Michigan Department of Agriculture and Rural Development
Five-Year Capital Outlay Plan

I. Mission Statement

The Michigan Department of Agriculture & Rural Development's (MDARD) mission is to assure the food safety, agricultural, environmental, and economic interests of the people of the State of Michigan are met through service, partnership, and collaboration. MDARD administers a diverse array of programs that provide oversight and enable new opportunities for Michigan's $91.4 billion food and agriculture industry and protects Michigan residents on a daily basis. Priorities of the department include assuring food safety, protecting animal and plant health, sustaining environmental stewardship, providing consumer protection, and enabling rural development.

II. Programming Changes

MDARD has partnered with the food and agriculture industry to develop five primary goals:

- Increase the economic impact of the food and agriculture industry from $71 billion to $100 billion
- Double agricultural exports from $1.75 billion to $3.5 billion
- Increase food and agriculture jobs from 1 million to 1.1 million
- Improve access to healthy food for Michigan residents from 40 percent to 60 percent of residents
- Increase sustainable food and agriculture systems by increasing the number of farm verifications from 1,000 to 5,000

Reaching the food and agriculture industry's goals is dependent on the implementation of MDARD's underlying food safety mission. Both the Geagley Laboratory and Heffron Laboratory provide regulatory testing for many of the department's core programs.

With the increased consumption of fresh fruits and vegetables in recent years, the number of foodborne illness outbreaks linked to fresh produce reported by the Center for Disease Control (CDC) has increased. The CDC estimates that each year roughly 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne illness diseases.

The Geagley Laboratory provides testing and analysis of food and agricultural products to minimize the risks to the human food supply. The Pesticide and Plant Pest Management Division's Plant Pathology Laboratory and Greenhouse facility, located adjacent to MDARD's Geagley Laboratory, performs testing and analysis in support of certification and export. Plant

Pathology conducts virus free certification of blueberry and stone fruit plants to help growers obtain disease-free plants for export and domestic markets.

The Heffron Laboratory oversees the department's Motor Fuel Quality Program and Weights and Measures Program. The Heffron Laboratory responds to consumer fuel complaints and monitors the quality of fuels at retail gas stations, distribution centers, and refineries to ensure that gasoline sold in the State of Michigan meets minimum quality standards and environmental requirements. The Weights and Measures Program is responsible for ensuring that consumers receive what they are paying for when buying or selling any commodity based on weight, measure, or count, such as deli meat from the grocery store or grass seed from the home improvement store.

Food safety and consumer protection are anticipated to remain high priorities of Michigan residents in the future. MDARD's laboratory structure will continue to serve an integral role in assuring the food and agriculture industry meets its economic potential while maintaining a quality food safety network for Michigan residents.

III. Facility Assessment

The following independent facility assessments have been performed for the Geagley Laboratory in East Lansing. Information from the assessments has been incorporated into the five year plan, including opportunities for energy efficiencies and structural upgrades.

- 2004 Risk Assessment - FM Global
- 2004 Facility Assessment - Fishbeck, Thompson and Huber
- 2007 Facility Assessment - Keith Paasch, Building Operations Director, Department of Management and Budget
- 2009 Security Assessment - Sgt. James Leece, Michigan State Police; Deputy Police Chief Juli Liebler, East Lansing Police; and Fire Chief Randy Talifarro, East Lansing Fire Department
- 2010 Facility Assessment - William T. Rose, P. E. of Century A & E Facilities Design

Geagley Laboratory

MDARD's Geagley Laboratory is located at 1615 South Harrison in East Lansing, Michigan. The Geagley Laboratory was built in 1957 with an addition for motor fuel testing built in 1990. The greenhouse facilities were built in 1966 and the poly house structure was built in the 1990's. The Geagley Laboratory includes 52,800 square feet located on 5.2 acres and has an estimated replacement value of $30 million. In partnership with federal, state, and local entities, the Geagley Laboratory provides unique analytical services that protect the health, safety, and welfare of Michigan residents and enhance the food and agriculture industry.

a) Building Utilization Rates

The Geagley Laboratory is utilized year-round on week days and weekends. It is utilized at all hours and any day of the week for rapid response to food or animal health emergencies and to

carry out required testing to meet statutory requirements and programmatic needs of the Michigan Department of Agriculture and Rural Development. Testing services provided by the Geagley Laboratory are identified in the table below.

Type of Testing	Description
Food Safety	The Geagley Laboratory, in partnership with the Food and Drug Administration (FDA) and United State Department of Agriculture (USDA), tests for the presence of pathogens in food products. Extensive sampling and testing is necessary to minimize food safety risks to Michigan residents.
Dairy Product	Michigan has 2,170 licensed dairy farms and 84 dairy processing plants. The Geagley Laboratory performs testing on dairy products, such as milk, yogurt, and cheese, to assure compliance with the Pasteurized Milk Ordinance and reduce risks to the human food supply.
Animal Feed	The Geagley Laboratory performs animal feed testing for compliance with safety, quality, and label guarantees. In 2012, MDARD identified *Salmonella Infantis* in a pet food product. The bacteria was directly linked to multiple human illness cases.
Pesticide Residue	The Geagley Laboratory conducts testing on plants and food for unsafe levels of pesticides in compliance with the pesticide laws.
Motor Fuel	The Geagley Laboratory performs motor fuel testing for purity, quality, and environmental standards at Michigan's 4,700 gas stations. The testing is necessary to assure consumers receive quality gasoline rather than substandard fuel that can lead to costly car repairs.
Animal Disease	Testing for animal diseases is conducted by the Geagley Laboratory to prevent the spread of diseases in animals that could jeopardize the human food supply and result in economic losses to the food and agriculture industry.
Plant Health	The Geagley Laboratory conducts testing for plant disease that threaten Michigan's nursery industry and have the potential to negatively impact commerce.

b) Mandated Facility Standards for Program Implementation

The structural building must meet MIOSHA health and safety standards for laboratories (Part 431), ISO accommodation and environmental conditions standards (Section 5.3 of ISO 17025:2005), local building codes, and various other federal, state and local standards.

c) Functionality and Space Allocation

The majority of the square footage is devoted to analytical testing and related support. Laboratory staff must be able to safely and efficiently perform chemical and biological analyses at Biological Safety Level 2 standards. Adequate work space is provided for each employee. For example, a laboratory hood with 2.5 linear feet of hood space per person should be provided for every two workers using chemicals. Storage space for

chemicals, test organisms, etc. is also provided. The greenhouse and poly house structures provide adequate space to grow plants for disease testing and plant diagnostic support.

The Motor Fuels Quality structure addition, which was specially designed to handle flammable materials, is not capable of meeting the program expansion needs for diesel and biodiesel testing. There is insufficient space to properly handle and store additional fuels, and a lack of a secure area to safely dispense residual fuels left over from testing.

d) Replacement Value of Facility

The Geagley Laboratory has an estimated replacement value of $30 million.

e) Utility System Condition

The mechanical system in the main laboratory and greenhouse facility, with consistent monitoring, is capable of maintaining the temperature and humidity levels required for analytical testing.

f) Facility Infrastructure Condition

The main structure is basically sound. The windows, roof, and some exterior panels, however, are showing signs of aging and deterioration. FY13 Capital Outlay funds were received to start the exterior panel replacement, but the funding was insufficient to support the entire project.

The greenhouse main structure is basically sound but the rooftop, windows, interior glass panels and floors have deteriorated or are broken and need replacement. Additionally, the external poly house is unusable in its current condition. External coverings are broken or unusable and the flooring is deteriorating and unsafe.

g) Adequacy of Existing Utilities and Infrastructure

The Geagley facility is adequately served by an all season road, natural gas, 480/3/60 electrical power, MSU campus water and City of East Lansing sewer, fiber optic network communication lines and facility backbone, and phone service.

h) Energy Audit

The Department of Environmental Quality's Retired Engineer Technical Assistance Program (RETAP) conducted an energy audit in January 2010. The audit indicated the laboratory has an extremely high energy use intensity (EUI) rate and recommended the Geagley Laboratory take additional steps to identify the possible causes and implement energy efficient solutions.

i) Land Owned by the Agency

The Geagley Laboratory is on 5.2 acres leased from MSU so there is limited capacity for future development.

E. C. Heffron Metrology Laboratory

MDARD's E. C. Heffron Metrology Laboratory is located at 940 Venture Lane in Williamston, Michigan. The Heffron Laboratory was built in 1997 with an addition in 2000. The Heffron Laboratory includes 13,080 square feet located on 11.4 acres and has an estimated replacement value of $8 million.

The Heffron Laboratory houses the Motor Fuels Quality (MFQ) and the Weights and Measures (WM) regulatory programs. The Motor Fuels Quality Program establishes and regulates the sale and quality of motor fuels through licensing, investigation, inspection, and sampling to ensure the fuels that consumers buy performs properly in their vehicles and abides by legal standards. The Weights and Measures Program regulates all commodities and services sold by weight, measure, or count to prevent economic fraud and deception and provide support to Michigan industries by providing mass, volume, and length calibrations that are in accordance with national standards.

a) Building Utilization Rates

The Heffron Laboratory is utilized from 7:30 am to 5:00 pm on regular state work days and also serves as a meeting facility for the department when needed. The building is also utilized as a base of operation 24/7 by state troopers and as a backup Incident Command Center in the event of an emergency.

b) Mandated Facility Standards for Program Implementation

To conduct uninterrupted high precision calibrations, the facility must be located in an area that keeps seismic anomalies at a minimum. Calibration rooms must be environmentally controlled to maintain temperature and humidity within given parameters and positively pressurized to prevent the influx of dust and debris. Airflow must be such that both currents and gradients are at a minimum. Specialized vibration dampening tables have been built that are separate from the rest of the building and extend 48" below grade. Floors must be electrostatically dissipative and electrical power must be conditioned to avoid any negative influence on high precision calibration and testing.

c) Functionality and Space Allocation

The MFQ and WM measures programs are housed in approximately 20% of the building while the metrology laboratory utilizes the other 80% for calibration, tooling and receiving.

d) Replacement Value of Facility

The Heffron Laboratory has an estimated replacement value of $8 million.

e) Utility System Condition

The mechanical, electrical, and building controls are adequate for the intended purpose of the building.

f) Facility Infrastructure Condition

The main building is in good condition. The parking lot cracks and low spots were recently addressed and are in good condition. The shingled roof and flat/rubber roof developed leaks and was replaced in FY2009/2010. The facility lacks any storage capacity to house much of the large provers used for the weights and measures program and they are left out in the open exposed to the elements which results in quicker depreciation of value and reduced life of the equipment.

g) Adequacy of Existing Utilities and Infrastructure

The facility is adequately served by an all season road, natural gas, 230/3/60 electrical power, T-1 network communication lines, phone service, and city water/sewer. Infrastructure improvements to consider would be 480/3/60 electrical power and fiber optic network communication.

h) Energy Audit

In January 2010 the Michigan Department of Environmental Quality's Retired Engineer Technical Assistance Program (RETAP) team conducted an energy assessment of the E.C. Heffron Metrology Laboratory. Initial conversion of energy efficient lighting was conducted in FY11 with additional lighting to be retrofitted. Upon completion annual savings of converting to energy efficient lighting was determined to be $4,700 annually.

i) Land Owned by the Agency

Of the 11 acres, over 1/2 of the area is covered with protected wetlands. This area was chosen specifically because it was surrounded by land that could not be developed to prevent the building of other facilities within the immediate area to keep seismic activities, which interfere with the metrology work, to a minimum.

IV. Implementation Plan

The following list includes maintenance needs MDARD should address at the Geagley and Heffron Laboratories, if adequate funding is made available. The Laboratory Division will be unable to fully and safely function without facility upgrades. Energy costs savings will occur with the upgrades and repairs. Many of the items are needed just to maintain testing capability with the benefits ultimately realized by people who are protected by the work conducted at the laboratory.

Year (1-5)	Priority	Project and Description (a)	Laboratory / Location	Estimated Project Cost (a)	DTMB Admin Fee (a)	Total	Impact (b)	Rate of return (c)
1	1	Install Roof Fall Protection, Permanent Roof Access Ladders and Repair Roof Curtain Wall	Wm. Geagley Laboratory – East Lansing	$535,000	$169,000	$704,000	The building has no safety rails, required to provide "fall protection" for MDARD maintenance staff, as well as contracted vendors working on the roof. Risk of injury is increased without this type of protection. The building also lacks permanent ladders needed to access the roof for maintenance and repairs. The roof/elevations need repairs and/or replacement. The building has experienced leaks along the curtain wall. Eliminating the replacement and/or repairs could result in extreme costs to the assets within the Laboratory.	Increased safety and compliance with building code requirements through installation of roof safety rails and permanent ladders. Reduce potential damage to assets. To increase efficiency and decrease costs, the safety rails, installation of permanent ladders, curtain wall, and roof repair/replacement should be done in conjunction with each other.

Year (1-5)	Priority	Project and Description (a)	Laboratory / Location	Estimated Project Cost (a)	DTMB Admin Fee (a)	Total	Impact (b)	Rate of return (c)
1	2	Repair Windows, Replace Gutters and Broken Interior Window Panels (Greenhouse)	Wm. Geagley Laboratory – East Lansing	$6,000	$1,800	$7,800	Current aluminum flashing along the center ridge of the windows is missing; panels between the greenhouses are cracked and/or broken; and the gutters are bowed and/or leaking. Employees are at risk of falling due to wet or algae covered floors.	Replacement of the aluminum flashing will lessen the damage to indoor floors and walls from leaks. The risk of an employee injury will decrease as algae growth on the floors will decrease and/or be eliminated. Replacement window panels between the greenhouses will increase environmental controls and reduce possible cross contamination between the greenhouses.
1	3	Environmental Control System (Greenhouse)	Wm. Geagley Laboratory – East Lansing	$4,000	$1,200	$5,200	The current system, last updated in 2007, is outdated and unable to be controlled from a desktop computer. Greenhouses are manually configured and monitored from within each greenhouse.	Recalibration and other updates will assure the environmental controls are in place for plant/sample growth.
1	4	Replace and Repair Flooring (Greenhouse)	Wm. Geagley Laboratory – East Lansing	$5,400	$1,600	$7,000	Degraded pea stone and cement walkways reduces the structural integrity of the greenhouses and causes drainage issues. Current uneven cement flooring is dangerous and poses a fall risk.	Adequate flooring will reduce the possibility of rodent infestation and increase the safety of the employees.
		Year 1 Total		**$550,400**	**$173,600**	**$724,000**		

Year (1-5)	Priority	Project and Description (a)	Laboratory / Location	Estimated Project Cost (a)	DTMB Admin Fee (a)	Total	Impact (b)	Rate of return (c)
2	1	Install Automatic Watering System & Filtration System (Greenhouse)	Wm. Geagley Laboratory – East Lansing	$6,500	$2,000	$8,500	The greenhouse does not include capabilities for automatic watering. Staff currently comes in on weekends and holidays to water plants by hand which is very labor intensive. Increased risk for disease pressure could be higher due to overhead watering techniques. Water at the Geagley Laboratory is received through the MSU water system and is poor quality. Hoses and screens clog frequently while also causing problems with optimal plant health and growth from the hard water.	Installation of an automatic watering system would reduce plant disease, decrease number of samples lost from lack of water, and increase staff productivity. Installation of a water filtration system would reduce maintenance costs on building and hose equipment from the hard water conditions; water would be cleaner and increase plant growth.
2	2	Structural Repairs to Polyhouse (Greenhouse)	Wm. Geagley Laboratory – East Lansing	$3,100	$900	$4,000	MDARD Plant Pathology Laboratory Staff are unable to utilize the Poly House due to old and damaged coverings. Wood decking on the floor and is uneven and very slippery when wet.	Replacing the shade screen and winter cover for the Poly House will extend the growing season into summer and protect plant nursery samples from insects and drought. Removal of wood deck flooring and installation of pea stone will increase employee safety while also assist with drainage.
2	3	Replace Phone System	Wm. Geagley Laboratory – East Lansing	$125,000	$40,000	$165,000	Current phone system is outdated. Replacement phones are difficult to locate. Switch boards utilized by the system are outdated increasing risk of failure. Phones are needed for day to day activities as well as security and safety.	Possibilities of having downtime would be reduced with new equipment and technology. This replacement is needed to ensure the long-term functionality of the laboratory.

Year (1-5)	Priority	Project and Description (a)	Laboratory / Location	Estimated Project Cost (a)	DTMB Admin Fee (a)	Total	Impact (b)	Rate of return (c)
2	4	Replace Exterior Windows	Wm. Geagley Laboratory – East Lansing	$850,000	$258,500	$1,108,500	Windows are original to the building and lack thermo breaks, as recommended in the Michigan Energy Code. Updated windows will reduce heating and cooling costs by increasing energy efficiency.	Energy savings would be realized through more energy efficient windows.
			Year 2 Total	**$984,600**	**$301,400**	**$1,286,000**		
3	1	Replace Power and Automatic Ventilation System (Polyhouse)	Wm. Geagley Laboratory – East Lansing	$7,000	$2,000	$9,000	The current ventilation system does not work and the structure lacks electrical power.	Create a “closed” growing environment to protect against insects. Connection to a power supply will allow for temperature regulation and improve growing conditions.
3	2	Replace Humidifier	E. C. Heffron Laboratory – Williamston	$15,000	$5,000	$20,000	The current humidifier that controls the building was installed in 1997 and replacement parts are no longer available. Improper humidity will cause metrology testing to halt and reduce incoming revenue. Improper humidity will also negatively affect the labs accreditation. The Heffron lab is the only lab in Michigan that performs these types of tests.	Replacement would assure the proper laboratory humidity resulting in increased testing productivity.
3	3	Replace Cabinets/Counter tops and Flooring	Wm. Geagley Laboratory – East Lansing	$150,000	$45,000	$195,000	Cabinets and countertops in the lab rooms and bathrooms need to be replaced due to normal wear and tear as well as from the chemicals used. Flooring throughout the laboratory needs to be repaired due to normal wear and tear as well as the chemicals used. Some updates to both the counters and flooring occurred in 2000.	Updates are needed to cabinets and counters to assure the long-term functionality of the laboratory.

Year (1-5)	Priority	Project and Description (a)	Laboratory / Location	Estimated Project Cost (a)	DTMB Admin Fee (a)	Total	Impact (b)	Rate of return (c)
			Year 3 Total	**$172,000**	**$52,000**	**$224,000**		
4	1	Replace Panel Screens (Greenhouse)	Wm. Geagley Laboratory – East Lansing	$6,900	$2,000	$8,900	Window panels in the greenhouse that open have no protective screens. Pests / bugs are able to fly in and out when panels are open.	Installation of screens will decrease pests entering the greenhouse. A "pest free" environment increases opportunities to rent the space to outside entities when not in use by MDARD staff.
4	2	Install Nitrogen System	Wm. Geagley Laboratory – East Lansing	$50,000	$15,000	$65,000	Currently the laboratory has nitrogen tanks delivered 1-2 times per week (depending on the need). These large tanks must be moved throughout the building by staff, increasing the risk of injury.	Increased productivity for lab staff and reduced possibility of employee injuries. More effective monitoring allowing for the detection of possible leaks.
4	3	Upgrade HVAC System	Wm. Geagley Laboratory – East Lansing	$300,000	$100,000	$400,000	The Geagley Laboratory experiences poor control of temperature and humidity in both laboratory and office spaces. An HVAC update would improve climate control, minimizing re-testing and maintaining employee health and safety.	A 5% improvement in initial test results and 2% potential energy savings would pay back in 3-4 years.
			Year 4 Total	**$356,900**	**$117,000**	**$473,900**		
5	1	Replace Building Panels	Wm. Geagley Laboratory – East Lansing	$100,000	$25,000	$125,000	As the building ages, so do the exterior metal panels. Funding was received in FY13 to cover the costs of some panel replacements but it was insufficient to replace all the panels. Additional funding would allow for additional replacements, sealing, and increased insulation.	MDARD should see efficiencies in heating and cooling with updated and properly sealed insulation/panels.
			Year 5 Total	**$100,000**	**$25,000**	**$125,000**		
			Total 5 Year Plan	**$2,163,900**	**$669,000**	**$2,832,900**		