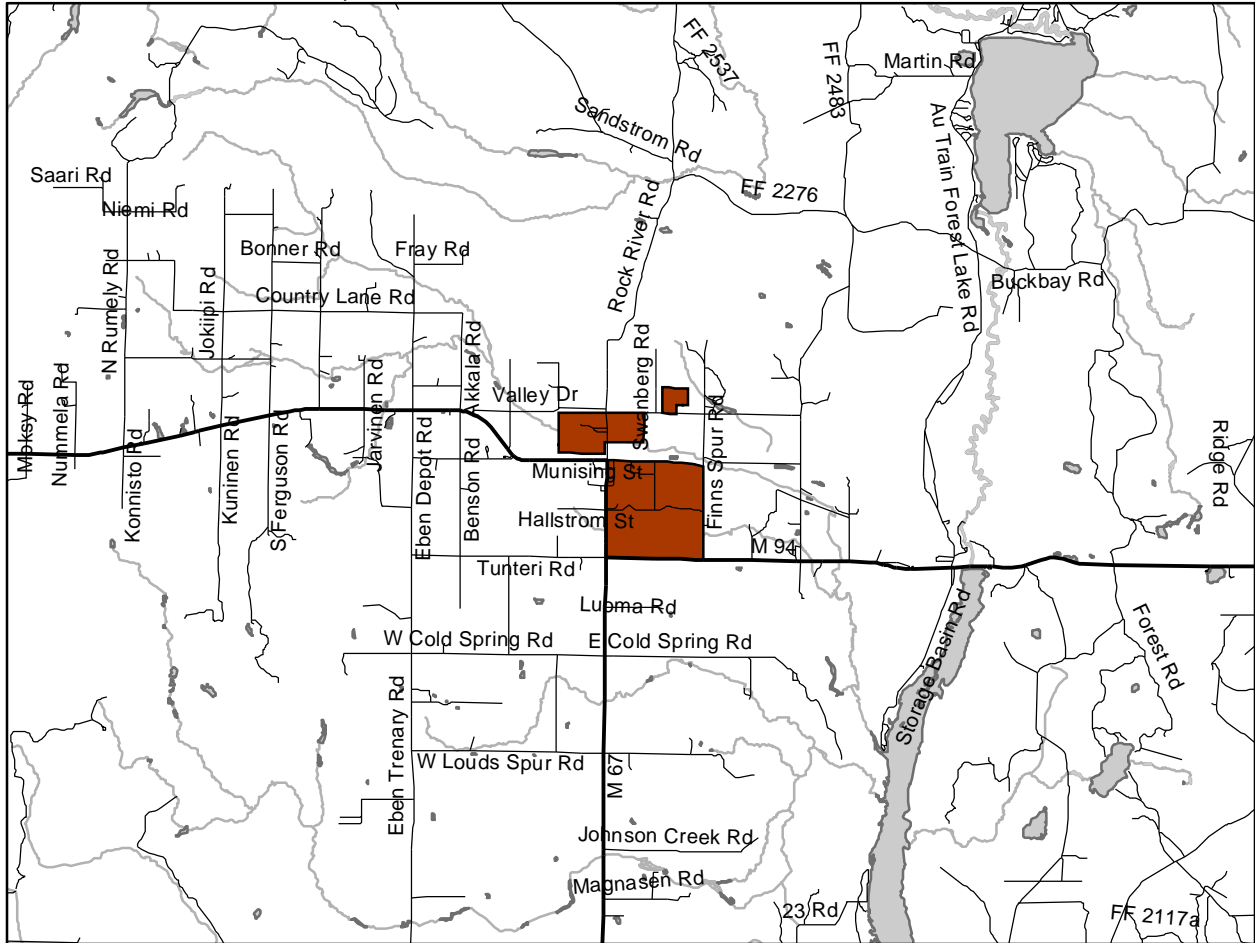
**Michigan State University Properties**

**Alphabetical by County**

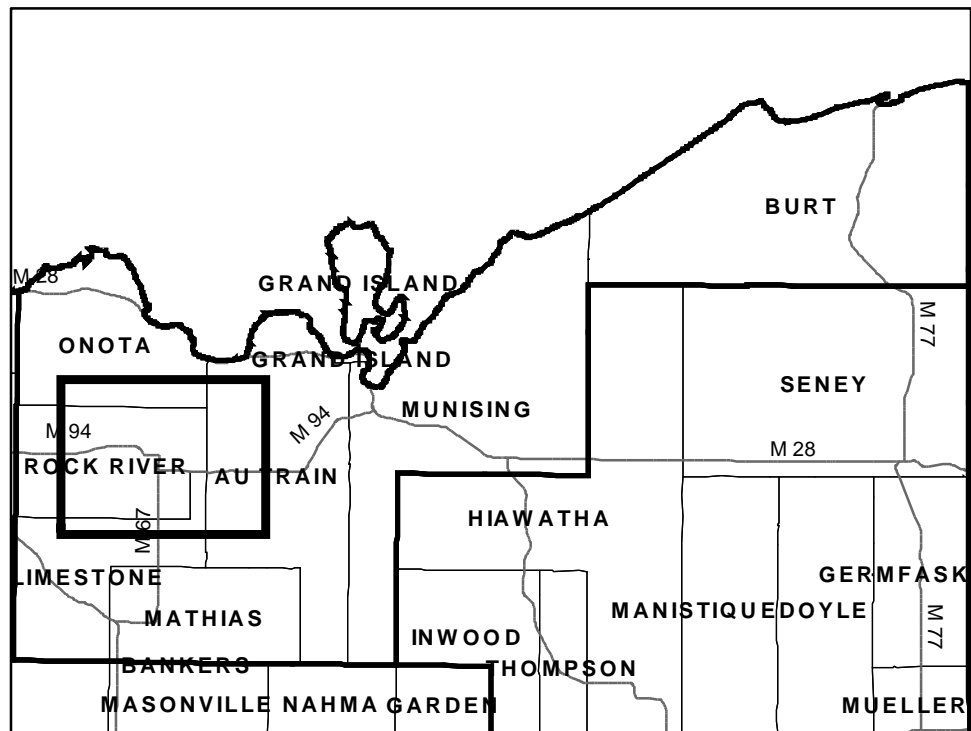


# Upper Peninsula Experiment Station

## Alger County, City of Chatham and Rock River Township, Sections 27, 28 and 34

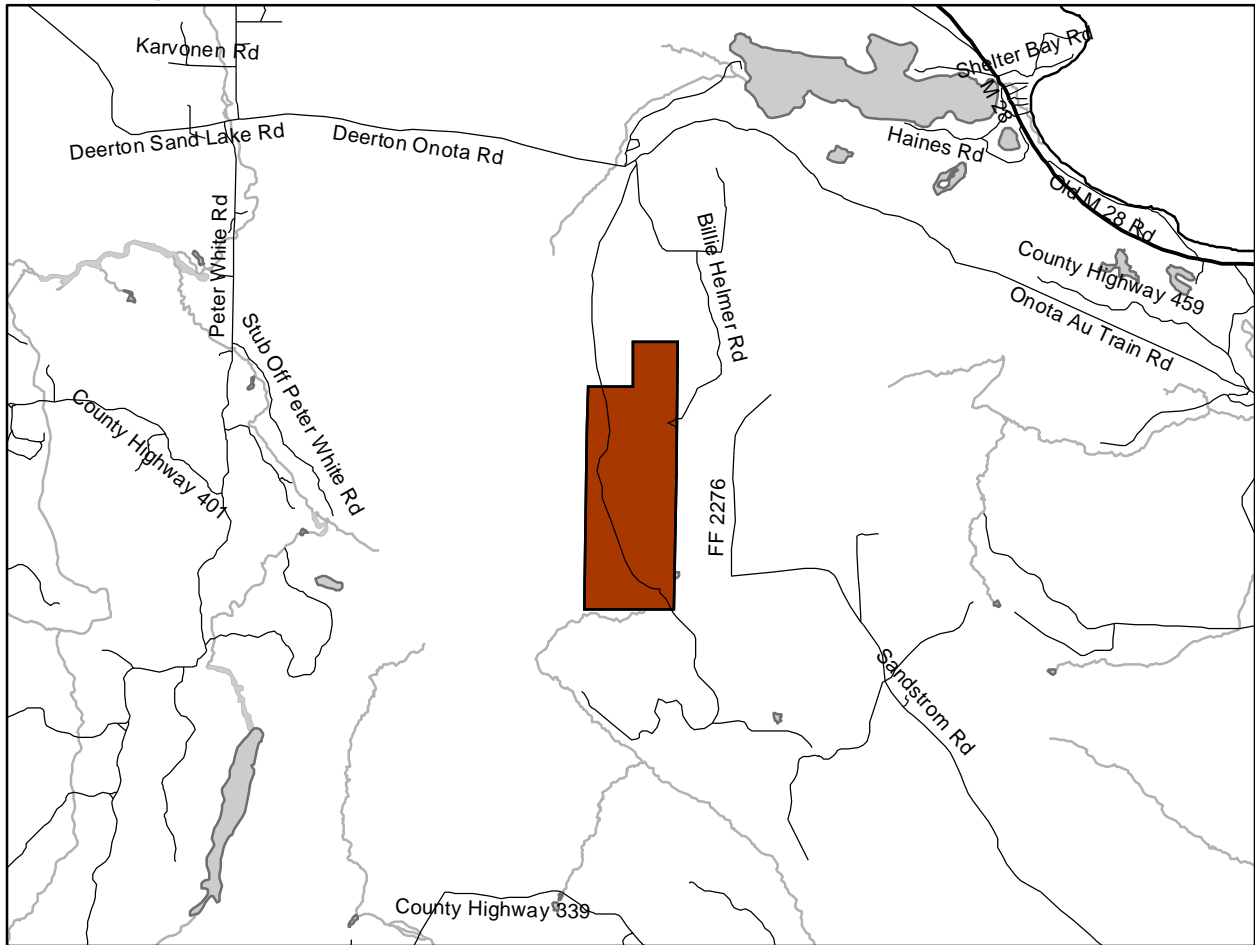


County Locator  
Alger County

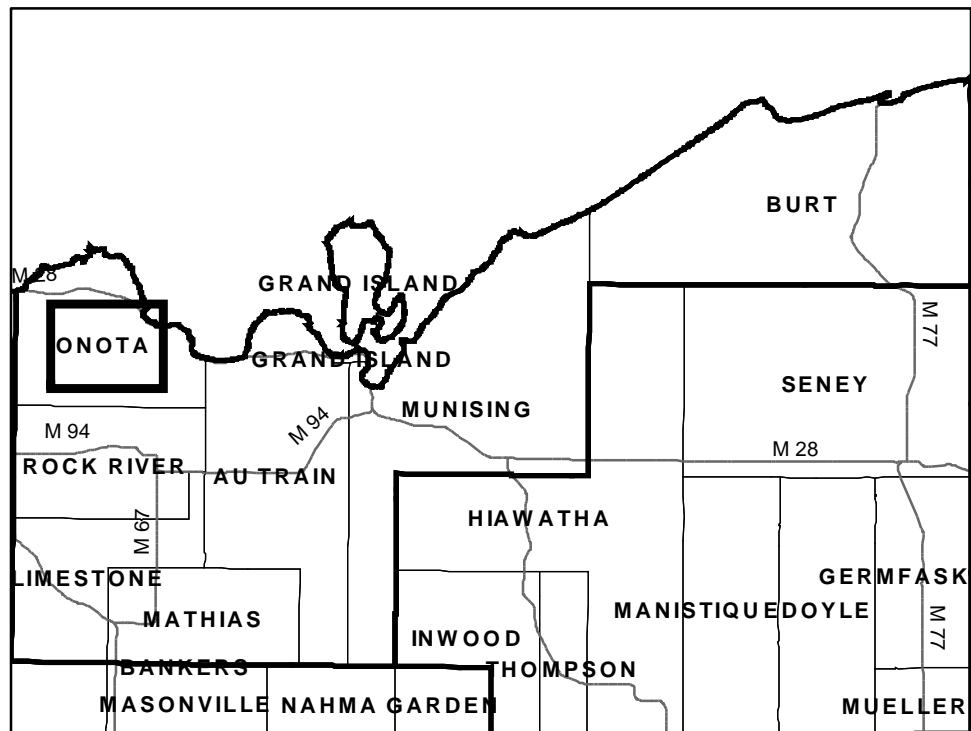


# Jim Wells Forest

## Alger County, Onota Township, Sections 24 and 25

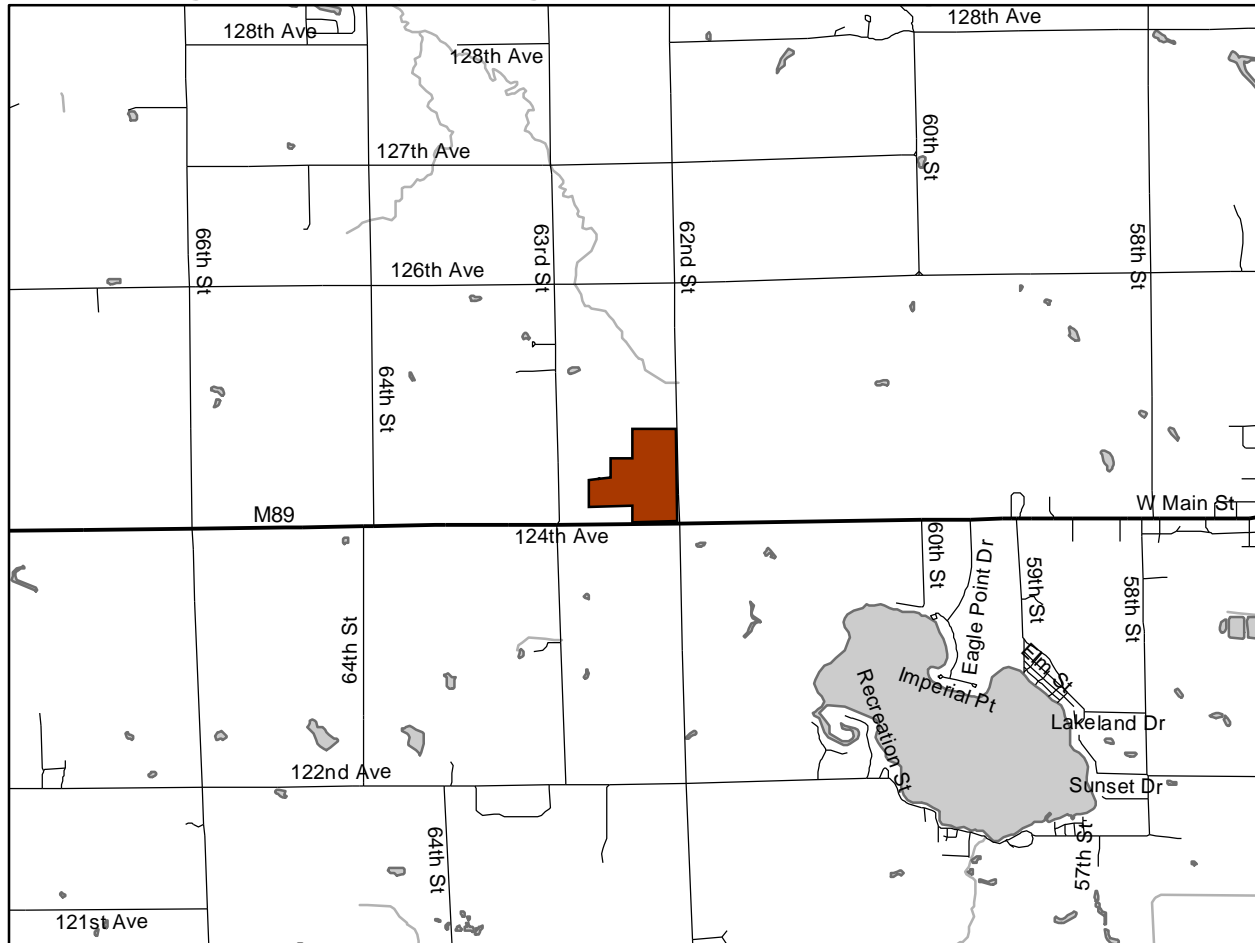


County Locator  
Alger County

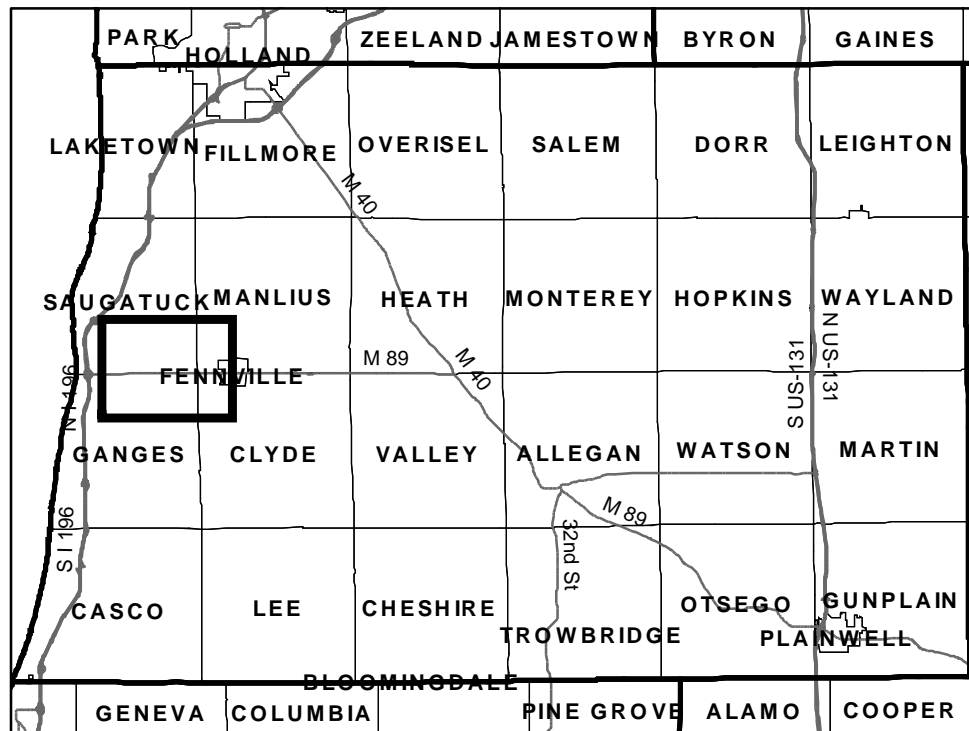


# Trevor Nichols Research Complex

## Allegan County, Saugatuck Township, Section 35

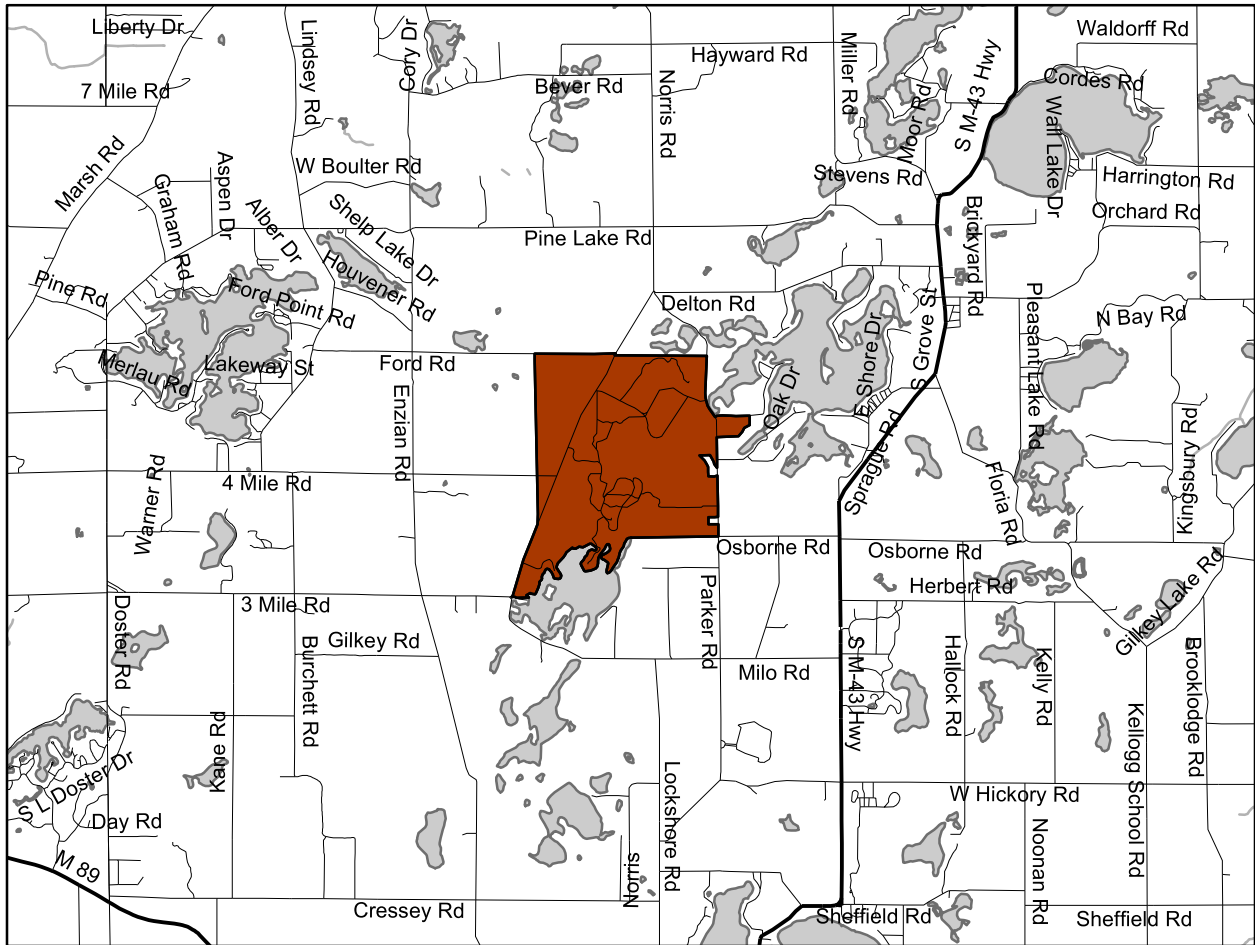


County Locator  
Allegan County

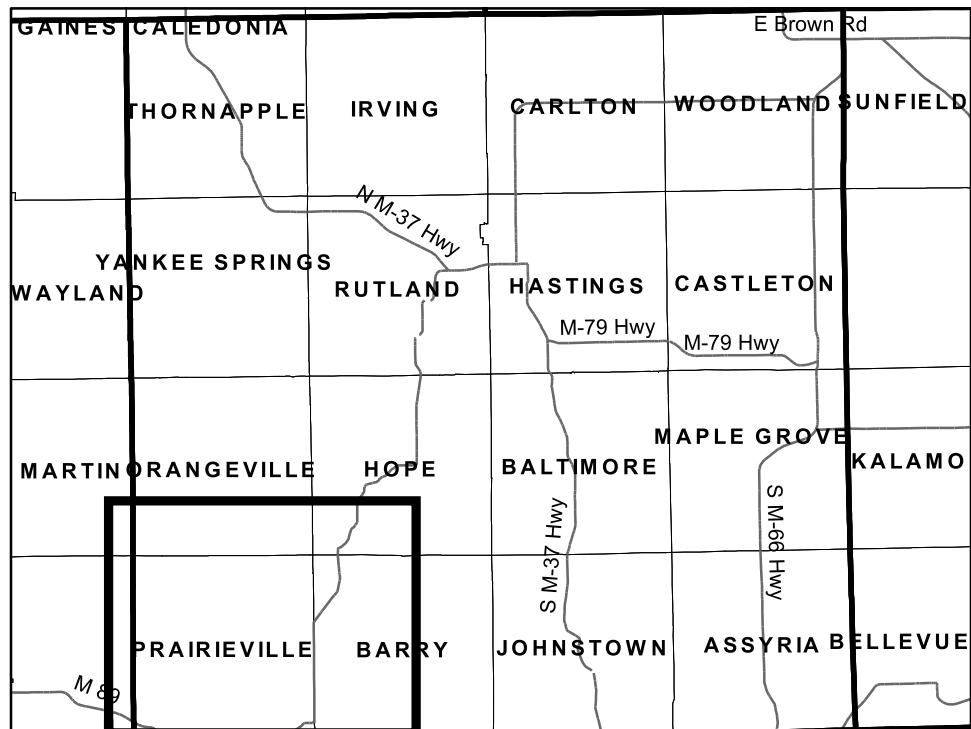


# W.K. Kellogg Biological Station (Lux Arbor Reserve)

## Barry County, Prairieville Township, Sections 10, 11, 14 and 15

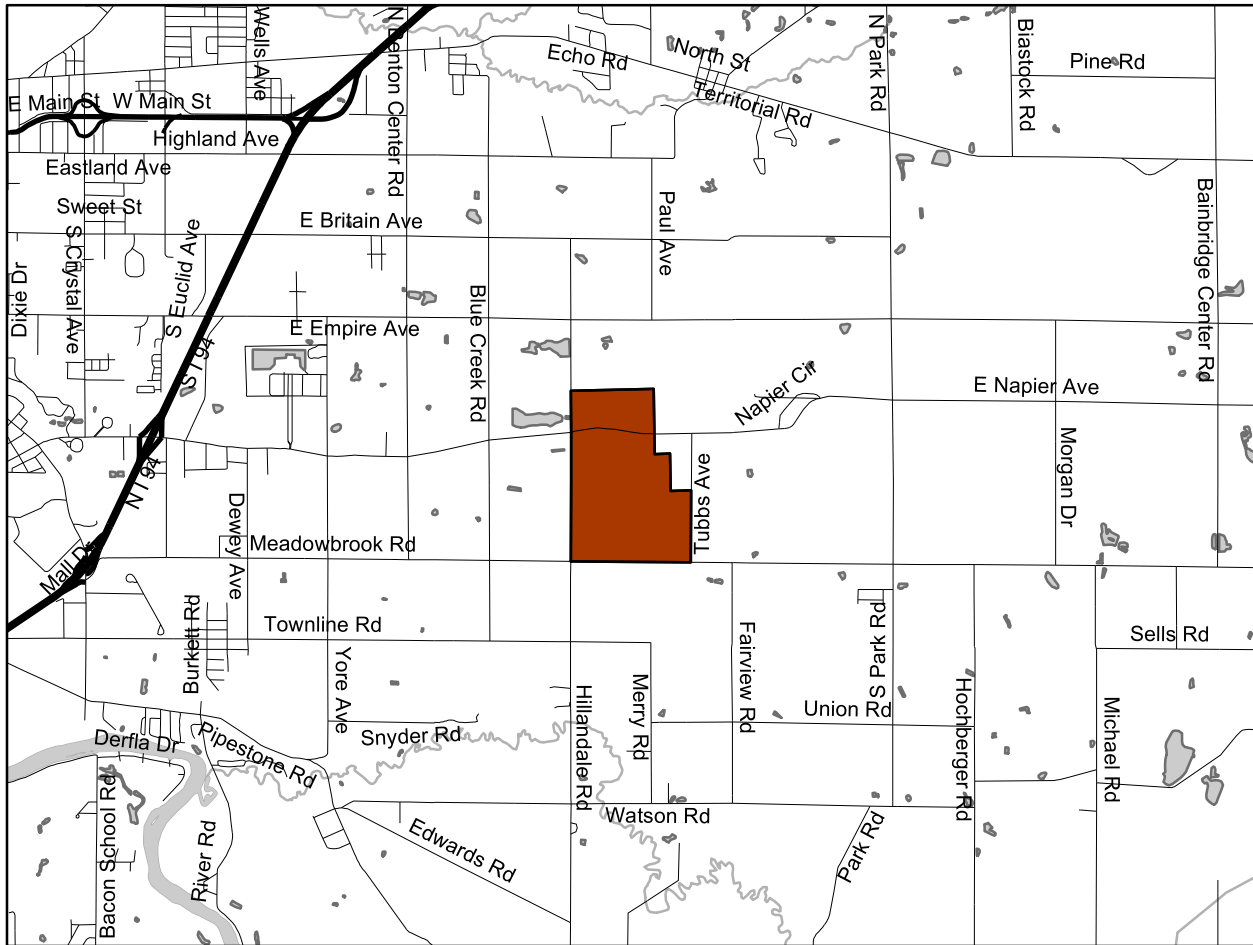


**County Locator**  
Barry County



# Southwest Michigan Research and Extension Center

## Berrien County, Benton Township, Sections 25 and 36



**County Locator**  
Berrien County

