Workplan for SWIFR Grant Program for States & Territories from Iowa Department of Natural Resources

Revised 07-18-2023

State/Territory Points of Contact:

Name	Jennifer Wright
Title	Public Service Manager-Financial & Business Assistance
Phone	515-452-1794
Email	Jennifer.Wright@dnr.iowa.gov
Address	Wallace Building, 502 E. 9th St., Des Moines IA 50319

Name	Laurie Rasmus
Title	Program Planner-Financial & Business Assistance
Phone	515-474-4921
Email	Jennifer.Wright@dnr.iowa.gov
Address	Wallace Building, 502 E. 9th St., Des Moines IA 50319

Total Amount Requested: $511,502.00

Period of Performance: October 1, 2023 through September 30, 2026

Section 1. Project Summary and Overall Approach

Summary Statement: EPA's Solid Waste Infrastructure for Recycling (SWIFR) grants for states and territories will fund activities that support long-term planning and data collection needs to demonstrate progress toward the National Recycling Goal and Food Loss and Waste Reduction Goal and advance a Circular Economy for materials, as well as support the state-led implementation of plans to advance post-consumer materials management. The purpose of this award is to enhance Iowa's efforts to meet the SWIFR grants elements. Iowa Department of Natural Resources (DNR) will: 1) Develop a study for reducing food loss and decreasing the amount of food disposed in landfills; 2) Complete life cycle assessments on materials that may be diverted from landfill disposal through established programs or processes that are readily available and conduct an analysis to support decision making; and 3) Measure the recovery rate and redemption rate for deposit eligible beverage containers.

A. BACKGROUND:

Description of Existing Program:

1. Legislation in place that mandates solid waste management planning includes the following chapters of Iowa Code: 455B Jurisdiction of Department of Natural Resources; 455C Beverage Containers Control; 455D Waste Volume Reduction and Recycling; and 455E Groundwater

Protection. Iowa established the following waste management hierarchy (455B.301A) in descending order of preference, as a solid waste management policy of the state: Volume reduction at the source; recycling and reuse; waste conversion technologies; combustion with energy recover; and other approved techniques of solid waste management including but not limited to combustion for waste disposal and disposal in sanitary landfills. Iowa's state policies for waste volume reduction (455D.4) include: Encouraging local programs and education through incentives, technical assistance and grants; supporting and encouraging the development of new uses and markets for recycled goods; providing education in schools and through community organizations; and supporting and encouraging manufacturing methods that are environmentally sustainable and enhance waste reduction. Although not a mandate, Iowa established goals to reduce the amount of materials in the waste stream by 25% and then 50%, as compared to a 1988 baseline (455D.3).

2. Depth and breadth of a state's data collection efforts:
    a. Municipal solid waste: Iowa landfills report tonnages on a quarterly basis. These reports account for the total disposed but do not give a breakout between types, such as municipal solid waste (MSW) and special wastes. DNR has conducted five (5) material characterization studies since 1998 to better understand the types of MSW materials that are being landfilled. These studies provide slices of data that are limited to municipal solid waste that is disposed of in landfills.
    b. Waste reduction and diversion: Iowa does not have an accurate means of collecting data for material diverted from landfills by means of source reduction, recycling, composting, reuse and other methods. Pieces of the data set can be gained from the following items.
        i. Calculated diversion rates for the State's 44 solid waste management planning areas. Since diversion is not actually measured, the calculation relies on factors including tonnage of waste disposed of, population, number of jobs, sales tax revenue and the consumer price index as compared to a base year, which is 1988 for most planning areas. A comparison of calculated diversion rates over time, provide an indication of trends but does not reveal actual diversion rates.
        ii. Reports of material exchanges reported by the Iowa Waste Exchange – a no-cost, non-regulatory, confidential service provider that matches byproducts and wastes from producers with others interested in using or recycling those materials. The Iowa Waste Exchange maintains a database of materials that are available and of materials diverted.
        iii. Reports pertaining to the "Iowa Bottle Bill" that applies to bottles and cans for carbonated beverages, beer, wine and alcohol in which a 5-cent deposit is paid by the consumer. Empty bottles and cans that are delivered to an accepting site for redemption are accounted for. However, reports do not account for redeemable containers that are disposed of or directly recycled without going through a redemption center.
        iv. Reports from the entities that have received grant awards through the DNR's Solid Waste Alternatives Program that also includes the Derelict Building Grant Program and Solid Waste Environmental Management System Grant Program.

Grantees typically report diversion for their individual grant project for approximately the 12-month period following grant project implementation.

3. When the state's solid waste management plan or waste characterization report was last updated: For the most part, policies for the state's waste reduction efforts were established with the Iowa Solid Waste Comprehensive Planning program in 1988. During this time, Iowa determined its statewide waste generation rate and calculated a state-average waste diversion rate. This baseline continues to be used to evaluate progress towards the State's waste reduction goals. Iowa's characterization report for municipal solid waste was last updated in 2022.
4. Available resources for implementing a solid waste management program (e.g., budget and personnel): A tonnage fee is collected for municipal solid waste that is disposed of in Iowa's landfills (455B.310). The rate that is collected at individual landfills is based on the local planning area's calculated diversion rate. Planning areas with higher calculated diversion rates are rewarded with lower tonnage fee rates. A portion, varying between $1.30 to $1.55 per ton, is retained by the landfill for local waste reduction, recycling, and pollution prevention purposes. The remaining portion, which varies between $1.95 to $3.30 per ton, is remitted to DNR (455B.310) and then distributed (455E.11) to various state agencies and programs.
   The Iowa Department of Natural Resources total solid waste (TSW) estimated annual budget is $8.65 million. Of the total revenue, $8.2 million is generated from solid waste tipping fees with the remaining $450,000 provided from grants received by EPA for the Pollution Prevention (P2) program. Budget expenses are comprised of $2.2 million for personnel/overhead and $6.45 million for programming. Expenses in the total solid waste budget include the following categories:
   - $3 million for Iowa DNR solid waste operations – includes permitting and other regulatory activities
   - $2.4 million for the Solid Waste Alternatives Program – includes grants/financial assistance for projects diverting materials from landfills, program support for the Derelict Building Grant Program, Environmental Management System Program, and contractual services for materials management planning/activities
   - $800,000 for hazardous materials management – includes grants and program support for 28 regional collection centers and 44 satellite facilities that collect/manage materials from households and very small quantity generators
   - $1 million for various activities – includes environmental consulting, technical assistance, training and education to Iowa business and organizations aiming to divert waste from Iowa landfills
   - $800,000 for the Pollution Prevention (P2) Services Program – providing technical assistance to Iowa businesses and organizations for reducing waste, such as energy and waste water, at the source
   - $600,00 for the Iowa Waste Exchange Program – a contract with Region XII Council of Governments to operate a statewide materials exchange program that diverts material from Iowa landfills
   - $50,000 for the Special Waste Authorization Program

The categories that are underlined in the above listing comprise the $4.8 million for the solid waste minimization/recycling (WMR) budget items that are within the $8.65 million total solid waste budget. The table below summarizes the budget.

Budget Category	Estimated Total Solid Waste (TSW), Including Waste Minimization /Recycling	Estimated Dedicated to Only Waste Minimization /Recycling (WMR)
Personnel (e.g., salaries, fringe, administrative/overhead)	$2,200,000	$900,000
Programmatic (e.g., contracts, grants given, other activities)	$6,000,000	$3,900,000
Grants Received	$450,000	$0
Total	$8,650,000	$4,800,000

5. Additional programmatic factors such as the level of environmental justice incorporated into a program , extent of focus on source reduction efforts, climate considerations, or the existence of other grant programs:
    a. Environmental justice: Iowa DNR is committed to incorporating concepts from environmental justice into DNR programs. Department-wide DNR initiatives, such as language access, are required by external civil rights laws, and are also responsive to environmental justice concerns. Beyond the civil rights-related measures, DNR currently addresses environmental justice on a program-by-program basis and is in the process of evaluating definitions and metrics for use on a department-wide basis. Incorporating concepts from environmental justice, DNR recognized that the impacts of Co-Vid19 and the existence of food deserts hit Iowa's disadvantaged communities the hardest. In response, DNR established an on-going food storage capacity grant program using funds from the Solid Waste Alternatives Program (SWAP). Likewise, to better serve Iowans in rural areas, DNR solicits applications for its Derelict Building Grant Program from cities of less than 5,000 in population. According to the definition for a disadvantaged community as described in the SWIFR Request for Applications, no less than 17% of Iowans reside within a disadvantaged community.
    b. Source reduction efforts: Source reduction is at the forefront of the waste management planning and programs within DNR including the Solid Waste Alternatives Program (SWAP). In addition to planning, SWAP funds are utilized to carry out programs that emphasize source reduction as the most preferred method for solid waste management. Among these programs are the following.
        i. Comprehensive Planning – every five years local solid waste planning areas submit a Plan Update for DNR review that includes a description of current programs and services for solid waste reduction as well as plans for the next future.
        ii. Derelict Building Program – a landfill diversion program to assist small cities in eliminating hazards posed by empty structures through rehabilitating, recycling and reusing building materials.
        iii. Solid Waste Environmental Management System (EMS) - an alternative voluntary program for solid waste planning areas and permitted facility service areas. EMS encourages responsible environmental management while promoting environmental

stewardship and continuous improvement including recycling and organics management.

c. Climate considerations: Per Iowa Code 455B.104, DNR annually estimates greenhouse gas (GHG) emissions and forecasts trends for statewide activity. The 2021 Iowa Statewide Greenhouse Gas Emissions Inventory Report states that the waste sector, which consists of reporting landfills and waste water treatment facilities, accounts for 2% of the State's overall emission but 10% of methane emissions. DNR recognizes that the disposal of organic materials in landfills largely contributes to these figures. Iowa's material characterization studies have consistently shown food waste as the most predominant material being landfilled. The development and implementation of a statewide organics management plan that emphasizes food loss reduction and recovery was identified by stakeholders in Iowa's sustainable materials management visioning process in 2022 as a key strategy.
d. Other grant programs: DNR offers a variety of financial assistance programs that promote waste reduction and recycling through its Financial and Business Assistance section including the following.
    i. Derelict Building Program – grant opportunities for small cities to address derelict buildings with projects that divert waste from landfills through recycling and reuse.
    ii. Solid Waste Alternatives Program – grants and no/low interest loans opportunities for any unit of local government, public or private group or individual to fund landfill diversion projects including source reduction, recycling and education.
    iii. Solid Waste Environmental Management System (EMS) – grants to EMS program-participating local solid waste agencies that actively pursue objectives/targets to improve recycling services, household hazardous materials collection, organics management and other environmental program components.

B. ACTIVITIES, TIMELINE, AND MILESTONES:

Iowa DNR will perform the following activities that are further described in Section 3 and elsewhere in this document.

1. Develop a statewide food waste minimization and management study (Food Waste Study).
2. Determine and analyze the life cycle impacts of select materials and processes (Life Cycle Assessments Study).
3. Conduct an analysis of the State's recovery, redemption and recycling rates for deposit eligible beverage containers sold in the State and associated economic and environmental impacts (Deposit Container Recovery Analysis).

The objectives of this project are:

1. Advance the State's efforts to minimize upstream food loss and increase diversion of food waste from Iowa landfills.
2. Advance the State's efforts to progress towards a circular economy with a sustainable materials approach by using and reusing materials more productively.
3. Improve the State's recycling efforts for deposit eligible, single-use beverage containers.

Timeline/Milestones: Activities will be completed in FFYs 2024- 2026.

Eligible Activities/Use of Funding:

Outputs and Outcomes		
Possible Activities		**Measures/Estimated Quantities**
1	Develop/Update plan: Food Waste Study and Life Cycle Assessments Study	• Number of stakeholders and communities involved in the plan development or implementation (including number of stakeholders involved from disadvantaged communities) – all 44 Iowa planning areas • Number of plans developed or updated – 2 • Number of counties or territorial equivalents served by the plans – all 100 Iowa counties • Number of disadvantaged communities (as defined in this Guidance) served by the plan – 17% of Iowa's population • Number of temporary or permanent jobs created– 0
2	Develop and Enhance data collection and measurement for deposit eligible containers	• Tons of deposit eligible beverage containers (DEBCs) recovered – to be determined • Tons of DEBCs generated – to be determined • GHGs reduced (in MTCO2e) from collection, recycling, or management via other management pathways in the state for DEBCs – to be determined • Number of temporary or permanent jobs created from recycling DEBCs – to be determined
3	Implementation of Plan	Note: This is not an activity of this grant project.

Activities Narrative Table

Activities Narrative	Timeframe	Results of Activities (Outputs)	Projected Environmental or Programmatic Improvement (Outcomes)
Task 1: Cooperative Agreement (CA) Oversight			
Activity 1: Program Management and Supervision			
Supervise and manage the SWIFR grant to meet program goals. Conduct periodic project status meetings with staff to discuss project issues and priorities.	Ongoing annual activities	Performance Management Program (PMP) Evaluations	Maintain effective work force to meet work plan commitments
Submit semi-annual reports and fulfil other reporting requirements in a timely and accurate manner.	Semi-annually	Semi-annual reports	Improved implementation of SWIFR program, increased organization of information to better assist review
Activity 2: Cooperative Agreement Administration			
Ensure that work plan is developed in accordance with State and EPA policies. Ensure that budget and administrative aspects of application requests conform to State and EPA policies. Review new and revised CA agreement guidance and serve as a resource for staff.	Annually	CA work plans, budgets, and federal assistance forms	Effective CA applications, expedited processing, improved awareness of EPA guidance
Maintain current Quality Management Plan	Annually	Signed Quality Management Plan	Grant compliance
Administer project closeout activities.	Within 120 days of grant expiration	Final semi-annual performance report, financial status report	Project closeout
Activity 3: Cooperative Agreement Legal Assistance			
Review and provide interpretation of State laws and regulations to ensure effective implementation of the SWIFR program.	As necessary	Legal review	Improved implementation of the SWIFR program

Activities Narrative	Timeframe	Results of Activities (Outputs)	Projected Environmental or Programmatic Improvement (Outcomes)
Activity 4: Fiscal and Contract Management			
Track the status of deliverables for contracted projects	As projects progress through program	Semi-annual Report	Efficient contracting activity, ensure work plan commitments are met
Task 2: Program Enhancement			
Activity 1: Enhance Program			
Participate in meetings, conference calls, and other events with EPA and other states to exchange information regarding best practices, program updates, and the like.	As new learning opportunities occur	Identification of best practices	Established Networks for information exchanges
Evaluate perceived roadblocks to utilizing the SWIFR Program, reevaluate existing program and incorporate steps to streamline the program and increase its use. Institutionalize changes. Engage in dialogue with EPA regarding program changes.	Fiscal years 2024 - 2026	Updates to program	Increase use of the program
Task 3: Program Activities			
Activity 1: Develop a study to advance the reduction of food loss and increase food waste management			
Research and assess organics processing/ management, regulations and incentives of other states, regions and/or systems.	By Mar 2025	Contributes to: Food Waste Study	Contributes to items in Outcomes column of Outputs and Outcomes Table in Section 1 for corresponding activity.
Inventory and assess the State's existing infrastructure for food waste prevention and processing/management.	By Mar 2025	Contributes to: Food Waste Study	Contributes to items in Outcomes column of Outputs and Outcomes Table in Section 1 for corresponding activity.

Activities Narrative	Timeframe	Results of Activities (Outputs)	Projected Environmental or Programmatic Improvement (Outcomes)
Measure and assess food waste generation and its associated impacts.	By Feb 2026	Contributes to: Food Waste Study	Contributes to items in Outcomes column of Outputs and Outcomes Table in Section 1 for corresponding activity.
Identify gaps in the state's food waste minimization efforts and organics processing/management network and conduct a cost/benefit analysis for investing in activities and infrastructure for closing gaps.	By Aug 2026	Contributes to: Food Waste Study	Contributes to items in Outcomes column of Outputs and Outcomes Table in Section 1 for corresponding activity.
Activity 2: Develop a study of life cycle assessments to advance a circular economy			
Conduct life cycle assessments on select materials and processes	By Feb 2026	Contributes to: Life Cycle Assessments Study	Contributes to items in Outcomes column of Outputs and Outcomes Table in Section 1 for corresponding activity.
Analyze assessments and compare impacts	By Aug 2026	Contributes to: Life Cycle Assessments Study	Contributes to items in Outcomes column of Outputs and Outcomes Table in Section 1 for corresponding activity.
Activity 3: Develop and strengthen data collection efforts that demonstrate progress towards recovering redeemable containers			
Determine annual sales of beverages in redeemable containers	By Mar 2025	Contributes to: Develop and Enhance data collection and measurement	Contributes to items in Outcomes column of Outputs and Outcomes Table in Section 1 for corresponding activity.
Determine redemption rate and recovery rate of deposit eligible beverage containers	By Aug 2025	Contributes to: Develop and Enhance data collection and measurement	Contributes to items in Outcomes column of Outputs and Outcomes Table in Section 1 for corresponding activity.

C. ROLES AND RESPONSIBILITIES:
State of Iowa staff will be solely responsible for carrying out Task 1 Cooperative Agreement Oversight and Task 2 Program Enhancement.

For Task 3 Program Activities, covering the Food Waste Study, Life Cycle Assessments Study and Deposit Container Recovery Analysis, DNR staff will contract with consultants to complete the listed tasks. State of Iowa procurement requirements will be followed to select contractors. DNR staff will develop requests for proposals with a detailed scope of work, evaluate proposals received from potential contractors, seek department and State approvals for contractual expenses, negotiate contract conditions with the selected contractors and then execute agreements. DNR staff will provide guidance to and collaborate with the contractor as well as give final approval for contractual work.

D. MANDATORY ELEMENTS

1. The Mandatory Elements for Task 3 Activities 1 and 2, to develop or update plans to advance post-consumer materials management, are discussed below and in Sub-section A of Section 1 of this document.
    i. Current strategies and/or activities associated with post-consumer materials management in the state, including all materials in the municipal solid waste stream such as plastics, food waste, etc.
    Every city and county in Iowa provides integrated solid waste management consistent with the State's waste reduction and recycling goals, including the separation of paper, plastic, metal and glass for recycling. Source reduction efforts are described in Item 1 of Sub-section A of Section 1.
    ii. Current measurement and tracking capability and authority and identification of additional needs.
    Iowa measures and tracks tonnages of waste that is disposed in Iowa landfills. To estimate and better understand diversion efforts, DNR periodically conducts material characterization studies of MSW materials that are being landfilled. Five studies have been conducted since 1998 with the most recent in 2022.
    iii. Stakeholders who will play a role in meeting the objectives of the plan.
    Stakeholders include: 1) solid waste planning areas and/or their municipal or county members; 2) Iowa businesses, industries and public sector; and 3) members of professional organizations that have an interest in waste and/or recycling such as the Iowa Recycling Association, Iowa Composting Council and the Iowa Society of Solid Waste Operators .
    iv. Plan for addressing the needs of disadvantaged communities in the state.
    Environmental justice is described in Item 5 of Sub-section A in Section 1 of this document.
    v. Plan for making progress toward goals and/or targets.
    Grant timelines and deliverables will be entered into a spreadsheet, tracking all activities according to assigned due dates. Staff will adhere to established procedures for project management and timelines to ensure progress.

vi. Strategy for measuring and tracking progress consistent with the National Recycling Goal, and the Food Loss and Waste Reduction Goal.
Methods for measuring each of the stated outputs will be established at the beginning of the grant project. Periodic benchmarks will be recorded to track progress.

vii. Clear connection to circular economy, climate goals, and action plans.
The grant project will complement and be designed for consistency with DNR's existing efforts to advance Iowa to a circular economy through a sustainable materials management approach based on the findings and identified strategies in the following DNR reports. DNR does not have the capacity to address connection to the State's climate goals as part of the grant project.

- 2022 Iowa Statewide Material Characterization Study Report – summarizes the types and quantities of materials that are disposed of in Iowa's landfills. This report gives direction to the types of materials that could be recycled or otherwise diverted and will be addressed in the campaign.
- 2022 Phase II SMM Vision for Iowa Final Report – a summary of the stake-holder driven process to establish priorities for advancing Iowa towards a sustainable material management approach. This report identifies material types that are priorities for Iowa to address in the campaign and how to align the campaign with the reported short-term strategies.

viii. Administrative, legal, and/or financial needs or gaps that need to be addressed to meet goals and targets.
DNR does not foresee the need to address administrative, legal and/or financial needs or gaps to meet goals and targets.

ix. Strategy for including resiliency and natural disaster debris into plans by utilizing available guidance, such as EPA's Planning for Natural Disaster Debris Guidance.
DNR does not have the capacity to address this element as part of the grant project.

2. The Mandatory Elements for Task 3 Activity 3 to develop, strengthen, and/or implement comprehensive data collection efforts that demonstrate progress towards the National Recycling Goal and Food Loss and Waste Reduction Goal are described in Sub-section B of Section 3 of this document. Activity 3 entails the Deposit Container Recovery Analysis. The material to be measured is deposit eligible beverage containers under Iowa's Beverage Control Act. Measurements will be expressed as percentages for redemption, recovery and recycling rates. Rates will be calculated with multiple inputs, including data from various state economic reports, Container Recycling Institute's beverage market data analysis reports, and the 2022 Iowa Statewide Material Characterization Study Report.

Section 2: Programmatic Priorities and Strategic Plan Goals

The activities described in this workplan support the grant Programmatic Priorities and EPA's FY 2022-2026 Strategic Plan:

- Goal 1: Tackle Climate Change,
  - Objective 1.1: Reduce Emissions that Cause Climate Change,
- Goal 6: Safeguard and Revitalize Communities,

- Objective 6.2: Reduce Waste and Prevent Environmental Contamination.

The Food Waste Study supports the grant Programmatic Priority to reduce emissions that cause climate change. Greenhouse gas (GHG) emissions that are generated to produce, process, transport, prepare and store food that is then wasted could be avoided by reducing food waste. GHG emissions can also be avoided by diverting wasted food from disposal in a landfill to a more sustainable management method, such as composting or digestion. The Food Waste Study will advance the reduction of food loss and increase food waste management in the State.

The Life Cycle Assessments Study also support the grant Programmatic Priority to reduce emissions that cause climate change. By understanding how to more productively use and reuse materials throughout their entire life cycles, GHG emissions can be reduced.

The Deposit Container Recovery Analysis supports the Programmatic Priority to reduce waste and prevent environmental contamination. By increasing the recovery of redeemable beverage containers, these materials are diverted from landfill disposal or becoming litter and instead, recovered for recycling. The Deposit Container Recovery Analysis will develop and strengthen data collection efforts that demonstrate progress towards recovering redeemable containers.

Section 3. Environmental Results—Outputs and Outcomes

A. DNR is proposing to study Iowa's food loss reduction efforts and systems for managing food waste to advance the reduction of food loss and increase food waste management. The Food Waste Study will be a resource for DNR, food producers, processors, distributors, food service companies, institutions that provide food services, food pantries, and organics management facilities such as compost sites and digestors. The main focus areas of the study will be wasted food prevention, wasted food measurement, infrastructure and messaging. The Food Waste Study Report will describe the following items in terms of accessibility, efficiency, economic impacts and environmental impacts, including GHG emissions.
    - A summary and assessment of findings from researching food waste management in other states, systems and areas.
    - An inventory of the existing food waste prevention and processing/management systems in Iowa including regulations, generation, processing/management methods/options, infrastructure and transportation.
    - A gap analysis with stakeholder involvement of the existing food waste management system compared to recommendations from the study.

    An important outcome of the Food Waste Study will be the recommended solutions from the gap analysis. DNR anticipates that recommended solutions will include developing a framework for enhanced data collection, improving and expanding infrastructure and developing a message plan to motivate behaviors that prevent/reduce wasting food.

A. DNR is proposing to conduct an analysis of deposit container recovery to develop and strengthen data collection efforts that demonstrate progress towards recovering redeemable containers. The

Deposit Container Recovery Analysis will include calculations for the recovery, redemption and recycling rates of deposit eligible beverage containers (PET, aluminum, glass). As funds allocated to this activity allow, rates for single-use beverage containers that are not covered under the Beverage Control Act may also be determined. The analysis will include a report of associated economic impacts, such as number of jobs, and environmental impacts, including GHG generation and water usage, resulting from returning beverage container materials to the marketplace through recycling of the recovered containers. This data and analysis will benefit DNR, beverage producers, distributors, retailers, redemption centers, recycling facilities and organizations dedicated to reducing litter.

B. DNR is proposing to advance the State's efforts towards a circular economy with a sustainable materials management approach by conducting life cycle assessments on materials that may be diverted from landfill disposal through established programs or processes that are readily available and then conducting an analysis to better understand how materials can be used and reused more productively. Material selection will be based on stakeholder priorities that were reported in the 2022 Phase II SMM Vision for Iowa Final Report and materials that were most predominantly landfilled as measured in the 2022 Iowa Statewide Material Characterization Study Report. As applicable, existing data, calculators and tools will be utilized to conduct life cycle assessments that may be adapted to Iowa's processes and systems. As needed, tools and calculators may be developed as part of the project. The assessments will quantify the impacts of individual materials, products and processes using environmental, human health and/or economic factors, such as GHG emissions and financial costs/savings. The Life Cycle Assessment Study will result in a library of assessments that will be open for use. The study's analysis will support decision making for Iowa's businesses and manufacturers as well as public agencies and material processors.

Section 4. Budget Narrative

Proposed Budget

	Task 1: ***Cooperative Agreement Oversight***	**Task 2:** ***Program Enhancement***	**Task 3:** ***Program Activities***	**Total**
Personnel				
Fringe ([%]				
Travel				
Equipment				
Supplies				
Contractual			$511,502.00	$511,502.00
Other				
Indirect				
TOTAL			**$511,502.00**	**$511,502.00**

Budget Description

Grant funding will be used for contractual expenses. An estimation of contractual costs for the 3-year grant period is summarized in the following table.

Budget Summary	**Amount**
Contractual expenses – Task 3, Activity 1: Food Waste Study	[redacted]
Contractual expenses – Task 3, Activity 2: Life Cycle Assessments Study	[redacted]
Contractual expenses – Task 3, Activity 3: Deposit Container Recovery Analysis	[redacted]
TOTAL	**$511,502.00**

Beyond grant funds, DNR will contribute significant staff time for this project that is not reflected in the budget.