

MS State Univ - Water Resources Research Institute

Mississippi State University, MS 39762

Dr. Mark E. Keenum

AGENCY	ADDRESS			CHIEF EXECUTIVE OFFICER	
	Actual Expenses June 30,2018	Estimated Expenses June 30,2019	Requested For June 30,2020	Requested Over/(Under) Estimated	
				AMOUNT	PERCENT
I. A. PERSONAL SERVICES					
1. Salaries, Wages & Fringe Benefits (Base)					
a. Additional Compensation					
b. Proposed Vacancy Rate (Dollar Amount)					
c. Per Diem					
Total Salaries, Wages & Fringe Benefits					
2. Travel					
a. Travel & Subsistence (In-State)					
b. Travel & Subsistence (Out-Of-State)					
c. Travel & Subsistence (Out-Of-Country)					
Total Travel					
B. CONTRACTUAL SERVICE S (Schedule B)					
a. Tuition, Rewards & Awards					
b. Communications, Transportation & Utilities					
c. Public Information					
d. Rents					
e. Repairs & Service					
f. Fees, Professional & Other Services					
g. Other Contractual Services					
h. Data Processing					
i. Other					
Total Contractual Services					
C. COMMODITIES (Schedule C)					
a. Maintenance & Construction Materials & Supplies					
b. Printing & Office Supplies & Materials					
c. Equipment, Repair Parts, Supplies & Accessories					
d. Professional & Scientific Supplies & Materials					
e. Other Supplies & Materials					
Total Commodities					
D. CAPITAL OUTLAY					
1. Total Other Than Equipment (Schedule D-1)					
2. Equipment (Schedule D-2)					
b. Road Machinery, Farm & Other Working Equipment					
c. Office Machines, Furniture, Fixtures & Equipment					
d. IS Equipment (Data Processing & Telecommunications)					
e. Equipment - Lease Purchase					
f. Other Equipment					
Total Equipment (Schedule D-2)					
3. Vehicles (Schedule D-3)					
4. Wireless Comm. Devices (Schedule D-4)					
E. SUBSIDIES, LOANS & GRANTS (Schedule E)	357,031	357,031	364,172	7,141	2.00%
TOTAL EXPENDITURES	357,031	357,031	364,172	7,141	2.00%
II. BUDGET TO BE FUNDED AS FOLLOWS:					
Cash Balance-Unencumbered					
General Fund Appropriation (Enter General Fund Lapse Below)	357,031	357,031	364,172	7,141	2.00%
State Support Special Funds					
Federal Funds _____ Other Special Funds (Specify) _____					
Less: Estimated Cash Available Next Fiscal Period					
TOTAL FUNDS (equals Total Expenditures above)	357,031	357,031	364,172	7,141	2.00%
GENERAL FUND LAPSE					
III: PERSONNEL DATA					
Number of Positions Authorized in Appropriation Bill					
a.) Perm Full					
b.) Perm Part					
c.) T-L Full					
d.) T-L Part					
Average Annual Vacancy Rate (Percentage)					
a.) Perm Full					
b.) Perm Part					
c.) T-L Full					
d.) T-L Part					

Approved by: Dr. John Pearce
Official of Board or Commission

Budget Officer: Don Zant / dzant@budgetplan.msstate.edu

Submitted by: Jessie Schmidt

Phone Number: 662-325-2231

Date: 7/20/2018 4:52 PM

Title: Coordinator

REQUEST BY FUNDING SOURCE

Name of Agency : MS State Univ - Water Resources Research Institute

Specify Funding Sources As Shown Below	FY 2018 Actual Amount	% of Line Item	% of Total Budget	FY 2019 Estimated Amount	% of Line Item	% of Total Budget	FY 2020 Requested Amount	% of Line Item	% of Total Budget
1. General _____ State Support Special (Specify) _____									
2. Budget Contingency Fund									
3. Education Enhancement Fund									
4. Health Care Expendable Fund									
5. Tobacco Control Fund									
6. Capital Expense Fund									
7. Working Cash Stabilization Reserve Fund									
8. Federal _____ Other Special (Specify) _____									
9.									
10.									
11.									
12.									
Total Salaries									
1. General _____ State Support Special (Specify) _____									
2. Budget Contingency Fund									
3. Education Enhancement Fund									
4. Health Care Expendable Fund									
5. Tobacco Control Fund									
6. Capital Expense Fund									
7. Working Cash Stabilization Reserve Fund									
8. Federal _____ Other Special (Specify) _____									
9.									
10.									
11.									
12.									
Total Travel									
1. General _____ State Support Special (Specify) _____									
2. Budget Contingency Fund									
3. Education Enhancement Fund									
4. Health Care Expendable Fund									
5. Tobacco Control Fund									
6. Capital Expense Fund									
7. Working Cash Stabilization Reserve Fund									
8. Federal _____ Other Special (Specify) _____									
9.									
10.									
11.									
12.									
Total Contractual									
1. General _____ State Support Special (Specify) _____									
2. Budget Contingency Fund									
3. Education Enhancement Fund									
4. Health Care Expendable Fund									
5. Tobacco Control Fund									
6. Capital Expense Fund									
7. Working Cash Stabilization Reserve Fund									
8. Federal _____ Other Special (Specify) _____									
9.									
10.									
11.									
12.									
Total Commodities									

REQUEST BY FUNDING SOURCE

Name of Agency : MS State Univ - Water Resources Research Institute

Specify Funding Sources As Shown Below	FY 2018 Actual Amount	% of Line Item	% of Total Budget	FY 2019 Estimated Amount	% of Line Item	% of Total Budget	FY 2020 Requested Amount	% of Line Item	% of Total Budget
1. General _____ State Support Special (Specify) _____									
2. Budget Contingency Fund									
3. Education Enhancement Fund									
4. Health Care Expendable Fund									
5. Tobacco Control Fund									
6. Capital Expense Fund									
7. Working Cash Stabilization Reserve Fund									
8. Federal _____ Other Special (Specify) _____									
9.									
10.									
11.									
12.									
Total Capital Other Than Equipment									
1. General _____ State Support Special (Specify) _____									
2. Budget Contingency Fund									
3. Education Enhancement Fund									
4. Health Care Expendable Fund									
5. Tobacco Control Fund									
6. Capital Expense Fund									
7. Working Cash Stabilization Reserve Fund									
8. Federal _____ Other Special (Specify) _____									
9.									
10.									
11.									
12.									
Total Capital Equipment									
1. General _____ State Support Special (Specify) _____									
2. Budget Contingency Fund									
3. Education Enhancement Fund									
4. Health Care Expendable Fund									
5. Tobacco Control Fund									
6. Capital Expense Fund									
7. Working Cash Stabilization Reserve Fund									
8. Federal _____ Other Special (Specify) _____									
9.									
10.									
11.									
12.									
Total Vehicles									
1. General _____ State Support Special (Specify) _____									
2. Budget Contingency Fund									
3. Education Enhancement Fund									
4. Health Care Expendable Fund									
5. Tobacco Control Fund									
6. Capital Expense Fund									
7. Working Cash Stabilization Reserve Fund									
8. Federal _____ Other Special (Specify) _____									
9.									
10.									
11.									
12.									
Total Wireless Communication Devs.									

REQUEST BY FUNDING SOURCE

Name of Agency : MS State Univ - Water Resources Research Institute

Specify Funding Sources As Shown Below	FY 2018 Actual Amount	% of Line Item	% of Total Budget	FY 2019 Estimated Amount	% of Line Item	% of Total Budget	FY 2020 Requested Amount	% of Line Item	% of Total Budget
1. General _____ State Support Special (Specify) _____	357,031	100.00		357,031	100.00		364,172	100.00	
2. Budget Contingency Fund									
3. Education Enhancement Fund									
4. Health Care Expendable Fund									
5. Tobacco Control Fund									
6. Capital Expense Fund									
7. Working Cash Stabilization Reserve Fund									
8. Federal _____ Other Special (Specify) _____									
9.									
10.									
11.									
12.									
Total Subsidies	357,031		100.00%	357,031		100.00%	364,172		100.00%
1. General _____ State Support Special (Specify) _____	357,031	100.00		357,031	100.00		364,172	100.00	
2. Budget Contingency Fund									
3. Education Enhancement Fund									
4. Health Care Expendable Fund									
5. Tobacco Control Fund									
6. Capital Expense Fund									
7. Working Cash Stabilization Reserve Fund									
8. Federal _____ Other Special (Specify) _____									
9.									
10.									
11.									
12.									
TOTAL	357,031		100.00%	357,031		100.00%	364,172		100.00%

SPECIAL FUNDS DETAIL

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

S. STATE SUPPORT SPECIAL FUNDS		(1) Actual Revenues FY 2018	(2) Estimated Revenues FY 2019	(3) Requested Revenues FY 2020
Source (Fund Number)	Detailed Description of Source			
Budget Contingency Fund	BCR - Budget Contingency Fund			
Education Enhancement Fund	EEF - Education Enhancement Fund			
Health Care Expendable Fund	HCEF - Health Care Expendable Fund			
Tobacco Control Fund	TCF - Tobacco Control Fund			
Capital Expense Fund	CEF - Capital Expense Fund			
Working Cash Stabilization Reserve Fund	WCSSF - Working Cash Stabilization Reserve Fund			
State Support Special Fund TOTAL				
STATE SUPPORT SPECIAL FUND LAPSE				

A. FEDERAL FUNDS *		Percentage Match Requirement	(1) Actual Revenues FY 2018	(2) Estimated Revenues FY 2019	(3) Requested Revenues FY 2020
Source (Fund Number)	Detailed Description of Source	FY 2019 FY 2020			
	Cash Balance-Unencumbered				
Federal Fund TOTAL					

B. OTHER SPECIAL FUNDS (NON-FED'L)		(1) Actual Revenues FY 2018	(2) Estimated Revenues FY 2019	(3) Requested Revenues FY 2020
Source (Fund Number)	Detailed Description of Source			
	Cash Balance-Unencumbered			
Other Special Fund TOTAL				

SECTIONS S + A + B TOTAL				
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C. TREASURY FUND/BANK ACCOUNTS *	Fund/Account Number	Name of Bank (If Applicable)	(1) Reconciled Balance as of 6/30/18	(2) Balance as of 6/30/19	(3) Balance as of 6/30/20
Name of Fund/Account					

* Any non-federal funds that have restricted uses must be identified and narrative of restrictions attached.

**NARRATIVE OF SPECIAL FUNDS DETAIL AND TREASURY
FUND/BANK ACCOUNTS**

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

CONTINUATION AND EXPANDED TOTAL REQUEST

MS State Univ - Water Resources Research Institute (445-00)

SUMMARY OF ALL PROGRAMS

Name of Agency

Program

	FY 2018 Actual				
	(1) General	(2) State Support Special	(3) Federal	(4) Other Special	(5) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants	357,031				357,031
Total	357,031				357,031
No. of Positions (FTE)					

	FY 2019 Estimated				
	(6) General	(7) State Support Special	(8) Federal	(9) Other Special	(10) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants	357,031				357,031
Total	357,031				357,031
No. of Positions (FTE)					

	FY 2020 Increase/Decrease for Continuation				
	(11) General	(12) State Support Special	(13) Federal	(14) Other Special	(15) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants	7,141				7,141
Total	7,141				7,141
No. of Positions (FTE)					

Note: FY2020 Total Request = FY2019 Estimated + FY2020 Incr(Decr) for Continuation + FY2020 Expansion/Reduction of Existing Activities + FY2020 New Activities.

CONTINUATION AND EXPANDED TOTAL REQUEST

MS State Univ - Water Resources Research Institute (445-00)

SUMMARY OF ALL PROGRAMS

Name of Agency	FY 2020 Expansion/Reduction of Existing Activities					Program
	(16) General	(17) State Support Special	(18) Federal	(19) Other Special	(20) Total	
Salaries,Wages & Fringe						
Travel						
Contractual Services						
Commodities						
Other Than Equipment						
Equipment						
Vehicles						
Wireless Communication Devices						
Subsidies, Loans & Grants						
Total						
No. of Positions (FTE)						

	FY 2020 New Activities (*)				
	(21) General	(22) State Support Special	(23) Federal	(24) Other Special	(25) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants					
Total					
No. of Positions (FTE)					

	FY 2020 Total Request				
	(26) General	(27) State Support Special	(28) Federal	(29) Other Special	(30) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants	364,172				364,172
Total	364,172				364,172
No. of Positions (FTE)					

Note: FY2020 Total Request = FY2019 Estimated + FY2020 Incr(Decr) for Continuation + FY2020 Expansion/Reduction of Existing Activities + FY2020 New Activities.

SUMMARY OF PROGRAMS
FORM MBR-1-03sum

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

FUNDING REQUESTED FISCAL YEAR 2020

	PROGRAM	GENERAL	ST. SUPP. SPECIAL	FEDERAL	OTHER SPECIAL	TOTAL
1.	Research & Technology Transfer	364,172				364,172
	Summary of All Programs	364,172				364,172

CONTINUATION AND EXPANDED REQUEST

MS State Univ - Water Resources Research Institute (445-00)

Research & Technology Transfer

Name of Agency

Program

	FY 2018 Actual				
	(1) General	(2) State Support Special	(3) Federal	(4) Other Special	(5) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants	357,031				357,031
Total	357,031				357,031
No. of Positions (FTE)					

	FY 2019 Estimated				
	(6) General	(7) State Support Special	(8) Federal	(9) Other Special	(10) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants	357,031				357,031
Total	357,031				357,031
No. of Positions (FTE)					

	FY 2020 Increase/Decrease for Continuation				
	(11) General	(12) State Support Special	(13) Federal	(14) Other Special	(15) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants	7,141				7,141
Total	7,141				7,141
No. of Positions (FTE)					

Note: FY2020 Total Request = FY2019 Estimated + FY2020 Incr(Decr) for Continuation + FY2020 Expansion/Reduction of Existing Activities + FY2020 New Activities.

CONTINUATION AND EXPANDED REQUEST

MS State Univ - Water Resources Research Institute (445-00)

Research & Technology Transfer

Name of Agency

Program

	FY 2020 Expansion/Reduction of Existing Activities				
	(16) General	(17) State Support Special	(18) Federal	(19) Other Special	(20) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants					
Total					
No. of Positions (FTE)					

	FY 2020 New Activities (*)				
	(21) General	(22) State Support Special	(23) Federal	(24) Other Special	(25) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants					
Total					
No. of Positions (FTE)					

	FY 2020 Total Request				
	(26) General	(27) State Support Special	(28) Federal	(29) Other Special	(30) Total
Salaries,Wages & Fringe					
Travel					
Contractual Services					
Commodities					
Other Than Equipment					
Equipment					
Vehicles					
Wireless Communication Devices					
Subsidies, Loans & Grants	364,172				364,172
Total	364,172				364,172
No. of Positions (FTE)					

Note: FY2020 Total Request = FY2019 Estimated + FY2020 Incr(Decr) for Continuation + FY2020 Expansion/Reduction of Existing Activities + FY2020 New Activities.

PROGRAM DECISION UNITS

MS State Univ - Water Resources Research Institute

1 - Research & Technology Transfer

Name of Agency

Program Name

	A	B	C	D	E	F		
	FY 2019 Appropriated	Escalations By DFA	Non-Recurring Items	Restoration of Funds	Total Funding Change	FY 2020 Total Request		
EXPENDITURES								
SALARIES								
GENERAL								
ST. SUP. SPECIAL								
FEDERAL								
OTHER								
TRAVEL								
GENERAL								
ST. SUP. SPECIAL								
FEDERAL								
OTHER								
CONTRACTUAL								
GENERAL								
ST. SUP. SPECIAL								
FEDERAL								
OTHER								
COMMODITIES								
GENERAL								
ST. SUP. SPECIAL								
FEDERAL								
OTHER								
CAPTITAL-OTE								
GENERAL								
ST. SUP. SPECIAL								
FEDERAL								
OTHER								
EQUIPMENT								
GENERAL								
ST. SUP. SPECIAL								
FEDERAL								
OTHER								
VEHICLES								
GENERAL								
ST. SUP. SPECIAL								
FEDERAL								
OTHER								
WIRELESS DEV								
GENERAL								
ST. SUP. SPECIAL								
FEDERAL								
OTHER								
SUBSIDIES	357,031			7,141	7,141	364,172		
GENERAL	357,031			7,141	7,141	364,172		
ST. SUP. SPECIAL								
FEDERAL								
OTHER								
TOTAL	357,031			7,141	7,141	364,172		

FUNDING

GENERAL FUNDS	357,031			7,141	7,141	364,172		
ST. SUP. SPCL FUNDS								
FEDERAL FUNDS								
OTHER SP. FUNDS								
TOTAL	357,031			7,141	7,141	364,172		

POSITIONS

GENERAL FTE								
ST. SUP. SPCL. FTE								
FEDERAL FTE								
OTHER SP. FTE								
TOTAL								

PRIORITY LEVEL :

				1				
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PROGRAM NARRATIVE

Program Data Collected in Accordance with the Mississippi Performance Budget and Strategic Planning Act of 1994
(To Accompany Form MBR-1-03)

MS State Univ - Water Resources Research Institute

1 - Research & Technology Transfer

Name of Agency

Program Name

I. Program Description:**I. Program Description:**

Mississippi Water Resources Research Institute. The Mississippi Water Resources Research Institute (MWRRI) was authorized by Mississippi's Governor Paul B. Johnson in 1964 and is one of 54 institutes in the United States that form a network of coordinated research programs to solve water problems of state, regional, or national significance. In 1983, the Mississippi Legislature formally designated MWRRI as a state research institute. Federal legislation specifies that each institute consult with leading water officials of the state in developing a coordinated research technology transfer and training program that applies academic expertise to water and related land-use problems. These activities are funded in large part through an annual grant from the U.S. Geological Survey. MWRRI's state authorization charges it with carrying out the responsibilities listed below:

1. Assist state agencies in developing and maintaining a state water management plan;
2. Consult with state and local agencies, water management districts, water user associations, the Mississippi legislature, and other potential users to identify and establish water research, planning, policy, and management priorities.
3. Negotiate and administer contracts with local, regional, state and federal agencies and other Mississippi universities to mitigate priority water and related problems;
4. Report to the appropriate state agencies each year on research projects' progress and findings;
5. Disseminate new information and facilitate transfer and application of new technologies as they are developed;
6. Be a liaison between Mississippi and funding agencies as an advocate for Mississippi water research, planning, policy, and management needs; and
7. Facilitate and stimulate planning and management that:
 - a. Deals with water policy issues facing the state of Mississippi;
 - b. Supports state water agencies' missions with research on encountered and expected problems;
 - c. Provides water planning and management organizations with tools to increase efficiency and effectiveness of water planning and management.

Center of Excellence for Watershed Management. On April 9, 2013, MSU through the MWRRI was designated by Region 4 of the U.S. Environmental Protection Agency (EPA Region 4) and the Mississippi Department of Environmental Quality (MDEQ) as a Center of Excellence for Watershed Management with the formal signing of a Memorandum of Understanding (MOU) by these parties. The MOU acknowledges that the MWRRI had demonstrated to the satisfaction of EPA and MDEQ that it has the capacity and capability to identify and address the needs of local watershed stakeholders and that it has support at the appropriate levels of MSU. It also specifies the Center of Excellence to serve as the point of contact and primary coordinating entity for colleges and universities in Mississippi. The primary purpose of the Center of Excellence is to utilize the diverse talent and expertise of colleges and universities by providing hands on practical products and services to help communities identify watershed-based problems and develop and implement locally-sustainable solutions. The MOU also guides the Center of Excellence to actively seek out watershed-based stakeholders that need assistance with project development and management, research and monitoring, education and outreach, engineering design, computer mapping, legal and policy review, and other water resource planning and implementation needs. Annual commitments of the MWRRI to maintain the designation are also identified in the MOU.

New Vision for Irrigated Agriculture in Mississippi. Mississippi, as a state blessed with abundant rainfall and groundwater, is uniquely positioned to capitalize on these water resources to dramatically enhance our economy and well-being of its citizens. Many other states with an intensive agricultural economy are experiencing major challenges in water availability due to a combination of drought, intensive competition with urban areas for limited water supplies, and unsustainable declines in aquifer levels. These limited water resources positions Mississippi well, if we have the will and vision to capitalize on these opportunities. During its 2016 session, Mississippi's legislature provided increased funding to MWRRI, as part of a four-year budgeting process, to take a leadership role in implementing a new vision for irrigated agriculture in Mississippi. The new vision will focus on the following areas:

1. Development of irrigation technologies and methods designed to maximize agricultural and land use productivity while creating sustainable systems of aquifer utilization in the Mississippi Delta. This will complement national funding efforts with USDA's Agricultural Research Service in Stoneville, MS.
2. Development of sustainable and economically efficient agricultural irrigation and industrial use systems in south and east Mississippi utilizing climatic (rain) water storage through surface water impoundment.
3. Maximize cultural, business and economic development opportunities created by the extensive national investments in the Tennessee-Tombigbee Waterway. This will complement national funding efforts in collaboration with Alabama.

PROGRAM NARRATIVE

Program Data Collected in Accordance with the Mississippi Performance Budget and Strategic Planning Act of 1994
(To Accompany Form MBR-1-03)

4. Protection of all Mississippi surface and ground water resources from sediment and nutrient contamination. This will complement efforts from the federal multi-agency Nutrient Management Task Force.

Working across all units of MSU, as well as with key stakeholders statewide, MWRRI will invest in research on new, high-cash-value crops that require more intensive water resources, advanced irrigation technologies, new production practices that conserve water, development of best management practices that preserve and enhance water quality, and educational programs that effectively disseminate research findings to our stakeholders.

The four-year budget request submitted during the 2016 legislative session to implement the new vision for irrigated agriculture in Mississippi was (each year is above the current base for WRRRI):

Year 1: \$300,000 to hire nationally recognized water resource professional
Year 2: \$600,000 to initiate research and outreach programs in Objectives 1 and 2
Year 3: \$800,000 to initiate research and outreach programs in Objectives 1-3
Year 4: \$1,000,000 to initiate and sustain research and outreach programs in all objectives

ADDENDUM

MWRRI Mission. a) planning, facilitating, and conducting research to aid in the resolution of State and regional water problems; b) promoting technology transfer and the dissemination and application of research results; c) proving for the training of scientists and engineers through their participation in research; d) proving for competitive grants to be awarded under the Water Resources Research Act; and e) cooperating with the United States Geological Survey to support, coordinate, and facilitate research through the Annual Base Grants, National Competitive Grants, Coordination Grants, and in operating the national Institutes for Water Resources-United States Geological Survey Student Internship Program.

Activities to Support Mission. The following activities were accomplished in support of MWRRI's mission during FY2018:
a) Planning, facilitating, and conducting research to aid in the resolution of State and regional water problems
Competitive Funding: \$924,969

1. Barickman, T.C., L.J. Krutz, L. Downy. 2018. Integrating soil moisture sensor technology for sustainable vegetable production. Special Research Initiative, Mississippi State University. \$50,000, Funded.
2. Ferguson, C., and L.J. Krutz. 2018. Determining optimal rainfall duration by soil type based on irrigation nozzle type. Mississippi Corn Promotion Board. \$38,521, Funded.
3. Pringle, H.C. III, L.J. Krutz, L. Falconer, D. Chastain. 2018. Irrigation scheduling of soybean: A dual threshold method to eliminate yield-reducing stresses and maximize water use efficiency. Mississippi Soybean Promotion Board. \$38,597, Funded.
4. Johnson, J., L.J. Krutz, L. Falconer, B.R. Golden, H.C. Pringle III, and J.T. Irby. 2019. Cover crop and tillage effects on irrigation application efficiency, irrigation scheduling, soil physical properties, runoff, soybean yield and economic return. Mississippi Soybean Promotion Board. \$70,772, Funded.
5. Johnson, J., R.L. Atwill, L.J. Krutz, L. Falconer, H.C. Pringle III, E.J. Larson, J.T. Irby and D. Dodds. 2018. Row Crop Irrigation Science Extension and Research (RISER) Program. Mississippi Soybean Promotion Board. \$143,590, Funded.
6. Johnson, J., R.L. Atwill, L.J. Krutz, H.C. Pringle III, W.B. Henry, J.T. Irby, and D. Dodds. 2018. Row Crop Irrigation Science Extension and Research Program. Mississippi Corn Promotion Board. \$85,022, Funded.
7. Orlowski, J., L.J. Krutz, B.R. Golden, L. Falconer, H.C. Pringle III, E.J. Larson, and W.B. Henry. Irrigation and soil management strategies that improve irrigation application efficiency, soil quality, water quality and corn yield. Mississippi Corn Promotion Board. \$60,786, Funded.
8. Pringle, H.C. III, L.J. Krutz, D. Dodds, D. Chastain, and L. Falconer. 2018. Row-crop irrigation science extension and research program. Mississippi Cotton Incorporated. \$30,903, Funded.
9. Ingram, R.B., R. Cossman and K. Genskow. 2016-2018. Using Social Indicators to Guide, Evaluate, and Accelerate Implementation of State-Level Nutrient Reduction Strategies. United States Environmental Protection Agency. \$194,100.
10. Ingram, R.B. 2016-2018. Using Social Indicators and Civic Engagement Measures to Advance Nutrient Reduction Initiatives Throughout the Mississippi River/Gulf of Mexico Watershed. \$13,500.

PROGRAM NARRATIVE

Program Data Collected in Accordance with the Mississippi Performance Budget and Strategic Planning Act of 1994
(To Accompany Form MBR-1-03)

11. Davidson, G.R. and A.M. O'Reilly. 2016-2017. Oxbow Lake-Wetland Systems as a Source of Recharge to the Mississippi River Valley Alluvial Aquifer. United States Geological Survey, 104-B, \$74,183.

12. Gude, V.G., J. Martin and D. Truax. 2016-2017. Wastewater Management in Mississippi Coastal Communities. United States Geological Survey, 104-B, \$124,995.

Contractual Funding: \$550,000

1. Krutz, L.J. and M.A. Locke. 2018-2021. Assess runoff and soil health as influenced by cover crop, tillage, and irrigation practices. United States Department of Agriculture-Agricultural Research Service. \$100,000.

2. Krutz, L.J. and M.A. Locke. 2018-2021. Soybean production research to compare yield, net returns above irrigation costs, and irrigation water use efficiency at the field scale for flood-irrigated, flat-planted soybean and soybean irrigated via RISER approach. United States Department of Agriculture-Agricultural Research Service. \$150,000.

3. Baker, B., and M.A. Locke. 2018-2021. Assess soil physical properties in on-farm cover crop and control (paired) fields. United States Department of Agriculture-Agricultural Research Service. \$100,000.

4. Ramirez, J. and M.A. Locke. 2018-2021. Evaluate performance of quantitative assessment tools to predict magnitude, extent, and risk of hydrologic and nutrient losses, and nutrient load reductions in agricultural systems in the Mississippi Delta. United States Department of Agriculture-Agricultural Research Service. \$100,000.

5. Ramirez, J. and M.A. Locke. 2018-2021. Adapt and enhance qualitative assessment tools to identify the vulnerability of selected agricultural systems in the Mississippi Delta to water, soil, and nutrient losses from monitored datasets and simulated water and nutrient management scenarios. United States Department of Agriculture-Agricultural Research Service. \$100,000.

b) Promoting technology transfer and the dissemination and application of research results
Peer Reviewed Journal Publications, *Indicates Graduate Student

1. Leininger*, S., L.J. Krutz. 2019. Bed formation and alternate row irrigation effects on peanut yield, net returns, and irrigation water use efficiency. (In process)

2. Wood*, C.W., L.J. Krutz, J.T. Irby, B. Henry, J. Orłowski, L. Falconer. 2019. Soybean planting date and maturity group selection as a method to optimize net returns above irrigation costs and irrigation water use efficiency. Crop, Forage, and Turfgrass Management. (In process)

3. Wood*, C.W., L.J. Krutz, J.T. Irby, B. Henry, J. Orłowski, L. Falconer. 2019. Maximizing soybean grain yield, irrigation water use efficiency, and net returns above irrigation cost with sensor-based irrigation scheduling. Crop, Forage, and Turfgrass Management. (In process)

4. Plumblee*, M.T., L.J. Krutz, D.M. Dodds, A.L. Catchot, J.T. Irby, J.J. Jenkins. 2019. Determining optimum irrigation scheduling using soil moisture sensors in furrow irrigated cotton. Crop, Forage, and Turfgrass Management. (In process)

5. Plumblee*, M.T., L.J. Krutz, D.M. Dodds, A.L. Catchot, J.T. Irby, J.J. Jenkins. 2019. Determining optimum irrigation termination timing using furrow irrigation in cotton. Crop, Forage, and Turfgrass Management. (In process)

6. Plumblee*, M.T., D.M. Dodds, L.J. Krutz, D.M., Catchot, A.L., Irby, J.T., J.J. Jenkins. 2019. Effect of damage timing and intensity to early- and late-maturing cotton varieties. Agronomy J. (In process)

7. Plumblee*, M.T., D.M. Dodds, L.J. Krutz, D.M., Catchot, A.L., Irby, J.T., J.J. Jenkins. 2019. Effect of application timing of foliar applied nitrogen to damaged cotton. Cotton Sci. (In process)

8. Atwill*, R.L., L.J. Krutz, B.R. Golden, J.A. Bond, T.W. Walker, and J.M. Phillips. 2019. Alternate wetting and drying irrigation for Mid-South rice production. Crop, Forage, and Turfgrass Management. (In process)

9. Atwill*, R.L., L.J. Krutz, B.R. Golden, J.A. Bond, T.W. Walker, and J.M. Phillips. 2019. Clearfield® Barnyardgrass control for alternate wetting and drying rice irrigation. Weed Tech. (In process)

10. Atwill*, R.L., L.J. Krutz, B.R. Golden, J.A. Bond, T.W. Walker, and J.M. Phillips. 2019. Conventional herbicide

PROGRAM NARRATIVE

Program Data Collected in Accordance with the Mississippi Performance Budget and Strategic Planning Act of 1994
(To Accompany Form MBR-1-03)

- efficacy on barnyardgrass control in alternate wetting and drying rice irrigation. *Weed Tech.* (In process)
11. Atwill*, R.L., L.J. Krutz, B.R. Golden, J.A. Bond, T.W. Walker, and J.M. Phillips. 2019. Alternate wetting and drying threshold establishment for Mid-South rice production. *Agron. J.* (In process)
 12. Leininger*, S.D., L.J. Krutz, J. Sarver, J. Gore, A. Henn, C.J. Bryant, R.L. Atwill and G.D. Spencer. 2019. Establishing irrigation thresholds for furrow irrigated peanuts. *Crop, Forage, and Turfgrass Management* (In process).
 13. Atwill*, R.L., L.J. Krutz, J.A. Bond, K.R. Reddy, J. Gore, and T.W. Walker. 2019. Experimental design effects on predicting economic optimum nitrogen rates in rice. *Rice Journal.* (In Review)
 14. Bryant*, C.J., L.J. Krutz, R.C. Nuti, C.C. Truman, M.A. Locke, L. Falconer, C.W. Wood, R.L. Atwill. 2019. Furrow-Diking as a Mid-South Irrigation Strategy: Soybean (*Glycine max*) Grain Yield, Irrigation Water Use Efficiency, and Net Returns Above Irrigation Costs. *Crop, Forage and Turfgrass Management* (In Review)
 15. Pringle, H.C. III, L. Falconer, D.K. Fisher, L.J. Krutz. 2019. Soybean irrigation initiation in Mississippi: yield, soil moisture, and economic response. *Appl. Eng. Agri.* (In Review)
 16. Williams, J.J., W.B. Henry, J.J. Varco, N.W. Buehring, L.J. Krutz, L. Falconer, and D.L. Boykin. 2019. Corn grain yield, water use efficiency, and net returns in response to irrigation threshold, planting date, and hybrid selection. *Crop, Forage and Turfgrass Mngmt.* (In Review)
 17. Thrash, B.C., A.L. Catchot, Jr., J. Gore, D. Cook, F.R. Musser, T. Irby, and L.J. Krutz. 2018. Effects of Multiple and Continuous Defoliation on Mid-South Soybean Yield. *Econ. Ento.* (In Review).
 18. Kovacs, K., J. Lee, C. Henry, L.J. Krutz, R. Nayga and F. Tsiboe. 2018. Producer discount rates for investment in irrigation efficiency. *J. Assoc. Environ. Res. Econ.* (In Review)
 19. Abbott, C.C., J.M. Sarver, J. Gore, D. Cook, A. Catchot, R.A. Henn, and L.J. Krutz. 2018. Establishing defoliation thresholds for insect pest of peanut (*Arachis hypogaea*) in Mississippi. 2018. *Peanut Sci.* (Accepted 5/18)
 20. Wijewardana, C., F.A. Alsajri, T. Irby, B. Golden, L.J. Krutz and K.R. Reddy. 2018. Quantifying soil moisture deficit effects on soybean yield and yield component distribution patterns. *Irrigation Sci.* (Accepted June 2018).
 21. Omer, A.R., L.E. Miranda, M.T. Moore, L.J. Krutz, J.M. Prince Czarnecki, R. Kröger, B.H. Baker, J. Hogue and P.J. Allen. 2018. Reduction of solids and nutrient loss from agricultural land by tail-water recovery systems. *J. Soil and Water Conservation.* 73:284-297.
 22. Atwill*, R.L., L.J. Krutz, J.A. Bond, K.R. Reddy, J. Gore, T.W. Walker, and D.L. Harrell. 2018. Water management strategies and their effects on rice grain yield and nitrogen use efficiency. *J. Soil and Water Con.* 73:257-264.
 23. Omer, A.R., M.T. Moore, L.J. Krutz, R. Kroger, J.M. Prince Czarnecki, B.H. Baker, P.J. Allen. Potential for recycling of suspended solids and nutrients by irrigation of tail-water from tail-water recovery systems. 2018. *Water Sci. Tech.* DOI: 10.2166/ws.2017.207.
 24. Wood, W., J. Gore, A. Catchot, D. Cook, D. Dodds and L. J. Krutz. 2017. Effect of Leaf Pubescence on Tarnished Plant Bug Ability to Cause Damage and Yield Loss in Mid-South Cotton. *J. Cotton Sci.* 21:122-127.
 25. Mueller, T. C., Parker, E. T., Steckel, L., Clay, S. A., Owen, M. D.K., Curran, W. S., Currie, R., Scott, R., Sprague, C., Stephenson, D. O., Miller, D. K., Prostko, E. P., James Grichar, W., Martin, J., Krutz, L.J. Bradley, K., Bernards, M. L., Dotray, P., Knezevic, S., Davis, V. and Klein, R. 2017. Enhanced Atrazine Degradation is Widespread Across the United States. *Pest. Manag. Sci.* 73:1953-1961.
 26. Pringle, H.C., L. Falconer, D.K. Fisher and L.J. Krutz. 2017. Initiation of furrow irrigation in corn on a Dundee/Forestdale Silty Clay Loam soil with and without deep tillage. *Applied Eng. Ag.* 33: 205-216.
 27. McNeal*, J.P., L.J. Krutz, M.A. Locke, M.M. Kenty, R.A. Atwill, D.M. Pickelmann, C.J. Bryant, C.W. Wood, B.R. Golden, and M.S. Cox. 2017. Application of polyacrylamide (PAM) through lay-flat polyethylene tubing: effects on infiltration, erosion, N and P transport, and corn yield. *J. Environ. Qual.* 46:855-861.

PROGRAM NARRATIVE

Program Data Collected in Accordance with the Mississippi Performance Budget and Strategic Planning Act of 1994
(To Accompany Form MBR-1-03)

28. Wood*, C.W., L.J. Krutz, L. Falconer, H.C. Pringle III, J.T. Irby, C.J. Bryant, R.L. Atwill, D. M. Pickelmann. 2017. Surge irrigation reduces irrigation requirements for soybean on smectitic clay-textured soils. *Crop, Forage and Turfgrass Management*. 3:1-6.
29. Bryant*, C.J., L.J. Krutz, L. Falconer, J.T. Irby, C.G. Henry, H.C. Pringle III, M.E. Henry, D.P. Roach, D. M. Pickelmann, R.L. Atwill, C.W. Wood. 2017. Irrigation water management practices that reduce water requirements for Mid-South furrow-irrigated soybean. *Crop, Forage and Turfgrass Management*. 3:1-6.
30. Omer, A.R., M.T. Moore, L.J. Krutz, R. Kröger, J.M. Prince Czarnecki, B. Baker and P.J. Allen. 2017. Representation of solid and nutrient concentrations in irrigation water from tailwater-recovery systems by surface water grab samples. *J. Irrig. Drain. Eng.* 143(11):1-6.
Published Abstracts
1. Atwill*, R.L., L.J. Krutz, D.P. Roach, and J. Satterfield. 2018. Furrow irrigation for mid-south rice production. Southern Branch of Am. Soc. of Agron. Ann. Mtg. Jacksonville, FL
 2. Williams, J.J., W.B. Henry, L.J. Krutz, J.J. Varco, N.W. Buehring, D.B. Reynolds, L.L. Falconer. 2018. Drought Tolerant and Short Season Hybrids to Mitigate Risk, Optimize Yield and Net Returns, While Increasing Water Use Efficiency. Southern Agronomy Society of America Jacksonville, FL.
 3. Kelly, R., J. Gore, A. Catchot, D. Cook, L.J. Krutz, B. Golden. 2018. Management of Rice Water Weevil in Water Conservation Rice Production Systems. Graduate Student Oral Competition. Beltwide Cotton Conf.
 4. Plumlee*, M.T., D.M. Dodds, L.J. Krutz, C.A. Samples and S. Davis. 2018. A Soil Moisture Sensor Approach to Scheduling Cotton Irrigation. Beltwide Cotton Conf.
 5. Singh, B., D. Chastain, J.L. Snider, K.R. Reddy, L.J. Krutz, S. Stetina. 2018. *Rotylenchulus reniformis* resistant cotton lines exhibit higher early-season vigor and fiber yield, when compared to susceptible varieties. Beltwide Cotton Conf.
 6. Thrash, B., A. Catchot, J. Gore, D. Cook, F. Musser, T. Irby and L.J. Krutz. 2017. Impact of Planting Date and Plant Population on Soybean Defoliation Thresholds. Graduate Student Oral Competition. Entomological Society of America Annual Meeting.
 7. Atwill*, R.L., III, L.J. Krutz, B.R. Golden, J. Bond, and J. Satterfield. 2017. Evaluation of furrow-irrigated rice in Mid-South production systems. Agronomy Society Annual Meeting.
 8. Williams, J.J., W.B. Henry, L.J. Krutz, J.J. Varco, N.W. Buehring, D.B. Reynolds. 2017. Irrigation Threshold, Planting Dates, and Hybrid Selection on Yield, Water Use, and Profitability. Mid-South Association of Wheat and Feed Grain Scientists. Madison, AL. August 16, 2017.
 9. Williams, J.J., W.B. Henry, L.J. Krutz, J.J. Varco, N.W. Buehring, D.B. Reynolds. 2017. Drought Tolerant Hybrids and Short Season Hybrids to Mitigate Risk, Optimize Yield and Net Returns, While Reducing Supplemental Irrigation. Southern Regional Branch/ASA. Mobile, AL. February 7, 2017
 10. Kelly, R., J. Gore, A. Catchot, D. Cook, L.J. Krutz, B. Golden. 2017. Management of Rice Water Weevil in Water Conservation Rice Production Systems. Graduate Student Oral Competition. Entomological Society of America Annual Meeting.
 11. Leininger*, S.D., L.J. Krutz, J. Gore, J.M. Sarver, A. Henn and C.C. Abbott. 2017. Land Preparation Method and Irrigation Strategy Impacts on Peanut Pod Yield, Canopy Closure, Quality, Water Use Efficiency and Net Return above Irrigation Costs. Graduate Student Oral Competition. Am. Peanut Research and Education Soc.
 12. Krutz, L.J., D. Pickelmann, R. Atwill, S. Leininger, C. Bryant, J. McNeal, W. Wood, M. Henry and D. Roach. 2017. Irrigation Water Management Strategies that Improve Crop Yield and/or on Farm Profitability. MS Water Resources Conf.
 13. Abbott, C., J. Sarver, J. Gore, A. Henn and L.J. Krutz. 2017. Evaluating the Impact of Canopy Defoliation Levels at Two Critical Timings in Peanut. ASA Southeastern Branch Meeting.
 14. Krutz, L.J., D. Pickelmann, R. Atwill, S. Leininger, C. Bryant, J. McNeal, W. Wood, M. Henry and D. Roach. 2017.

PROGRAM NARRATIVE

Program Data Collected in Accordance with the Mississippi Performance Budget and Strategic Planning Act of 1994
(To Accompany Form MBR-1-03)

Irrigation Water Management Strategies that Improve Crop Yield and/or On-Farm Profitability. Cotton & Rice Conference.

15. Bryant*, C.J., L.J. Krutz, M.A. Locke, W. Steinriede, T. Irby. 2017. Cover Crops and Irrigation Application Efficiency in Soybean. Cotton & Rice Conference.

16. Leininger*, S.D., L.J. Krutz, J. Gore, J.M. Sarver and C.C. Abbott. 2017. Land Preparation and Irrigation Method Impacts on Peanut Pod Yield and Quality. Cotton & Rice Conference.

17. Wood*, C. W., L.J. Krutz, J.T. Irby and W.B. Henry. 2017. Impact of Planting Date and Maturity Group on Irrigation Water Use Efficiency in Mid-South Soybean Production. Cotton & Rice Conference.

18. Plumblee*, M.T., D.M. Dodds, L.J. Krutz, C.A. Samples and S. Davis. 2017. A Soil Moisture Sensor Approach to Scheduling Cotton Irrigation. Beltwide Cotton Conf.

19. Thrash, B.C., A. Catchot, J. Gore, D. Cook, F. Musser, T. Irby and L.J. Krutz. 2017. Impact of Defoliation on Mid-South Soybeans. Beltwide Cotton Conf.

c) Providing for the training of scientists and engineers through their participation in research
University Courses

1. Guest Lecturer, PSS 4333, Soil Conservation, Relating Soil Quality and Irrigation Management, Mississippi State University, Department of Plant and Soil Sciences, 08-29-17

2. Guest Lecturer, PSS 4123/6123, Grain Crops-Practical Irrigation Techniques for Mid-South Grain Crops, Mississippi State University, Department of Plant and Soil Sciences, 03-2-15, 03-30-16, 04-19-17, 4-11-18

3. Guest Lecturer, PSS 4543, Precision Agriculture II, Mississippi State University, Department of Plant and Soil Sciences, 03-09-17, 4-17-18

Major Advisor, Ph.D.

1. Gene David Spencer, Mississippi State University, 2016-present

2. Corey Jay Bryant, Mississippi State University, 2015 to present

3. Richard Lee Atwill, Mississippi State University, 2015 to present

4. Clinton Wilks Wood, Mississippi State University, 2015 to 2018

5. Michael Plumblee, Mississippi State University, 2015 to 2018

Major Advisor, M.S.

6. Savana Davis, Mississippi State University, 2016-2018

7. Stephen Leininger, Mississippi State University, 2016-2018

Graduate Committee, Ph.D.

1. Jenny Bibb, Mississippi State University, 2017-Present

2. Bhupinder Singh, Mississippi State University, 2017-Present

3. Chathurika Wijewardana, Mississippi State University, 2016-Present

4. Benjamin Thrash, Mississippi State University, 2014-2018

5. Austin Omer, Mississippi State University, 2013-2017

Graduate Committee, M.S.

6. Read Kelly, Mississippi State University, 2017-Present

7. Chad Abbott, Mississippi State University, 2014 to 2018

8. Richard Smith, Mississippi State University, 2016 to 2018

9. John J. Williams, Mississippi State University, 2016 to 2018

10. Bradley Wilson, Mississippi State University, 2017 to 2018

Dissertations or Theses

1. Leininger, S.D. 2018. Furrow irrigation strategies for peanut production in the mid-southern USA. M.S. Thesis. Mississippi State University, Dept. of Plant and Soil Sciences.

2. Plumblee*, M.T. 2018. Effects of irrigation scheduling and simulated damage on development and yield of cotton (*Gossypium hirsutum* L.) in the Mid-South. Ph.D. Dissertation. Mississippi State University, Dept. of Plant and Soil Sciences.

3. Abbott, C. M. 2018. Establishing defoliation thresholds in peanut [*Arachis hypogaea* (L.)] in Mississippi. M.S. Thesis. Mississippi State University, Dept. of Plant and Soil Sciences.

4. Smith, R.M. 2018. Evaluation of narrow row production and twin row planter errors for furrow irrigated soybean in Mississippi. M.S. Thesis. Mississippi State University, Dept. of Plant and Soil Sciences.

PROGRAM NARRATIVE

Program Data Collected in Accordance with the Mississippi Performance Budget and Strategic Planning Act of 1994
(To Accompany Form MBR-1-03)

5. Wood*, C.W. 2018. Agronomic practices and irrigation water management tools that improve water use efficiency in Mid-South soybean production systems. Ph.D. Dissertation. Mississippi State University, Dept. of Plant and Soil Sciences.
 6. Williams, J.J. 2018. Drought-tolerant and short-season corn hybrids to mitigate risk, optimize yield and profit, while increasing water use efficiency. M.S. Thesis. Mississippi State University, Dept. of Plant and Soil Sciences.
 7. Thrash, B.C. 2018. Evaluation of soybean production practices that impact yield losses from simulated insect defoliation. Ph.D. Dissertation. Mississippi State University, Dept. of Biochemistry, Molecular Biology, Entomology and Plant Pathology.
 8. Omer, Austin R. 2017. Efficacy of tailwater recovery systems as an approach to water resource conservation. Ph.D. Dissertation. Mississippi State University, Dept. of Wildlife, Fisheries and Aquaculture
- d) Providing for competitive grants to be awarded under the Water Resources Research Act; and
e) Cooperating with the United States Geological Survey to support, coordinate, and facilitate research through the Annual Base Grants, National Competitive Grants, Coordination Grants, and in operating the national Institutes for Water Resources-United States Geological Survey Student Internship Program.
1. Cizdziel, J. 2018-2019. Microplastics in the Mississippi River and Mississippi Sound: Concentrations, Sources, Sizes, Types, and Loadings to the Northern Gulf of Mexico. United States Geological Survey, 104-G, \$225,173, (In Review).
 2. Biber. 2018-2019. Classifying Shoreline habitat Types, and Validating a Living Shorelines Suitability Tool in the Northern Gulf of Mexico. United States Geological Survey, 104-G, \$250,000, (In Review).
 3. Ervin, G.N. and L.G. Turnage. 2018-2019. Aquatic Vegetation Management to Enhanced Multiple-User Benefits of Southwestern Wetlands. United States Geological Survey, 104-B, \$105,889, Funded.
 4. Cizdziel, J. 2018-2019. Microplastics in the Mississippi River and Mississippi Sound: Concentrations, Sources, Sizes, Types, and Loadings to the Northern Gulf of Mexico. United States Geological Survey, 104-B, \$108,518, Funded.
 5. Willett, K.L., S. Otts and J. Green. 2017-2018. Assessing the Effectiveness of Community-Based Research Strategies to Analyze Risk of Lead Contamination in Public Water Supplies in the Mississippi Delta. United States Geological Survey, 104-B, \$45,230, Funded.
 6. Ramirez-Avilla, J.J. and S.L.O. Achury. 2017-2018. Assessing and Predicting In-Stream Processes in the Catalpa Creek Watershed. United States Geological Survey, 104-B, \$65,818, Funded.
 7. Czarnecki, J. and J.J. Ramirez-Avila. 2017-2018. Applied Use of Unmanned Aerial Vehicles in Surface Water Quality Protection. United States Geological Survey, 104-B, \$45,674, Funded.
 8. Chao, X., R.L. Binger, Y. Zhang and L. Yasarer. 2017-2018. Study of Sediments and Nutrients in Pelahatchie Bay and Upland Mill-Pelahatchie Creek Watershed. United States Geological Survey, 104-B, \$64,742, Funded.

HONORS AND AWARDS

- Educational Aids Blue Ribbon Award for “Innovation in Rice Irrigation Will Help Reduce Aquifer Decline” authored by C. Henry, J. Hardke, L.J. Krutz, J. Massey, and M.A. Adviento-Borbe, American Society of Agricultural and Biological Engineers Annual Meeting, Detroit, Michigan, 2018

II. Program Objective:**II. Program Objectives:**

PROGRAM NARRATIVE

Program Data Collected in Accordance with the Mississippi Performance Budget and Strategic Planning Act of 1994
(To Accompany Form MBR-1-03)

1. Serve public and private interests in the conservation, development, and use of water resources.
2. Provide training opportunities in higher education whereby skilled professionals become available to serve government and private sectors alike.
3. Assist planning and regulatory bodies at the local, state, regional, and federal levels.
4. Communicate research findings to potential users in a form that encourages quick comprehension and direct application to water related problems.

III. Current program activities as supported by the funding in Columns 6-15 (FY 2019 & FY 2020 Increase/Decrease for continuations) of MBR-1-03 and designated Budget Unit Decisions columns of MBR-1-03-A:

1. Facilitation of Watershed-based Planning and Implementation Projects
2. Generation of Applied Water Resources Research
3. Technology and Research Transfer through MSU's Cooperative Extension and REACH Programs
4. Support of Implementation of Conjunctive Water Management Strategies in the Mississippi Delta
5. Support and Facilitation of Low-Impact Development and Green Infrastructure Projects
6. Alternative Water Supplies for Economic Development
7. Facilitation of Collaborative Partnerships with Other Institutions of Higher Learning
8. Facilitation of Annual Water Resources Conference

III. Current program activities as supported by the funding in Columns 6-15 (FY 2019 & FY 2020 Increase/Decrease for continuations) of MBR-1-03 and designated Budget Unit Decisions columns of MBR-1-03-A:

(D) Restoration of Funds:

Recovery of FY 2016 funds

Elements of Quality Program Design

For the Evaluation of Requests to Fund New Programs or New Activity in an Existing Program
(To Accompany Form MBR-1-03A)

PROGRAM PERFORMANCE MEASURES

Program Data Collected in Accordance with the Mississippi Performance Budget and Strategic Planning Act of 1994

MS State Univ - Water Resources Research Institute (445-00)

1 - Research & Technology Transfer

Name of Agency

PROGRAM NAME

PROGRAM OUTPUTS: (This is the measure of the process necessary to carry on the goals and objectives of this program. This is the volume produced, i.e., how many people served, how many documents generated.)

	FY 2018 APPRO	FY 2018 ACTUAL	FY 2019 ESTIMATED	FY 2020 PROJECTED
1 Annual list of MWRRI's water resources research priorities	1.00	1.00	1.00	1.00
2 Annually prepare and distribute RFP for 104b grant program	1.00	1.00	1.00	1.00
3 Number of competitive external research proposals developed or co-facilitated by MWRRI that received external funding	0.00	13.00	3.00	8.00
4 Documentation in annual report submitted to MDEQ and EPA of status of MOU annual work plan commitments	1.00	1.00	1.00	1.00
5 Number of peer reviewed journal publications	0.00	20.00	12.00	10.00
6 Number of externally funded contracts	0.00	0.00	0.00	2.00
7 Number of published abstracts	0.00	0.00	0.00	8.00
8 Number of Ph.D and M.S. candidates served as a major advisor	0.00	0.00	0.00	2.00
9 Number of Ph.D and M.S. candidates served as a graduate committee member	0.00	0.00	0.00	2.00

PROGRAM EFFICIENCIES: (This is the measure of the cost, unit cost or productivity associated with a given outcome or output. This measure indicates linkage between services and funding, i.e., cost per investigation, cost per student or number of days to complete investigation.)

	FY 2018 APPRO	FY 2018 ACTUAL	FY 2019 ESTIMATED	FY 2020 PROJECTED
1 Amount of federal funding received to support 104b-funded projects	90,000.00	92,335.00	90,000.00	90,000.00
2 Amount of state funding received to support 104b-funded projects	240,000.00	240,000.00	240,000.00	240,000.00
3 Amount of funding awarded by MWRRI or used administratively to support 104b projects	330,000.00	332,335.00	330,000.00	330,000.00
4 Cost of annual conference	30,000.00	25,393.00	30,000.00	30,000.00
5 Amount of conference sponsorships	1,000.00	3,400.00	1,000.00	1,000.00
6 Percentage of competitive external research proposals developed or co-facilitated by MWRRI that received external funding	0.00	0.00	33.30	33.30

PROGRAM OUTCOMES: (This is the measure of the quality or effectiveness of the services provided by this program. This measure provides an assessment of the actual impact or public benefit of your agency's actions. This is the results produced, i.e., increased customer satisfaction by x% within a 12-month period, reduce the number of traffic fatalities due to drunk drivers within a 12-month period.

	FY 2018 APPRO	FY 2018 ACTUAL	FY 2019 ESTIMATED	FY 2020 PROJECTED
1 Number of competitive external research proposals developed or co-facilitated by MWRRI that received external funding	0.00	0.00	0.00	4.00
2 Number of research proposals received for potential 104b funding	6.00	7.00	6.00	6.00
3 Percentage of conference favorable comments from evaluation form	95.00	95.00	95.00	95.00
4 Amount of competitive external research awards through external funding sources	0.00	0.00	200,000.00	500,000.00
5 Amount of contractual funding received for externally-funded projects	0.00	0.00	130,000.00	50,000.00

PROGRAM PERFORMANCE MEASURES

Program Data Collected in Accordance with the Mississippi Performance Budget and Strategic Planning Act of 1994

MS State Univ - Water Resources Research Institute (445-00)	1 - Research & Technology Transfer			
Name of Agency	PROGRAM NAME			
6 Number of dissertations or theses	0.00	0.00	0.00	2.00
7 Number of annual conference attendees	0.00	0.00	130.00	160.00

PROGRAM 3% GENERAL FUND REDUCTION AND NARRATIVE EXPLANATION

MS State Univ - Water Resources Research Institute (445-00)

	Fiscal Year 2019 Funding			FY 2019 GF PERCENT REDUCED
	Total Funds	Reduced Amount	Reduced Funding Amount	

Program Name: (1) Research & Technology Transfer				
General	357,031	(10,711)	346,320	(3.00%)
State Support Special				
Federal				
Other Special				
TOTAL	357,031	(10,711)	346,320	

Narrative Explanation:

Program Name: (99) Summary of All Programs				
General	357,031	(10,711)	346,320	(3.00%)
State Support Special				
Federal				
Other Special				
TOTAL	357,031	(10,711)	346,320	

BOARD OF TRUSTEES OF STATE INSTITUTIONS OF HIGHER LEARNING MEMBERS

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

A. Explain Rate and manner in which board members are reimbursed:

Board members are reimbursed through the Institution of Higher Learning System Administration budget with a per diem of \$40 plus expenses.

B. Estimated number of meetings FY 2019:

12 (Twelve)

C. Names of Members	City, Town, Residence	Appointed By	Date of Appointment	Length of Term
1. Justice Ann H. Lamar	Senatobia, MS	Bryant	2- 8- 2017	4 years
2. Dr. Bradford J. Dye, III	Oxford, MS	Bryant	5- 8- 2012	9 years
3. Mr. Shane Hooper	Tupelo, MS	Bryant	5- 8- 2012	9 years
4. Mr. Hal Parker	Bolton, MS	Bryant	5- 8- 2012	9 years
5. Mr. Tom Duff	Hattiesburg, MS	Bryant	2- 8- 2015	9 years
6. Dr. Alfred E. McNair, Jr.	Gautier, MS	Bryant	5- 8- 2015	9 years
7. Mr. Chip Morgan	Leland, MS	Bryant	5- 8- 2015	9 years
8. Dr. J. Walt Starr	Columbus, MS	Bryant	5- 8- 2015	9 years
9. Jeanne Carter Luckey	Ocean Springs, MS	Bryant	5- 8- 2015	9 years
10. Bruce Martin	Meridian, MS	Bryant	5- 8- 2015	9 years
11. Gee Ogletree	Jackson, MS	Bryant	5- 8- 2015	9 years
12. Dr. Steven Cunningham	Hattiesburg, MS	Bryant	5- 8- 2015	9 years

Identify Statutory Authority (Code Section or Executive Order Number)*

Constitutional Amendment 213A of the Constitution of the State of Mississippi.

*If Executive Order, please attach copy.

**SCHEDULE B
CONTRACTUAL SERVICES**

MS State Univ - Water Resources Research Institute (445-00)
Name of Agency

MINOR OBJECT OF EXPENDITURE	(1) Actual Expenses FY Ending June 30, 2018	(2) Estimated Expenses FY Ending June 30, 2019	(3) Requested for FY Ending June 30, 2020
-----------------------------	------------------------------------------------------	---------------------------------------------------------	----------------------------------------------------

Grand Total <i>(Enter on Line 1-B of Form MBR-1)</i>			
----------------------------------------------------------------	--	--	--

Funding Summary: General Funds			
State Support Special Funds			
Federal Funds			
Other Special Funds			
Total Funds			

**SCHEDULE C
COMMODITIES**

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

MINOR OBJECT OF EXPENDITURE	(1) Actual Expenses FY Ending June 30, 2018	(2) Estimated Expenses FY Ending June 30, 2019	(3) Requested for FY Ending June 30, 2020
-----------------------------	------------------------------------------------------	---------------------------------------------------------	----------------------------------------------------

Grand Total <i>(Enter on Line 1-C of Form MBR-1)</i>			
----------------------------------------------------------------	--	--	--

Funding Summary:			
General Funds			
State Support Special Funds			
Federal Funds			
Other Special Funds			
Total Funds			

**SCHEDULE D-1
CAPITAL OUTLAY
OTHER THAN EQUIPMENT**

MS State Univ - Water Resources Research Institute (445-00)
Name of Agency _____

MINOR OBJECT OF EXPENDITURE	(1) Actual Expenses FY Ending June 30, 2018	(2) Estimated Expenses FY Ending June 30, 2019	(3) Requested for FY Ending June 30, 2020
-----------------------------	------------------------------------------------------	---------------------------------------------------------	----------------------------------------------------

Grand Total <i>(Enter on Line 1-D-1 of Form MBR-1)</i>			
------------------------------------------------------------------	--	--	--

Funding Summary:			
General Funds			
State Support Special Funds			
Federal Funds			
Other Special Funds			
Total Funds			

**SCHEDULE D-2
CAPITAL OUTLAY EQUIPMENT**

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

EQUIPMENT BY ITEM	Act. FY Ending June 30, 2018		Est. FY Ending June 30, 2019		Req. FY Ending June 30, 2020	
	No. of Units	Total Cost	No. of Units	Total Cost	No. of Units	Total Cost

Grand Total <i>(Enter on Line 1-D-2 of Form MBR-1)</i>						
------------------------------------------------------------------	--	--	--	--	--	--

Funding Summary:						
General Funds						
State Support Special Funds						
Federal Funds						
Other Special Funds						
Total Funds						

**SCHEDULE D-3
PASSENGER/WORK VEHICLES**

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

MINOR OBJECT OF EXPENDITURE	Vehicle Inventory June 30, 2018	Act. FY Ending June 30, 2018		Est. FY Ending June 30, 2019		Req. FY Ending June 30, 2020	
		No. of Units	Total Cost	No. of Units	Total Cost	No. of Units	Total Cost

GRAND TOTAL <i>(Enter on Line 1-D-3 of Form MBR-1)</i>							
------------------------------------------------------------------	--	--	--	--	--	--	--

Funding Summary:			
General Funds			
State Support Special Funds			
Federal Funds			
Other Special Funds			
Total Funds			

**SCHEDULE D-4
WIRELESS COMMUNICATION DEVICES**

MS State Univ - Water Resources Research Institute (445-00)
Name of Agency _____

MINOR OBJECT OF EXPENDITURE	Device Inventory June 30, 2018	Act. FY Ending June 30, 2018		Est. FY Ending June 30, 2019		Req. FY Ending June 30, 2020	
		No. of Devices	Actual Cost	No. of Devices	Estimated Cost	No. of Devices	Requested Cost

Grand Total <i>(Enter on Line 1-D-4 of Form MBR-1)</i>							
------------------------------------------------------------------	--	--	--	--	--	--	--

Funding Summary:							
General Funds							
State Support Special Funds							
Federal Funds							
Other Special Funds							
Total Funds							

SCHEDULE E
SUBSIDIES, LOANS & GRANTS

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

MINOR OBJECT OF EXPENDITURE	(1) Actual Expenses FY Ending June 30, 2018	(2) Estimated Expenses FY Ending June 30, 2019	(3) Requested for FY Ending June 30, 2020
E. Other (67000xxx-67019xxx, 67021xxx-67199xxx, 67998xxx, 68500xxx-68860xxx, 70045xxx-70080xxx, 80000xxx-80500xxx)			
Cost Share on University projects	357,031	357,031	364,172
Total	357,031	357,031	364,172
Grand Total			
<i>(Enter on Line 1-E of Form MBR-1)</i>	357,031	357,031	364,172
Funding Summary:			
General Funds	357,031	357,031	364,172
State Support Special Funds			
Federal Funds			
Other Special Funds			
Total Funds	357,031	357,031	364,172

NARRATIVE
2020 BUDGET REQUEST

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

MWRRI is requesting \$7,141 in GFs above the FY19 level to restore funding at the FY16 level.

**OUT-OF-STATE TRAVEL
FISCAL YEAR 2020**

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

Note: All expenditures recorded on this form must be totaled and said total must agree with the out-of-state travel amount indicated for FY 2018 on Form Mbr-1, line 1.A.2.b.

Employee's Name	Destination	Purpose	Travel Cost	Funding Source
------------------------	--------------------	----------------	--------------------	-----------------------

Total Out of State Cost

FEES, PROFESSIONAL AND OTHER SERVICES

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency _____

TYPE OF FEE AND NAME OF VENDOR	Retired w/ PERS	(1) Actual Expenses FY Ending June 30, 2018	(2) Estimated Expenses FY Ending June 30, 2019	(3) Requested Expenses FY Ending June 30, 2020	Fund Source
--------------------------------	-----------------------	------------------------------------------------------	---------------------------------------------------------	---------------------------------------------------------	-------------

GRAND TOTAL

VEHICLE PURCHASE DETAILS

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

Year	Model	Person(s) Assigned To	Vehicle Purpose/Use	Replacement Or New?	FY2020 Req. Cost
-------------	--------------	------------------------------	----------------------------	--------------------------------	-----------------------------

TOTAL VEHICLE REQUEST

**VEHICLE INVENTORY
AS OF JUNE 30, 2018**

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

Vehicle Type	Vehicle Description	Model Year	Model	Person(s) Assigned To	Purpose/Use	Tag Number	Mileage on 6-30-2018	Average Miles per Year	Replacement Proposed	
									FY2019	FY2020

**VEHICLE POOL MEMBER LIST
2020 BUDGET REQUEST**

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

**PRIORITY OF DECISION UNITS
FISCAL YEAR 2020**

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

Program	Decision Unit	Object	Amount
Priority # 1			
	Program # 1: Research & Technology Transfer		
	Restoration of Funds		
		Subsidies	7,141
		Totals	<u>7,141</u>
		General Funds	7,141

CAPITAL LEASES

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

VENDOR/ ITEM LEASED	Original Date of Lease	Original No. of Months of Lease	No. of Months Remaining on 6-30-18	Last Payment Date	Interest Rate	Amount of Each Payment			Total of Payments To Be Made														
						Actual FY 2018			Estimated FY 2019			Requested FY 2020											
						Principal	Interest	Total	Principal	Interest	Total	Principal	Interest	Total									

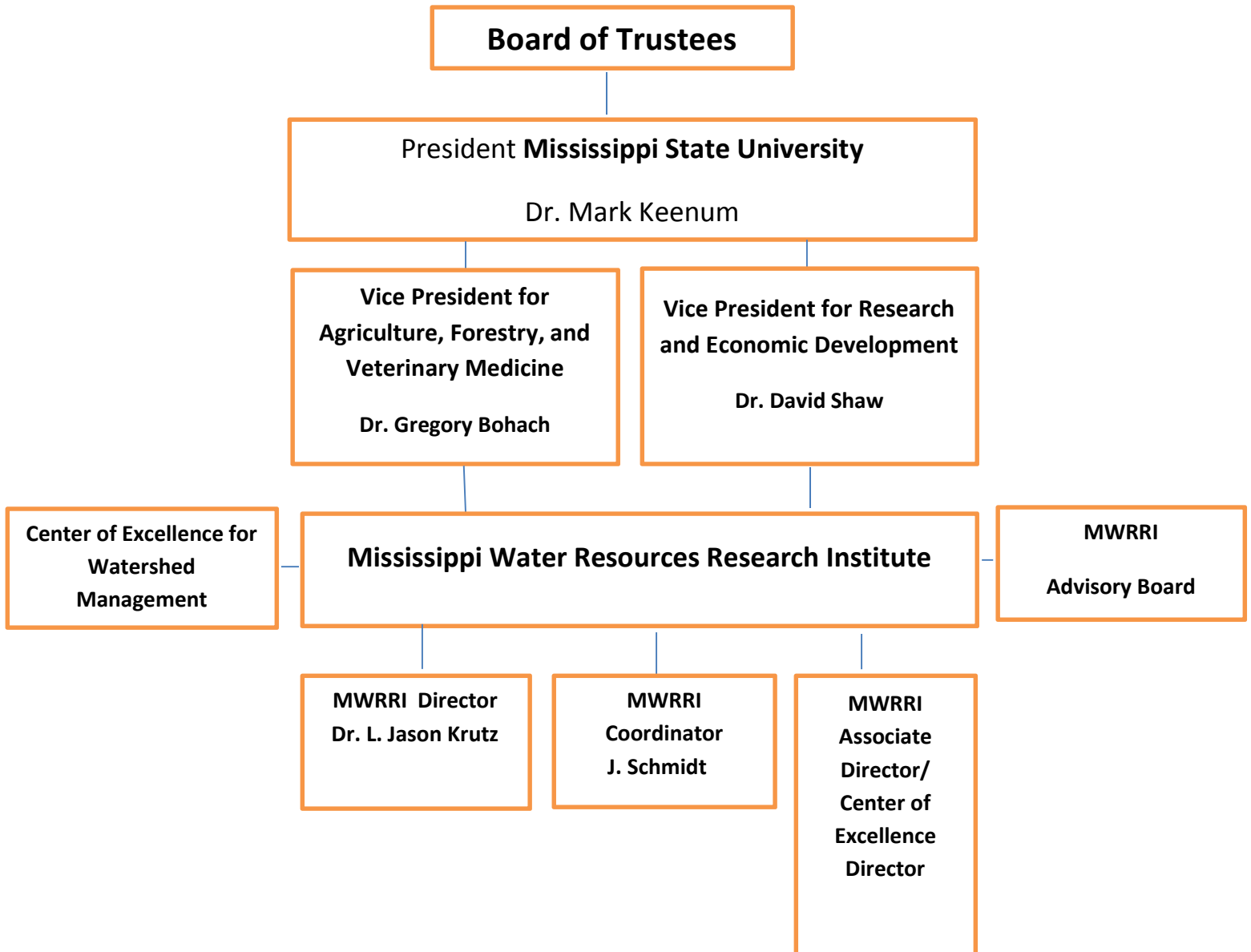
Summary of 3% General Fund Program Reduction to FY 2019 Appropriated Funding by Major Object

MS State Univ - Water Resources Research Institute (445-00)

Name of Agency

Major Object	FY2019 General Fund Reduction	EFFECT ON FY2019 STATE SUPPORT SPECIAL FUNDS	EFFECT ON FY2019 FEDERAL FUNDS	EFFECT ON FY2019 OTHER SPECIAL FUNDS	TOTAL 3% REDUCTIONS
SALARIES, WAGES, FRINGE					
TRAVEL					
CONTRACTUAL					
COMMODITIES					
OTHER THAN EQUIPMENT					
EQUIPMENT					
VEHICLES					
WIRELESS COMM. DEVS.					
SUBSIDIES, LOANS, ETC	(10,711)				(10,711)
TOTALS	(10,711)				(10,711)

Organizational Chart for the Mississippi Water Resources Research Institute



Agency Revenue Source Report - FY2018 Data

As Required by HB 831, 2015 Legislative Session

And SB 2387, 2016 Legislative Session

Agency Name MS State University - Water Resources Research institute

Budget Year FY2018

State Support Sources Amount Received
 General Funds 357,031

State Support Special Funds: Amount Received

Education Enhancement Funds	
Health Care Expendable Funds	
Tobacco Control Funds	
Capital Expense Funds	
Budget Contingency Funds	
Working Cash Stabilization Reserve Funds	

List all Federal Funds at its most specific level, such as an office or division, include name of grant, grantor, not the federal department.

<u>Federal Funds</u>	Amount Received	Action or results promised in order to receive funds
Federal Fund #1	Fund Summaries should be available October 1, 2018	
Federal Fund #2		
Description of any Maintenance of Effort agreements entered into with any federal agency or subdivision thereof		

Special Funds Amount Received

Special Fund #1	
Special Fund #2	

Add Rows for Additional Special Funds

Revenue from Tax, Fine or Fee Assessed

Tax, Fine or Fee #1	Amount Assessed	NA
<i>Copy Entire Section to Add New Item</i>	Amount Collected	Fund Summaries should be available October 1, 2018
	Authority to Collect	
	Method of Determining Assessment	N/A
	Method of Collection	
	Amt. & Purpose for which Expended	

Amount	Purpose
Fund Summaries should be available October 1, 2018	

Amount Transferred to General Fund	
Authority for Transfer to General Fund	
Amount Transferred to Another Entity	
Authority for Transfer to Other Entity	
Name of Other Entity	
Fiscal Year-Ending Balance	