

**Comprehensive
Solid Waste Management Plan
For
Cedar County Solid Waste Commission
Clinton County Area Solid Waste Agency
Waste Authority of Jackson County
Muscatine County Solid Waste Management Agency
Waste Commission of Scott County
2023**



Prepared in cooperation with



May 2023

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PREFACE

The *Comprehensive Solid Waste Management Plan 2023 for Cedar County Solid Waste Commission, Clinton County Area Solid Waste Agency, Waste Authority of Jackson County, Muscatine County Solid Waste Management Agency, and Waste Commission of Scott County*, hereafter referred to as “Comprehensive Plan 2023,” is organized in an outline format to coincide with the “Comprehensive Solid Waste Management Plan: Update (Sample Outline)” dated (TBA). The format is anticipated to allow the reader to quickly reference existing data, public participation and involvement, progress toward meeting goals, and the ten-year implementation timeline. Some information is part of an on-line website where the information has been updated through the Iowa Department of Natural Resources to provide public viewing of its content. The remaining parts of this plan are provided in written format as part of this document. The plan is a coordinated effort and authored cooperatively by the five planning area 28E agencies/commissions and Bi-State Regional Commission.

The planning area includes five 28E agencies/commissions established for managing waste for their members’ cities and counties in Cedar, Clinton, Jackson, Muscatine, and Scott Counties, Iowa, including Cedar County Solid Waste Commission, Clinton County Area Solid Waste Agency, Waste Authority of Jackson County, Muscatine County Solid Waste Management Agency, and Waste Commission of Scott County. Only counties or city governments participating in any one of these 28E agencies/commissions will be included in this subsequent plan. Amendments to the service area will be considered only if these criteria are met. Private agencies are not part of any of the 28E agencies/commissions that participate in the Comprehensive Plan 2023.

The Comprehensive Plan 2023 for the planning area is the seventh update since the original plan of 1990. The planning area includes the Iowa Counties mentioned above. This Comprehensive Plan 2023 for the planning area is being conducted in accordance with the Iowa Code, 567, Environmental Protection, Chapter 101, General Requirements Relating to Solid Waste Management and Disposal, Section 5(7), Subsequent Plans.

Until this plan update, the planning area had surpassed the 25 percent recycling and reduction goal of 1994 and had continued its effort to achieve the 50 percent recycling and reduction goal of 2000. Unfortunately, there have been changes in world conditions, including natural disasters and a global pandemic that have had trickle down impacts on solid waste management in the planning area. This includes inflation and increased waste disposal despite existing waste reduction programs. With the pandemic, business closures, shifts to work/school from home, and retrofitting home offices for these circumstances changed where employees worked and school children learned, and where they disposed of their waste from these activities. An example during the pandemic was the increased use of disposal items from food service carryout to personal protective items, such as gloves and masks. Home remodeling also generated waste disposal changes.

While the goals have historically been achieved in the planning area through proactive development of an integrated solid waste management system, the planning area was not prepared to address significant, rapid change in national and global conditions that affected the waste stream regionally based on its existing efforts. The planning area achieved the July 1, 1997 deadline for minimum collection provisions for glass, plastic, paper, and metals. According to the Iowa Department of Natural Resources (DNR), the planning area’s CY2015 goal progress was calculated as 43.25% using the baseline tonnage data. In CY 2022, the DNR calculated the planning area’s goal progress as 16.83%. Total waste disposal in CY2015 was 242,584 tons, and in CY2022 it was 307,972 tons, a difference of 65,388 tons. As perspective between 2015 and 2022, population increased by 2,000 people during this period, and employment increased by 8,000. These are relatively modest increases in contrast to the calculated reduction in goal progress. The planning area solid waste coordinators held meetings with the DNR regarding the calculation and would suggest that it is an anomaly based on the formula.

For example, Waste Commission of Scott County evaluated a brief comparison of the waste received in the 1988 base year compared to 2022. In 1988 the landfill did not receive auto shredder residue because it went to the shredder’s landfill that has since closed. The Commission also started a solidification program and receives more residue from the recycling center due to the increased tonnage from eastern Iowa and western Illinois. These three

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waste streams alone would bring the planning area diversion rate to 42.96%. Spending time or money pursuing waste changes does not drive progress. However, the area understands it will reflect a penalty and increase tipping fees in the area until the next goal progress can be calculated.

It is important to note that solid waste generated in the planning area but direct-hauled out of state for disposal has not been included in the calculation. This is consistent with previous plan update submittals. In the future, every effort will continue to be made toward achieving the 50 percent goal in a fiscally-responsible manner.

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VISION, MISSION, AND GOALS

Planning evaluates existing accomplishments, current needs, and future strategies to serve needs based on a vision, mission, and framework of goals determined by the planning area. The planning area has steadily worked toward a vision of an integrated solid waste management system. The planning areas' mission is to meet the State of Iowa waste reduction goals, the state's hierarchy of waste management priorities, and the regional planning goals.

The planning area goals call for the following:

- 1) A combination of planning area and county-by-county source reduction and public education programs
- 2) Regional collection centers for household hazardous material
- 3) County-by-county composting (yard waste, in combination with bio-solids, and/or mixed municipal waste where economically feasible)
- 4) County-by-county transfer stations where economically feasible;
- 5) County-by-county material recovery facilities for commingled recyclables, if feasible
- 6) County-by-county landfills, if economically and politically beneficial
- 7) Planning area waste-to-energy (WTE) facility if feasible

The State of Iowa's goal to achieve 25 percent recycling and reduction by 1994 has not been achieved in the planning area as a result of changing economic conditions, waste handling at the boards, and impacts due to the COVID-19 pandemic and disaster material not discounted. While a number of landfills and transfer stations see a reduction in volumes while continuing waste reduction programs, efforts to maintain or exceed state target level remains a priority, and new ways of identifying success will need to be investigated along with adapting to the changing conditions. In the planning area, at minimum, provisions for the collection of glass, plastic, paper, and metal obligated by the State of Iowa by July 1, 1997 has already been achieved. Every effort will be made toward the 50 percent goal within fiscally-constrained parameters. In the planning area, Scott County participates in the Environmental Management System (EMS) for continuous monitoring of waste reduction opportunities, and Muscatine County's application was accepted into the program.

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I. Planning Area Changes: 101.12(2)"a"

1.1. Permanent Changes in the Planning Area

There have been no permanent changes in the planning area since the last plan update that have resulted in measurable changes in the waste stream.

1.2. Planning Area Description

The Planning Area Description includes participating communities and counties in Cedar, Clinton, Jackson, Muscatine, and Scott Counties.

The Comprehensive Plan 2023 includes the five 28E agencies/commissions established for waste management and their members cities and counties in Cedar, Clinton, Jackson, Muscatine, and Scott Counties, Iowa including Cedar County Solid Waste Commission, Clinton County Area Solid Waste Agency, Waste Authority of Jackson County, Muscatine County Solid Waste Management Agency, and Waste Commission of Scott County. Only counties or city governments participating in any one of these 28E agencies/commissions will be included in the Comprehensive Plan 2023. Amendments to the service area will be considered only if these criteria are met. Private agencies are not part of any of the 28E agencies/commissions that participate in the Comprehensive Plan 2023.

1.3. Planning Area Contacts

The Planning Area Contact is Bi-State Regional Commission, 1504 Third Avenue, Rock Island, Illinois. Phone: 309-793-6300. The agency coordinates the solid waste plan update with the respective counties. The current staff contact is Gena McCullough, Assistant Executive/Planning Director, at extension 1146. Permitted facility contacts are in the DNR online database at the link noted in 1.4.

1.4. Permitted Facilities in Planning Area

The Permitted Facilities in the planning area are on-line under the Bi-State Planning Area at <https://programs.iowadnr.gov/solidwaste/reports/facilitiesdirectory>. The information is contained in Appendix A of the printed document for public reference.

The Waste Commission of Scott County operates a material recovery facility (MRF) where recyclable material is collected and processed. The facility, called the Scott Area Recycling Center, is located at 5640 Carey Avenue in Davenport. The service area for the Scott Area Recycling Center includes Bettendorf, Blue Grass, Buffalo, Davenport, Dixon, Donahue, Eldridge, LeClaire, Long Grove, Maysville, McCausland, New Liberty, Panorama Park, Princeton, Riverdale, Walcott, and Scott County. Material is accepted on a contract basis by request from outside of the service area.

1.5. Planning Area Boards and Members

The Planning Area Boards in the planning area are available on the respective agency websites or on request. The information pertains to public and private agencies that play an active, on-going role in the planning area's integrated solid waste management system.

II. Evidence of Cooperation: 101.12(2)"b"

2.1. Resolutions from Participating 28E Agencies/Commissions

Resolutions from the participating 28E agencies/commissions are contained in Appendix B of the printed document for public reference as well as agendas from these meetings where the resolution was considered

2.2. Copies of Contracts and 28E Agreements That Have Changed

No 28E Agreements have changed since the 2016 update.

III. Public Participation 101.12(2)"c"

3.1. On-Going Participation Strategies

In the planning area, the 28E agencies/commissions continue to maintain a commitment to public participation in their respective counties. All the meetings are open to the public, and minutes from these meetings are available for review on request. Public comment is a portion of every meeting that provides a forum for ongoing comments to the Comprehensive Plan 2023 and the integrated solid waste management system. Public input is also encouraged at presentations, tours, open house events, and environmental fairs.

Additionally, the planning area holds periodic meetings of the solid waste coordinators, inviting participation from the City of Dubuque/Dubuque Metropolitan Area Solid Waste Agency, East Central Intergovernmental Association (ECIA), Bi-State Regional Commission, and the Iowa Waste Exchange. The staff level meetings allow the planning area to network and coordinate activities and education/input strategies when beneficial to improve service delivery throughout the planning area. During the pandemic, meetings were suspended, but individual agencies through their established relationships maintained contact for information sharing.

3.2. Public Meetings Held for Plan Development

A minimum of two public meetings must be held during the development of the plan update. To maximize input, each of the four counties addressed the planning process and plan update development at their respective Board meetings. Boards' meetings in the planning area are publicized in a variety of ways including posting agendas in a designated location, public meeting notices in print media, board and 28E member mailings, and website calendar postings. Planning area solid waste coordinators met in May, September, October, and November 2022, and May 2023 to discuss solid waste plan diversion progress and the plan update.

3.3. Public Information Regarding Online Updates

Data submitted on-line were referenced from the Iowa DNR website's database on permitted facilities. This information is publicly available and searchable. The comprehensive plan database includes plan updates submitted by planning areas, DNR issued letters, waste flow tracking, etc. It can be found at <https://programs.iowadnr.gov/documentsearch/Home/OTCSSearch>. Another database, called the Solid Waste database that has tonnage reports, permit information and is more facility-centered and can be found at: <https://programs.iowadnr.gov/solidwaste/>.

3.4. Public Review Meetings

Two regional public meetings for the Comprehensive Plan 2023, using an open-house format, was made available to the public. The in-person meeting was held at the Eastern Branch of the Davenport Public Library in Davenport, Iowa on Tuesday, May 30, 2023 from 1:00 to 2:30 p.m. A second virtual meeting was held Wednesday, May 31, 2023 from 12:00 to 1:30 p.m. Written public comments were accepted at the in person meeting, and comments were recorded at the virtual meeting. [TBA-**No public comments were received at the open house.**] The plan update was available for review, and solid waste coordinators were available for questions during the open house. In addition to the regional opportunity for comments, each 28E agency/commission also accepted comments at their respective board meetings; however no public comments were made. Meeting minutes from the respective 28E agency/commission will be available for public review

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via the 28E agency websites or on request. Documentation of these opportunities is provided in Appendix B for Evidence of Cooperation where the resolutions adopting the plan are located.

IV. Baseline Waste Stream Report 101-12(2)"d"

The solid waste plan base year is 1988. Base year total waste disposal was 331,470 tons. According to the Iowa Department of Natural Resources letter dated September 13, 2011, the planning area’s FY 2010 goal progress was calculated as 40.36% using the baseline tonnage data. It is important to note that solid waste generated in the planning area but direct-hauled out of state for disposal has not been included in the calculation. This is consistent with previous plan update submittals. The department completed goal progress calculations for the most current fiscal year data (FY2022) set upon submittal of Comprehensive Plan 2023.

V. Changes in Area Demographics: 101.12(2)"e"

The 2020 Census Bureau population figures for the planning area totaled 300,234. Scott County has the highest population per county at 171,387, while Cedar County has the lowest population per county at 18,411. Between base year 1988 and 2020, Clinton, and Jackson Counties lost population while Cedar, Muscatine, and Scott Counties gained population. The total increase in population between 2010 and 2020 was 17,084. The growth rate between 1988 and 2020 was a 6.0% increase in 35 years.

The 2022 Iowa Department of Workforce Development employment figure for the planning area totaled 140,295, compared to 113,248 in the 1988 base year employment. In the planning area, top employers include community school districts, medical-related facilities, manufacturers, processors, distributors, large retailers, and utilities. Scott and Muscatine Counties have employers with more than 1,000 employees, and Clinton County has employers with more than 500 employees.

According to the 2014 U.S. Census, annual new, privately-owned residential building permits increased from 405 in 2009 to 503 in 2014, and reported in the last plan update. In 2015, the privately-owned residential building permits were 465. The highest single year for permits was 2019 with 627 permits, and in 2021 the lowest totaled 455 permits. New private housing permits in the planning area totaled 482 in 2022. The increase in new construction and remodeling were observed to have a general impact on waste generated in the planning area and the resulting landfilling of waste.

VI. Waste Composition & Generation: 101.12(2)"f"

6.1. Changes in Waste Stream Generation since the Last Approved Plan

Composition by waste generator examines the producer of the waste whether it is residential, commercial, and/or industrial. Using FY 2022 data for the planning area, and the 2022 Iowa Statewide Material Characterization Study, waste disposal in the planning area has increased since CY 2015 from 242,584 tons. The increase is approximately 26.95% or roughly 65,388 tons from FY 2015 waste total for the planning area. The estimated percentages of tonnage (FY 2022) for residential, and institutional/commercial/industrial (ICI) sectors waste is as follows:

<u>Waste Sector</u>	<u>Percentage</u>	<u>Approximate Tonnage</u>
Residential	49 percent	150,906 tons
ICI	<u>51 percent</u>	<u>157,066 tons</u>
Totals	100 percent	307,972 tons

When compared to percentages from the Iowa Statewide Material Characterization Study, average by surveyed landfill facilities represented 70 percent residential waste and 30% institutional/commercial/industrial waste. The table above shows that the planning area differs from the state average.

6.2. Changes in Waste Composition since the Last Approved Plan

The Waste Commission of Scott County participated in the 2011, 2017, and 2022 Waste Characterization Studies conducted by the Iowa DNR. Results of the 2022 study can be found on the Iowa DNR's website: <https://www.iowadnr.gov/About-DNR/DNR-News-Releases/ArticleID/4264/2022-Statewide-Materials-Characterization-Study-now-available>. Paper, organics, and plastics were the most landfilled materials by weight. The top three landfilled materials in the overall statewide composition were food waste, plastic film, and old corrugated cardboard/kraft paper.

6.3. Effects of Anticipated Planning Area Modifications

The planning area does not predict significant revisions to its waste stream composition in the next five years based on population and employment trends. Although population growth has been realized in the past decade, the trends indicate relatively flat population growth in the next five years. The Quad Cities Chamber of Commerce, representing the greater metropolitan area, released results of a targeted industries analysis in June 2015 and maintains the information, posted to its website at: <https://quadcitieschamber.com/economic-development/target-industries>. The chamber is expected to focus future development strategies on the following industries: Advanced Metals and Materials, Agricultural Innovation, Corporate Operations and Support Services, Defense, and Logistics. Based on these industries, there may be an ability to target specific waste stream components in the future. Further review of the state's waste characterization study related to the commercial and industry sector would be needed, and efforts to partner with the local Iowa Waste Exchange would continue to be pursued. For businesses, paper, organics, construction/demolition, and plastics represented the largest amount of materials in the waste stream.

No revisions to the service area are anticipated. On review of prior plan data, there appears to be a shift from institutional/commercial/industrial section to residential section in the waste composition by generator. The planning area anticipates few demographic and employment changes in the next five years, and no significant changes are projected in the waste composition by generator. Driving forces that may change this could include changes in technology, continued inflation and economic disruptions, increased natural disasters due to storms and flooding, and another global pandemic. Changes in waste composition by material since the 2017 waste characterization study showed decreases in paper, glass, organics, plastics, but increases in metal (beverage containers), construction/ demolition debris, and consumer products (electronics/appliances). These trends are projected to continue in the next five years related to waste composition by material. Illustrating successes in recycling decreasing material items as compared to the others where fewer alternatives may exist to recycle those materials, as well as consumer desire for the products made of these materials.. With the push for vehicle electrification, there is concern for adequate disposal/recycling capacity for batteries. The planning area will continue to monitor technology transitions and its effects on the solid waste management system.

VII. Existing Integrated Solid Waste Management System Description

7.1. Municipal Survey

As of Round 8 for Comprehensive Planning, municipal surveys were no longer a requirement as part of the plan update.

7.2. Recycling and Waste Collection Systems

The Recycling and Waste Collection Systems in the planning area represents municipal garbage collection, including program funding and hauling issues. Programs for funding municipal waste collection may include unit-based pricing as one method of paying for collection service. Municipal recycling and waste collection are supported by licensing, franchises, ordinances, subsidies, contracts, etc. Appendix A notes whether a municipality participates in a 28E agreement with a solid waste agency.

7.3. Recycling and Waste Haulers

Recycling and waste haulers are not required to have permits unless they are waste tire haulers. Hauler information is collected by the disposal facilities based on their customer accounts.

7.4. Residential Recycling

The residential recycling in the planning area is provided through municipal recycling opportunities, either by curbside or drop-off programs. The information is no longer collected by the DNR, and is not a plan requirement.

7.5. Commercial Recycling

Data on commercial recycling is no longer collected by DNR. Limited information is available through the planning area.

7.6. Diverted Materials Collection

Other diverted materials within the region include electronics and household hazardous materials.

7.7. Yard Waste Management Programs

City yard waste management sites are registered with the DNR. Private yard waste management sites must meet all requirements under Iowa Administrative Code Chapter 105. Burning is not supported in the planning area as a yard waste management method. There are a number of communities within the planning area that have implemented burn bans to improve local air quality. Yard waste processing varies in the planning area from low-technology static piles to high-technology composting facility that includes yard waste and biosolids. The City of Davenport operates a compost facility to manage yard waste, brush, and bio-solids.

7.8. Material Specific Initiatives

Banned material information or materials requiring special processing, such as household hazardous materials and household appliances, in the planning area are submitted electronically on-line under existing programs. The following describes strategies used to promote recycling of banned materials in the planning area.

7.8.1. Waste Motor Oil

Waste or used motor oil is accepted free from residents through the Regional Collection Centers programs and/or transfer stations or landfills in the planning area. Charges may apply to some businesses and vary by county in the planning area. A multi-media approach for educating residents about proper disposal options is used, such as websites, resource guides, newsletters, facility tours, public service announcements, and/or paid advertisements and media releases. Drop-off locations are also listed in an Iowa DNR statewide publication that is promoted in the planning area as a resource. The planning area collected over 233,840 pounds of bulk used motor oil and over 4,846 pounds of used

oil filters in CY 2022.

7.8.2. Lead-Acid Batteries/Other Batteries

Lead-acid batteries are accepted through the Regional Collection Centers programs and/or transfer stations or landfills in the planning area. They are accepted for drop-off when new lead-acid batteries are purchased at some local service stations and specialty battery stores in the planning area. A multi-media approach for educating residents about proper disposal options is used, such as websites, resource guides, newsletters, facility tours, public service announcements, and/or paid advertisements and media releases. In CY 2022, the planning area collected nearly 75,851 pounds of lead-acid batteries, and 23,987 pounds of other batteries.

7.8.3. Waste Tires

A multi-media approach for educating residents about proper disposal options for waste tires was used, such as websites, resource guides, newsletters, facility tours, public service announcements, and/or paid advertisements and media releases. Educational materials and messages are continuing to be utilized. Waste tires are collected at the landfill locations in Clinton and Scott Counties and at the transfer stations in Cedar, Jackson, and Muscatine Counties. The planning area collected 707 tons of waste tires in CY 2022.

7.8.4. Household appliances

Household appliances or used appliances are accepted at the publicly-operated transfer stations and landfills in the planning area. The planning area has complied fully with the new appliance de-manufacturing rules. The Waste Commission of Scott County and the Clinton County Area Solid Waste Agency have received appliance de-manufacturing permits that allow for on-site removal of Freon, PCB-containing capacitors, mercury switches, and other hazardous components. Clinton County processes all appliances delivered to the Jackson County Transfer Station and transported to Clinton County. The remaining planning area members collect appliances and contract with contractors that are properly approved for processing of appliances. Freon, mercury, and metal are recycled. The remaining hazardous components are shipped to a hazardous waste contractor. In CY202, 8,897 appliances compared to 4,222 appliances in FY2015 were accepted and properly managed by the planning area. A multi-media approach for educating residents about proper disposal options is used, such as websites, resource guides, social media, newsletters, facility tours, public service announcements, and/or paid advertisements and media releases.

7.8.5. Yard Waste

The planning area has provided for the proper management of yard waste through collection, drop-off, and backyard composting programs. To reiterate, city yard waste management sites are registered with the DNR. Private yard waste management sites must meet all requirements under Iowa Administrative Code Chapter 105. Burning is not supported in the planning area as a yard waste management method. There are a number of communities area-wide that have implemented burn bans to improve local air quality, and this trend is likely to continue in the future as air quality continues to be a focal point within the planning area. Yard waste processing varies in the planning area from low-technology static piles to a high-technology composting facility that includes yard waste and biosolids. A multi-media approach for educating residents about proper disposal

options is used, such as websites, resource guides, newsletters, facility tours, public service announcements, and/or paid advertisements and media releases.

7.8.6. Household Hazardous Materials (HHM)

The amount of HHM that has been collected from 11,961 customers equaled 560,408 pounds. Exchange programs that allow residents to take HHM that is still useable diverted 51,638 pounds in CY 2022. The Waste Commission of Scott County processes HHM collected in Scott County and Rock Island County, Illinois. The material collected in Muscatine and Louisa counties is also processed at the Household Hazardous Material Facility in Scott County. The Clinton County Area Solid Waste Agency processes HHM collected in Clinton, Cedar, and Jackson Counties.

7.9. Electronic Waste Materials

7.10. New Waste Reduction and Recycling Programs

The purpose of this section is to address programs implemented since the previous plan update of 2016 and discuss potential effects these programs may have on waste diversion within the planning area. They are identified below.

7.10.1. Single Sort Recycling

The Waste Commission of Scott County converted the Scott Area Recycling Center from dual stream to single stream recycling in August, 2016. Bettendorf and Davenport rolled out new 95 gallon carts using best practices from the Recycling Partnership. Since switching to single stream, Bettendorf and Davenport residents are recycling 60% more material than at dual stream. In the first year of operation, the facility recycled 15,800 tons of single stream material compared to 7,000 tons the last year at dual stream. Since the 2016 plan update, Cedar, Clinton, Jackson and Scott Counties have also shifted to single stream recycling.

In 2019 the Commission installed an optical sorter over the PET (water and pop bottles) line. The optical has performed extremely well, capturing an additional 150 tons of PET per year and reducing staff by 2 employees. Sorting positions, especially on second shift, have been very difficult to fill. Tonnage at the recycling center has increased to almost 39,000 tons per year. With the success of the first optical, the Commission is adding 4 additional opticals in the upcoming fiscal year. This will maximize processing capacity at the facility, increase recovered material, decrease contamination and reduce hard-to-hire sorting positions by 5 on each shift. All staff decreases will be through attrition.

7.10.2. Product Stewardship Institute

The Product Stewardship Institute, Inc. (PSI) was founded in 2000 to provide a unified voice and fiscal relief for state and local government on waste management issues. Local governments are the primary beneficiaries of the extended producer responsibility (EPR) efforts promoted by PSI. In addition, local governments play a critical role in the passage of state product stewardship legislation, galvanizing grassroots support and offering first-hand perspectives on product stewardship challenges and opportunities. Due to membership changes, the planning area is no longer a member, but does follow PSI information.

7.10.3. Environmental Management System

The Waste Commission of Scott County (Commission) is one of the flagship members of the Iowa DNR's Environmental Management System (EMS). Muscatine County received confirmation of acceptance in the EMS program in early 2023.

The EMS program and ISO 14001 (environmental standard) and ISO 45001 (health and safety standard) are structured so that members must show continuous improvement in six areas of focus: Environmental Education, Greenhouse Gas Reduction, Household Hazardous Materials Collection, Recycling Services, Water Quality Improvement, and Organics Management. In addition to these six component areas the Commission has voluntarily created two additional areas of focus: Data Security and Health and Safety. Since the last plan update, the Commission has embarked on over 60 different projects related to these eight component areas. The following is a brief set of highlights from the Commission's EMS work over the last five years.

7.10.3.1 Environmental Education

- **Environmental Education | Increase employee awareness of EMS (complete 2018) Metric:** Increase employee awareness of EMS Objectives and Targets by 20%. The Commission researched various content management systems, applied for a grant for a web-based system to assist in providing educational messaging, and purchased and installed 13 monitors/televisions for facilities. The Commission identified EMS messaging and implemented a plan to develop and display EMS content messaging on all facility monitors/televisions. The results after implementation of the Content Management System increased awareness of Commission-wide objectives and knowledge of EMS among all staff by 86%. Further messaging to maintain awareness will be developed and continue to be displayed throughout all facilities.
- **Environmental Education | Increase in customer awareness/participation (complete 2019) Metric:** Increased use and awareness of targeted programs by 20% comparing the year before single stream FY16 to FY18. Prior to single stream recycling, the Commission conducted a survey that led to the development of a communication plan to target specific programs and services and to identify maintenance messaging for residents on an on-going basis. A follow up survey was conducted in 2018 following the implementation of the communication plan and single stream program. Comparing the surveys exposed great results that included: Service rated as excellent/good, 2013: 90%, 2018: 94%; How often do you participate in recycling? Always, 2013: 60%, 2018: 69%; Access to information regarding recycling? Excellent/Good, 2013: 69%, 2018: 77%; Best way to receive information? On the recycling cart, 2013: 72%, 2018: 80%. To confirm the survey results, tonnage and participation rates at facilities were used to confirm the increase in survey responses. When FY16 is compared to FY18, Davenport and Bettendorf recycling tonnage is up 61% and participation rates increased usage at HHM by 85% and E-waste by 31%. To maintain awareness of programs, educational and maintenance messaging will continue to be developed and placed utilizing social media, radio, print ads and the content management system at all facilities.

- **Environmental Education |Decrease contamination/increase recovery of recyclables (complete 2021) Metric:** Decrease percentage of contamination by 2% and increase percentage of recovered recyclables by 5% from May-June 2020 compared to May-June 2021. The Commission partnered with private haulers and municipal haulers, community representative and solid waste agency representatives that use the Scott Area Recycling Center to provide direct education to communities they serve. The COVID-19 pandemic had a direct impact that required a modification to the approach and planning for this educational campaign. The project's timeline and metrics were required to be adjusted due to the significant increase in facility tonnage. The Commission not only saw a drastic demand on our staff to keep up with the increased material but also was forced to move quickly to implement safety guidelines (social distance stations, plexi-glass barriers, etc.) that changed the daily operations that are still in effect today. The Commission is still seeing the highest tonnage in history of the single stream program. There were additional barriers faced from COVID-19 when trying to communicate and coordinate meetings with partners to roll out the recycling right goals and strategies. Haulers were seeing a higher demand in collection on their staff, faced staff shortages and were not able to communicate in person to develop goals and strategies. The Commission pivoted the approach and established a google survey that was sent to partners to obtain key facts required to understand their needs. The survey identified the top five contaminants as plastic bags, food waste, Styrofoam, electronics/batteries and bagged material and optimal reach through direct mail and social media. A direct mail piece was kicked off with the first partner just after Earth Day 2021. The direct mail piece included a recycle right magnet and educational insert card for each household that included the RCC location for their community/area. Recycle Right educational magnets were created with two designs (glass vs. no glass). A social media toolkit was established and available for all partners via Dropbox, including a Holiday Toolkit and Recycling Right Toolkit. In early May and the following months direct mail pieces were sent to over 66,000 households. These communities covered some areas in the counties of Benton, Cedar, Jasper, Johnson, Keokuk, Linn, Mahaska, Marion, Monroe, Wapello, Washington and Wayne. Annual education was continued with Scott County residents including ad placements in local community newspapers. Even faced with substantial barriers and obstacles not within our control, the Commission continued to be dedicated to our partners and the households they serve to provide quality recycle right education. With these efforts the decrease percentage of contamination was not as high as desired but did see a decrease of 0.31% in overall contamination during a pandemic. The recovered recyclables did exceed the expected 5% increase and reported at 8.24% increase. Also established was a continuous communication partnership to share recycle right education with private haulers, municipal haulers, community representative and solid waste agency representatives that use the Scott Area Recycling Center.
- **Environmental Education |Increase number of rechargeable batteries recovered (complete 2020) Metric:** Increase the number of recovered rechargeable batteries recycled in 2019 compared to 2020 at the Electronics

Recovery Center by 10%. The Commission utilized the “Take Charge” material provided by Iowa DNR to implement new messaging and education to Scott County residents. Through the grant opportunity, “Take Charge” printed education material was generated and provided to all Scott County residents (over 59,000) in a direct mail piece that was mailed in December 2019. Accompanying the mailer, flyers were printed and available at all Commission facilities, information posted on the Content Management System, information provided at collection events and community events, education shared on Recollect system for digital waste and recycling communication to residents and print ads in a local county newspaper. The growth from calendar year 2018 to calendar 2019 exceeded 50%. The success of 2019 was in the last quarter of the year when the education was introduced reaching 9,700 pounds of collected residential rechargeable batteries. The pounds received continued to trend upward in 2020. In review of the monthly averages in early 2020, the Commission projects that if the collections were not disrupted by the Pandemic, the number of pounds of rechargeable batteries would have reflected a higher increase for 2020. In 2020, the pounds of residential rechargeable batteries hit over 9,700 pounds at the Electronics Recovery Center.

- **Environmental Education |Wayfinding (complete 2021) Metric:**
Decrease lost customers on site by 15% by improving signage and traffic flow at all Commission facilities. Through evaluation of employees many expressed safety concerns and high frequency of lost customers. The Commission conducted a study to track the number of lost customers on all sites. FOTH along with City of Davenport’s traffic engineers evaluated Commission signage, traffic flow and limitations at all Commission facilities. From the conducted review, safety recommendations suggested a change in traffic flow at the Recycling campus to move to one way and exit only at 59th street. This change in traffic flow reduced safety risks due to high volume of commercial vehicle traffic including numerous semis and recycling trucks. Recommendations also included new pavement markings, new placement of signage and additional signage at the Recycling Campus and Scott Area Landfill. The Scott Area Landfill received recommendations to update traffic flow due to the construction of cell 8 and required additional and mobile signage. As part of this project the Commission collaborated with Davenport West High School’s Industrial Arts Program. Students visited the landfill, took measurements and designed and fabricated custom sign holders that are now mounted on repurposed tires. These signs can be moved quickly using Landfill equipment. The facility signage was designed using a color-coded system with minimal text and instantly recognizable visuals placed at regular intervals throughout the facility grounds. The colors, icons and wording are consistent throughout and allow our staff to quickly and easily give customers directions. This system applies for all materials the Waste Commission processes; electronics, hazardous materials, municipal recycling, garbage and more. After sign implementation a study was conducted to again track the number of lost customers on all sites. The results surpassed the goal to decrease lost customers on site by 15%. At the Recycling Campus, lost commercial customers were reduced by 50% and lost residential customers were reduced by 64%. At the Scott Area Landfill

lost customers and incorrect scale usage were reduced by 89%.

7.10.3.2 Greenhouse Gas Reduction

- **Greenhouse Gas Reduction | Reduce gas emissions through transportation (complete 2018) Metric:** Decrease number of trips to transport HHM and Electronics to end markets by 20%. To eliminate or reduce transportation into and out of the facilities staff identified an HHM transportation run in the area to minimize the amount of HHM stored and reduced the need for a designated truck to transport to the Landfill location for shipments. The E-waste facility purchased carbon credits when shipping reuse items, began bulk shipments of circuit boards rather than multiple small shipments, and now shreds circuit boards to decrease space needed for storage and to maximize weight per shipment. Additionally, through a DNR grant, HHM purchased a storage container to keep supplies on site and eliminated transportation of supplies to an offsite location. Using the EPA greenhouse calculator, data was compiled and results show 3.26 metric tons of CO₂ emissions are saved annually by the transportation changes.
- **Greenhouse Gas Reduction | Reduce gas emissions by installing LED lighting (complete 2019) Metric:** Decrease lighting energy used at all Commission facilities by 50% from year prior to installation. Through an EMS grant, a vendor was selected and LED lights were installed at all Commission facilities in mid July 2018. Based off of the usage and fixture energy requirements, after install the Commission was able to save 45,289.3KWH of power. This is a saving of \$4,006 annually for the Commission. This change has cut lighting energy used by 50%, which saves 27.17 metric tons of CO₂ from entering the atmosphere annually.
- **Greenhouse Gas | Reduce gas emissions & effectively destroy customer data (complete 2020) Metric:** Decrease greenhouse gas emission by 1.5 metric tons by measuring the saved metric tons of CO₂ in FY19 compared to FY20, while effectively destroying customer data. Through an EMS grant, a mini shredder was researched and purchased for the Electronics Recovery Center (ERC) in May 2019. The ERC staff developed a standard work for operation of the mini shredder to train and engage staff to utilize the machine efficiently. The mini shredder was operational for ten (10) months when a GHG reduction evaluation was conducted. Based off of the evaluation and energy requirements, the installation of the mini shredder had a cost savings that was calculated at 1.67 metric tons CO₂, exceeding the goal of 1.5 metric tons. The efficiency of storing the data containing items was reduced to less than 24 hours enhancing the security of the shredding process.
- **Greenhouse Gas | Reduce CO₂ Emissions and fuel usage (complete 2022)** To decrease greenhouse gas, the Scott Area Landfill staff determined the baseline of gallons of fuel per month used while watering roads as an operational necessity for reducing dust generation was 36.20 gallons of fuel, equating to .1245 metric tons of CO₂ emissions per month. The staff estimated a reduction of 0.078 metric tons of CO₂ emissions per month while watering landfill roads. An evaluation of the watering methods was conducted and determined the methods and the equipment being used were

inefficient. A review was conducting tracking the gallons of fuel used with a rented water truck and calculating the CO2 emissions. The evaluation determined the effectiveness and approval for the purchase of a used water truck. Staff researched market conditions for used trucks, worked with local dealers and auctions sites with a purchase finally being secured in October 2021. Evaluating and adjusting watering methods with the proper equipment resulted in a reduction of 71.2% in metric tons of CO2 emissions and fuel usage per month. With the reduction of miles driven, a reduction of 38.5% in the amount of water used and a 67% reduction in staff time was also found.

7.10.3.3 Household Hazardous Materials Collection

- **Household Hazardous Waste | Provide HHM facility with no appointments necessary (complete 2018) Metric:** Increase participation by 30% As part of upgrades at the Scott Area Recycling Center, an adjoining HHM facility was designed and constructed and implemented no appointments necessary for residents. Participation was monitored and compared to previous years. The plan included availability for residents Monday through Friday and the first Saturday of the month with additional hours on Mondays to accommodate more residents. The facility saw a significant increase in participation resulting in a 38% overall increase of residents served.
- **Household Hazardous Waste | Increase pickups/participation of VSQG customers (complete 2022) Metric:** Increase pickups and VSQG customers participation by 20% comparing a 15-month time frame from July 1, 2019 thru September 30, 2020 compared to October 1, 2020 thru December 31, 2021. Through evaluation, VSQG pickups were limited by barriers due to the size of the Commission vehicle. Through grant funding a Cargo van that would best fit the needs of the program was purchased. Following the purchase of the van and launching a small marketing campaign we saw a 13.38% increase in VSQG participants and an increase of 4.24% in pickups from the baseline to a total of 754 VSQG participants and 123 pickups. The van has provided our staff with a safe and efficient means for transporting HHM for our community and the flexibility of having the extra vehicle has been an immeasurable help to the Waste Commission's transportation needs. It has allowed us to service areas with narrow passages or alleys and small downtown areas where larger vehicles are not able to service.

7.10.3.4 Organics

- **Organics | Increase Customer Usage of Davenport Compost Facility (complete 2022)** Through a partnership, the Commission is striving to support the outreach to Scott County residents with promotion of programs and services at the Davenport Compost Facility. Using a local vendor, the Commission captured educational footage of the Compost Facility for an awareness campaign of programs and services offered to residents. Strategy and planning meetings were held with the City of Davenport and they provided baseline data for customers numbers based on the average from 2018-2020. An average was used due to fluctuations of outside variables.

The Compost facility branded a new logo, updated facility signage and established advertisements on social media, local billboards and city buses. In October 2020, the Commission along with the City of Davenport established a direct mail piece for all Scott County residents providing direct education of the Compost services and programs. The direct mail was delivered to all residents of Scott County in early 2021. A 30-second Compost facility commercial was designed with a local vendor and placed on local stations to highlight services. In October 2021 an open house event was held at the Compost Facility to celebrate its 25th and included tours and demonstrations. Through multi-media advertisements and promotion, facility customer increased by 5.9% for 2021 compared to the average annual customers. City of Davenport shared their google page had more hits during advertisement placements to highlight products and services. A barrier to note was that the garden soil product and other organic material ran out in early May and was no longer available for the season. The partnership established an ongoing relationship to continue to support and promote all community services and programs.

7.10.3.5 Recycling Services

- **Recycling | Installation and Implementation of Optical Sorter (complete 2019) Metric:** Recover an additional 5% of PET plastic and 3D fiber. *This objective addresses a significant aspect.* Prior to optical installation, the baseline was identified by measuring how much PET and 3D fiber were being missed with the current equipment. The optical sorter was installed in late December 2018 after receiving a zero-interest loan from Closed Loop. The Commission selected CP as the vendor through the RFP process. After equipment install, optimization occurred, measurement for throughput and performance were evaluated and compared to identify the increase in recovered material. Testing confirmed that 6.56% more PET (38.17 tons) was captured when comparing February-July 2019 to the same time frame in 2018.
- **Recycling | Increase in Metal Recycling (complete 2020) Metric:** Recover 30,000 lbs. of metal captured from glass line from FY19 compared to FY20. Prior to magnet installation, the baseline was identified by measuring the pounds of metal making it through the glass screen and contaminating the recycled glass. After conducting research, a used magnet was purchased from Clinton County Area Solid Waste Agency and installed over the glass line in July 2019. Following installation of the magnet, measurement of the metal was conducted to evaluate the pounds of metal that was captured by the magnet. Evaluation confirmed that the magnet was able to capture an average of 940 lbs. of metal per week. This is a recovery of 48,000 lbs. per year of metal that was once shipped out with the glass stream.

7.10.3.6 Water Quality Improvement

The Commission has worked on numerous water quality projects, focused both internally and externally, as well as educating the people of Scott County.

- **Water Quality Improvement | Reduce pollutants from entering nearby waterways (complete 2019)** *This objective addresses a significant aspect.*

Metric: Reduce total suspended solids (TSS) in storm-water flowing to Donaldson Creek by 30% compared to 2017 baseline date and increase the amount of silt fence installed onsite by 50%. A Commission storm water team was created along with the creation of a storm water assessment plan for after major rain events. Frequent communication among staff aided the storm water strategy improvements that have shown to be significant. The silt fence installer has assisted with the improvements by allowing easier installation of 350 feet of silt fence compared to 75 feet prior to the purchase. This is an astounding 460% improvement. The total of suspended solids entering Donaldson Creek prior to storm water improvements was 266 mg/L. Following the improvements, the TSS was 29 mg/L, almost 90% reduction. The Commission staff will continue to make storm water improvements when necessary to carry on this positive trend.

- **Water Quality Improvement | Increase cleanup participation (complete 2022) Metric:** Increase number of community cleanup participants through Xstream Cleanup by 10% comparing 2018 calendar year to 2019 calendar year. As an active partner in Xstream Cleanup, the Commission worked with partners to create and launch a new website and media campaign to better engage and recruit volunteers for community cleanups held throughout the year. The website officially launched in May 2019, listing all events and was supported by a call to action commercial, press release, social media ads and use of an established email campaign to call out to all former Xstream Cleanup volunteers. 2019 caused record breaking flood levels in our area, causing some delays in cleanup efforts. The new updated website had the capabilities to store volunteer information which was a benefit as partners were able to have direct communication with all volunteers to keep them informed on delays or changes. Working with a local firm, footage of the volunteers working Xstream Cleanup events were captured and used in all Xstream promotion and will continue to be utilized for future promotions. Participation exceeded over 1000 volunteers in 2019, which was an overall increase of 27% and included 17 more cleanup events that the year prior.
- **Water Quality Improvement | Increase number of wetland acres (complete 2022) Metric:** Increase number of wetland acres by 20% (8 acres) from 2020 to 2022. A partnership with Nahant Marsh was agreed upon to aid the efforts to improve water quality at the Marsh. Xstream Cleanup efforts in spring 2020 ramped up to safely recruit volunteers and promote the Nahant Marsh property cleanup in the midst of the pandemic. For cleanup efforts the Commission provided supplies and a roll off box for the collection of debris. Following a successful cleanup, the construction for the wetland project kicked off in fall 2020. Nahant along with assistance from the Commission conducted a second cleanup removing additional tires from the property. Construction of a berm area was complete and volunteers hand seeded in the buffer areas, continued earth work and seeding occurred including; 6 acres of sand prairie, 6 acres of mesic prairie, 12 acres of wetland, 2 acres of sunflowers and 300 trees. Nahant conducted plant assessment data in spring 2021 and reported 100% plant survival. In Spring an additional 1,000 trees were planted by staff and volunteers in another parcel to continue efforts to improve water quality at the growing Nahant Marsh. The plant assessment conducted in spring 2022 determined fourteen

species of forested wetland and shrub areas planted had a 95% survival rate at one year. In summary the project grew the number of wetland acres by 13 acres (an increase of 32%) from a once half farmland parcel, seeded an additional 26 acres of prairie and had a successful survival rate of plantings at 95%.

- **Water Quality Improvement | Public Awareness & retrieval of debris in water ways (complete 2022) Metric:** Increase collection of debris from waterways through education, collecting at least 50 pounds of debris and providing 2,500 mesh bags. The Commission partnered with River Action to purchase mesh bags for recreational users of the Mighty Mississippi and other water ways to participate in cleanup efforts. The bags were designed to be launched at a large local event, Floatzilla, calling in thousands of kayakers and canoers to use the bags to collect debris during the event and beyond to increase water quality. The message was, “While going down stream, keep the river clean.” The event brought in over 1,300 registered participants that all received the mesh bag to collect debris during their float down the Mississippi River. The unfortunate barrier was the weather for the event that brought in scattered rain and storms that closed the event early and called for all participants to get out of the water. Many participants however, used their bags and collected a total of 80 pounds of debris, equating to 45 pounds of garbage and 35 pounds of recyclable material from the water. The Commission staff worked the sorting area to ensure proper recycling.

The efforts to educate continued by targeting participants enjoying a river taxi ride on the Quad Cities Channel Cat. Throughout the summer months the Channel Cat hosted “Channel Cat Talks” and specifically targeted the campaign, “While going down stream, keep the river clean” and provided mesh bags to all participants. The efforts continued through fall 2022 providing education and mesh bags to attendees on the Channel Cat while it cruised down the Mississippi through October. Those that attend the Channel Cat could get off at one of many stops and collect debris at recreational areas along the way. The partnership allowed for 3,000 mesh bags that provided education and the ability to create awareness and engage people to retrieve debris. The partnership with River Action will remain with the goal to continue with efforts to improve water quality.

7.10.3.7 Other Initiatives

Additional efforts included:

- Improving recycling processing time by 30 min/day equating to an additional recycling capacity of 1,000 tons/year from single compactor versus dual compacting equipment.
- Decreasing the amount of latex paint managed in fiscal year 2019 by 30% from January through June 2019 to July through December 2019. Continuing educational and maintenance messaging developed and placed utilizing the Commission’s Recollect system for digital waste and recycling communication to residents, social media, print ads and the content management system at all facilities.

- Decreasing the amount of litter onsite at the recycling center by 30% by measuring pickup time and implementing improvements that reduced litter by 50% saving 5 hours of staff time each week.
- Currently working to benefit all customers, both residential and business, from the development and redesign of a new Commission website to provide environmental education. The user of the website will be able to navigate more efficiently and will benefit from receiving quick and concise answers to their waste and recycling questions.
- Currently working to increase electronic material reused. The Electronics Recovery Center has undergone a significant facility and process redesign aimed at confronting the growing concern around the nature of modern electronics manufacturing. The economic benefit at time of completion is hopeful to generate additional revenues of approximately \$60,000 annually.

7.10.4. Construction and Demolition Debris

Activities related to the processing of construction and demolition debris have been initiated in the planning area. In February 2023, the Commission was able to start recycling clean wood. Over 29 tons of wood were recycled in the first two months. Over 2,700 tons of shingles were recycled in the past two years.

7.10.5. Reduction in Paper Usage

In prior plans, reduction in paper usage was done through computers and printers having the necessary hardware and software to allow for double-sided printing by default. Printing on both sides saved and continues to save paper postage, money, and space. This continues to serve as an easy and cost-effective model for other businesses to implement waste reduction practices into their daily routine. In addition, joint purchasing of recycled content paper is used in a portion of the planning area to reduce costs and promote the use of products made with recycled material.

With changes in technology, the 28E agencies/commissions routinely utilize and promote double-sided printing or paperless transactions through e-mail or online platforms for information exchange or data/information collection.

Each waste management agency within the planning area uses electronic communication with board members. Additionally, this comprehensive plan was made available to all communities in the planning area through a link on the solid waste agencies' and Bi-State Regional Commission's respective websites. One camera-ready copy was also provided.

The entire region includes information on the benefit of double-sided copying, use of electronic communication, and purchasing recycled content paper during all public education presentations, given to many sectors including businesses, civic groups, students, etc.

7.10.6. Electronic Waste

The planning area continues to provide permanent programs for the collection and processing of electronic waste (e-waste). This ensures data integrity and keeps dangerous chemicals and metals out of our environment. Through a partnership with the Rock Island County Waste Management Agency, Rock Island County residents may deliver

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electronic waste to the Electronics Recovery Center in Scott County at no charge to the customer. In CY 2022, the Waste Commission recycled 2,444,988 lbs. (1,222 tons) of electronic material at their recovery facility. All e-waste delivered to Muscatine and Jackson County Transfer Stations is transferred to the Scott County Recovery Center for processing.

Clinton County has been offering electronic recycling programs since 2000. In September 2006, Clinton County banned electronics from the landfill. By banning the items, Clinton County is keeping more hazardous materials out of the landfill and recycling good resources that have value, such as precious metals. Starting in 2016, all e-waste delivered to Clinton County Area Solid Waste Agency was transferred to Waste Commission of Scott County Habitat for Humanity ReStore

The ReStore is a building materials reuse center operated in Davenport by Habitat for Humanity-Quad Cities. It accepts donations such as doors, windows, flooring, plumbing, electrical fixtures, cabinets, and furniture. This process reduces waste from remodeling jobs, reuses good quality building materials, saves on renovation expenses, and reduces disposal costs and landfill tipping fees. The ReStore accepts donations and customers from the Quad Cities Area and surrounding counties.

The ReStore celebrated its 20th anniversary in 2023. Since 2002, an estimated 8,000 tons of material has been diverted from the landfill. In FY22, the ReStore raised a total of \$1,422,535 that went to Habitat for Humanity-Quad-Cities to support the vision of a world where everyone has a safe, decent, and affordable place to call home.

7.10.7. Controlled Substances and Sharps

Scott County residents are provided 2 options for disposing of controlled substances:

- Option 1: Make undesirable by mixing with coffee grounds or kitty litter and place in trash
- Option 2: Take Back to a Pharmacy. Bring unwanted and expired medicines into a pharmacy. Call the pharmacy to inquire about the take back program before bringing old medications for drop-off.

Education materials recommend the following “NEVER flush or burn pharmaceuticals.”

Sharp management in Scott County:

For safety reasons, residents are asked to not put needles or containers with needles into their garbage or recycling. Residents are provided a red, rigid container for sharps disposal free of charge.

Residents that have controlled substances to dispose of are provided United States Environmental Protection Agency’s recommended disposal methods. Sharps disposal is available in the planning area. Over 4,300 pounds of sharps were disposed of in FY2022 in Scott County.

7.10.8. Enviro Kids

Clinton County Enviro Kids is a joint effort from the Clinton County Area Solid Waste Agency, Clinton County Conservation Board, Rock Creek Marina, Mississippi River Eco Tourism Center, Clinton LumberKings, Bickelhaupt Arboretum, Izaak Walton League,

the Felix Adler Children’s Discovery Center, and the Clinton Sawmill Museum, This program has been held during the summer since 2005. All of the events in the program intermingled different environmental messages. In the summer of 2022 Enviro Kids continued its goal of environmental education with activities from mid-June through mid-August. Programs included an Eco-Cruise of the backwaters of the Mississippi River, canoeing, a nature and prairie walk, a baseball game, science based experiments, history lessons, a landfill and solid waste agency tour and a session on trees. Various environmental lessons and messages were shared during these events. The solid waste portion of Enviro Kids 2010 included a tour of the Clinton County Area Solid Waste Agency (CCASWA). This tour included continued training on the importance of the “Three Rs” – Reduction, Reuse, and Recycling. The tour also showed how recycled materials, yard waste, household items, electronics, and numerous other items are handled and processed at CCASWA. This helped to show participants what happens to waste materials, but also stressed the importance of keeping what they can out of landfills.

7.10.9. Community Outreach and Education

Clinton County Area Solid Waste Agency has updated its website to better serve its users and communities. Working with Augustana College of Rock Island, Illinois, the agency was able to create a new site using a cleaner layout, a user-friendly interface, updated information, and more video content. This was part of stepped-up marketing campaign by CCASWA in 2015, which utilized cable TV, radio, and social media to further appeal to today’s young adults and children.

Public education and outreach is important to the success of programs in Muscatine County. Muscatine County Solid Waste Management Agency and the City of Muscatine utilize numerous outlets from newspaper, radio, television, and internet to capture our audience. Participating in community events is important to their programs. They currently assist with coordinating and attending the Community Block Party, Living Green in Muscatine, Halloween at the Y, and various community events.

7.10.10. Earth Day Celebration

In the planning area, the 28E agencies acknowledge Earth Day in a variety of ways through media releases, website posting, social media, and other outreach efforts.

7.10.11. Sustainable Material Management Initiative

The Iowa Department of Natural Resources (DNR) has initiated a process to identify a preferred vision for Iowa as it relates to living sustainably through improved solid waste management policy and programs. The program seeks to reduce waste and its impact on our air, water and land. Several staff members in the planning area participated in the visioning process, which will be continuing for several years.

VIII. Evaluation of Progress Toward Goals: 101.12(2)“h”

Analysis of the existing integrated solid waste management system involves examining the programs implemented to date in the planning area as they relate back to the vision, mission, and goals of the Comprehensive Plan 2023. The planning area vision is for an integrated solid waste management system. The mission is to meet the State of Iowa waste reduction goals, the state’s hierarchy of waste management priorities and the regional planning goals. Using the state’s solid waste hierarchy as the framework, the strengths, weaknesses, opportunities, and challenges were evaluated for the existing integrated solid waste

management system in the planning area. Education opportunities are also discussed below.

8.1. Source Reduction

Source reduction programs alter the design, manufacture, purchase or use of products, and materials to reduce or eliminate pollution at the source. The planning area provides information on source reduction within its multi-media and multiple message framework. Information and referrals are provided to citizens, businesses, and industries on an ongoing basis through the Iowa Waste Exchange, Solid Waste Alternative Program (SWAP), and state pollution prevention programs, such as the P2 Intern Program, that may assist in reducing waste at the source. The Iowa Waste Exchange Area V, which covers the planning area with the addition of Louisa and Washington Counties, assisted a total of 2,539 customers and diverted 80,933 tons of waste from the landfill, saving businesses over \$3,838,652 between FY2019 through the first three quarters of FY2023 (7/1/2018 – 3/30/2023). Today, the Iowa Waste Exchange Area V is housed at the Scott County Landfill. From the prior plan, these figures have nearly doubled or more in serving customers and diversion impacts.

Green building techniques and materials related to consumer choices is another activity being promoted on an on-going basis through the Davenport Police Station, the new Davenport Public Library Eastern Avenue Branch, Muscatine nature center, Family Museum in Bettendorf, and the Hurstville Interpretive Center in Jackson County. Since 2008, the Hurstville Interpretive Center in Jackson County has welcomed over 10,000 visitors per year that have had the opportunity to learn from the Recycling Kiosk located near the main door.

Source reduction is also encouraged through the Regional Collection Center programs where residents and very small quantity generators (VSQGs) are informed of ways to reduce their use of household hazardous materials.

Program strategies for continued source reduction progress include:

- Utilize and encourage electronic communication when appropriate, and if printing is necessary, use double-sided copying
- Encourage green building techniques continuation, such as its implementation at the Rock Creek Interpretive Center
- Use Earth Week events to highlight source reduction issues
- Work closely with the local Iowa Waste Exchange representative and with the Chambers of Commerce to provide greater education outreach to business and industry
- Find measurable examples to define successes

8.2. Recycling, Composting, and Reuse

Recycling, composting, and reuse programs are detailed in Section 7 of this plan. The existing program information in the planning area is submitted electronically on-line. The information is contained in Appendix A of the printed document for public reference. The data includes details on household hazardous material (HHM) collection through regional collection centers (RCC), waste tire collection, waste oil management, lead-acid batteries program, household appliances collection, and yard waste collection. Except HHMs and household appliances, the other items are banned from landfills, and there must be strategies in place for proper management. RCCs have been developed to reduce the toxicity of leachate from HHMs into the groundwater.

The planning area provides residents with proper management options for recyclable materials, household hazardous materials, household appliances, waste tires, used motor oil, lead-acid batteries, and yard waste. Citizen education of these programs is through a multi-media and multiple message framework. Additionally, there are electronics recycling programs and programs related to handling sharps within the planning area. There are also reuse facilities located in the planning area, typically combined with other collection programs. Reuse buildings offer ways to divert materials from the RCCs and landfills that have the ability to be utilized by someone else, such as unused latex paint or solvents and cleaning products. Over 560,408 pounds of HHM has been collected from 11,961 customers. Exchange programs that allow residents to take HHM that is still useable diverted 51,638 pounds in CY 2022.

The planning areas served 741 VESQGs and diverted 186,150 pounds of VESQG material. Among the permanent facilities, satellite sites, and mobile collection events, the planning area has served 11,961 residents through its recovery program in CY 2022. Over the years, the planning area has supplied cities and counties with a model resolution to support procuring items made with recycled content and recycled materials. It encourages “Buy Recycled” in planning area education efforts. For example, the Bi-State Regional Commission Joint Purchasing Council with members from Scott and Muscatine Counties solicit from paper, food services, and janitorial supply manufacturers for “green” product options.

The planning area achieved the July 1, 1997 deadline and maintains programs for minimum collection provisions for glass, plastic, paper, and metals. The planning area’s strength is for providing recycling and composting availability for multiple materials. In 2022, the Scott Area Recycling Center processed nearly 38,216 tons of recyclable material. This includes recyclables from the planning area and many communities in eastern Iowa and western Illinois. Education is an important component of these programs using a variety of mediums. Event recycling has been targeted in the planning area with some success. This is an area that could be expanded within the planning area. Interest in electronics recycling is continuing to increase with new alternatives to landfilling. There is growing interest in diverting construction/demolition debris as fledgling programs gain public awareness. Private sector education on recycling has remained within the private sector. Challenges facing viable recycling programs in the planning area include the volatility of markets and efficient collection and processing.

8.2.1. Event Recycling

The Waste Commission of Scott County, through the iLivehere program, has worked with local community groups in the Quad Cities Area to provide event recycling containers and lids to assist with separation of aluminum cans, plastic bottles, and paper at special events. The program is so popular that the Commission added 50 additional containers and another event trailer in FY 2014. The Waste Commission of Scott County provides the funding for event recycling and iLivehere from landfill tipping fees. Public education is provided through labels on the containers that promote recycling and encourage proper disposal of waste items as well as graphics on the event recycling trailer.

The QC Komen Race for the Cure continues to recycle, but the Iowa Waste Exchange Representative is no longer involved in carrying out the actual recycling as in the first 4 years of implementation.

8.2.2. Stadium Recycling

In 2011, Clinton County Area Solid Waste Agency (CCASWA) assisted the Clinton

LumberKings in their home ballpark of NelsonCorp Field implement can, bottle, and cardboard recycling. The plastic and metal beverage container recycling bins, through Coca Cola, were placed throughout the ballpark for fan use. CCASWA also worked with team management in establishing year-round office paper, cardboard, and beverage container recycling for employees.

The Waste Commission of Scott County, City of Davenport and River Bandits worked together to initiate a recycling program at Modern Woodman Park. Davenport provided 95 gallon recycling carts which are filled by River Bandits employees, rolled to the curb and collected by Davenport. The Commission processes the material and provides education regarding the program.

In the fall of 2014, Clinton County Area Solid Waste Agency repurposed the tipping floor for its former BioReactor in-vessel composting unit to create a drop-off area for smaller vehicles outside of the immediate landfill working face. The drop-off area offers a safer and cleaner environment for waste disposal under a partially-enclosed Quonset building with a cement floor. CCASWA staff also utilizes this area as an opportunity to reclaim large amounts of cardboard, plastic, and metal. These items are then diverted from the landfill and recycled. In its first year, the PDO saved 25 tons of cardboard, three tons of plastic, and 15 tons of metal from the landfill. Overall, reaction by the public to the PDO has been very positive also. Potential expansion of this facility is being explored.

Clinton County Area Solid Waste Agency converted to single stream recycling in 2018-2019. At that time Clinton County began transferring loads of single stream recycling materials to Waste Commission of Scott County's Single Stream Processing Facility.

8.2.3. Shingle Recycling

Shingle recycling has been tried in Clinton and Scott Counties. The Clinton County pilot project for recycled shingles was not successful. CCASWA did educate area roofing contractors via a letter on the special rate for clean shingles for the program. Roofing contractors found it easier to throw all waste away and not source separate the shingles. The Waste Commission of Scott County provides funding for shingle recycling through reduced tipping fees and sale of ground recycled asphalt shingles (RAS). Recently the market for the ground shingles has been limited. The shingles are used as road base on the landfill site. Public education is provided on the Commission website, through press releases, and presentations. Targeted audiences include contractors, partner solid waste agencies, and citizens.

8.2.4. Commercial Recycling

Commercial recycling is provided by private contractors. The planning area encourages businesses to look for a commercial recycler in their area through advertisements in the yellow pages and through business-to-business ads. The planning area tries to provide assistance to the businesses, but has no control over their waste streams.

8.2.5. Medical Sharps

There are programs in place within the planning area that provide for the collection of household medical sharps. Medical sharps are collected from the Clinton County area residents at Clinton County Area Solid Waste Agency (CCASWA). Residents can bring in their medical sharps at no cost. Businesses that need to dispose of a container of

sharps are charged \$3.00 per gallon container. The agency has educated residents, along with sanitary disposal workers on the high risk of sharps being disposed of in the garbage. The target audience has been diabetic residents, and education materials regarding disposal have been given to the local medical clinic and hospitals for display. Articles and columns regarding this information have been in the local media. This program began in 2001.

In Jackson County, medical sharps continue to be collected at the Jackson County Transfer Station at no cost. The cost of the program is built into the transfer station tipping fee. The target audience focuses on the residential home health population. Residents are encouraged to use a sturdy plastic container with the contents clearly marked.

In Scott County, sharps containers are provided to residents at no cost. Containers can be picked up at Waste Commission facilities, the Scott County Health Department, or any Iowa Quad Cities Hy-Vee locations. The Waste Commission of Scott County provides funding for the sharps campaign through tipping fee revenue from the landfill. Public education is provided through the website, flyers, labels on the containers, and partnering organizations. Targeted audiences include home medical waste producers. Other planning area participants offer medical sharps collection or work with local health providers on this issue.

8.2.6. Waste Tires

Waste tires collection has continued since the last plan update. Over the past several years, the planning area has moved away from providing free disposal of tires and moved toward user fees. There are still some options for residents to dispose of small quantities of tires at no charge. These programs are provided through landfill tipping fees. The planning area uses a wide variety of public education options developed during the Iowa Tire Initiative. Targeted audiences include drivers, driver's education students, and the general public.

8.3. Combustion, Landfilling, and Other Techniques

Incineration for volume reduction is not supported by the planning area at this time. Waste tires collected in the planning area are used for tire-derived fuel or for recycled products. Based on population, the majority of communities within the planning area ban the burning of yard waste for improved air quality and to promote composting. Landfilling remains one aspect of the integrated solid waste management system of the planning area. There are no locally-banned items beyond what items that are banned from landfilling by the state. Cedar County bans cardboard from its transfer station while Jackson County bans electronics from its transfer station to divert for recycling. With regard to other involvements, the planning area has addressed illegal dumping by providing information and signs to cities and counties where problems are recurring.

8.3.1. Transfer Stations

These facilities will continue to be seen as a county-by-county activity. Muscatine, Cedar, and Jackson Counties have transfer stations. The planning area noted that Jackson County in 2006 had successfully begun trucking its own solid waste from the transfer station to the contracted landfill. In May 2012, the Jackson County Transfer Station was destroyed by fire. In Spring 2013, a new, larger transfer station was opened at the same location as the old one. The method of loading trailers was changed from a compactor system to open top loading. In 2020, the Cedar County station was heavily damaged, and

a new building was opened in 2022.

8.3.2. Daily Landfill Cover

Additionally, the planning area continues to divert waste by beneficially using material for alternative daily cover and other uses. Sources of beneficial use material included processed auto shredder residue, foundry sand, fly ash, sludge, and municipal solid waste compost. Since the Derecho 2020, DNR authorized the use of shredded trees for daily cover as a 50/50 mix with soil. It is being used in Muscatine County. Some materials are mixed with dirt as required by Iowa DNR.

8.3.3. Illegal Dumping

Waste Authority of Jackson County maintains an illegal dumping compliant form that is accessible at the agency website www.wasteauthority.org. The form allows for anonymous reporting of problem areas in the county. The website was also upgraded to a mobile device friendly site.

The Waste Commission of Scott County coordinates the Scott County Illegal Dumping Task Force, which has a focus on building partnerships among agencies within the county to provide a mechanism for reporting illegal dumping, abatement of those locations, and the enforcement and prosecution of offenders. The task force includes representatives from the Waste Commission; Scott County Attorney's Office, Conservation, Health, Roads, and Sheriff's Departments; various municipal public works; code enforcement; and law enforcement entities, among others. During COVID, the Task Force discontinued meeting. An evaluation on reinvigorating the Task Force is currently underway.

8.3.4. Litter Abatement/Keep America Beautiful

The Waste Commission of Scott County provides iLivehere® programs dedicated to empower individuals, businesses, as well as public and civic groups to take responsibility for protecting the local environment. The Waste Commission supports the efforts of iLivehere® both financially and with in-kind services to build partnerships throughout the community to accomplish this mission. It funds the program through landfill tipping fees, and iLivehere® remains a local affiliate of Keep America Beautiful and Keep Iowa Beautiful. Activities are numerous and include neighborhood clean-ups, event recycling, and watershed protection and restoration projects that utilize thousands of volunteers annually. Public education is provided through a multi-media campaign and targets a wide variety of audiences. This includes groups most likely to litter and those who may want to sponsor a community clean-up event. Over the past three years, the Commission has worked with Mississippi River Cities and Towns Initiative (MRCTI) on their Mississippi River Plastic Pollution Initiative (MRPPI). Work continues on plastic pollution ending up in the streams, rivers, and ultimately the ocean.

Keep Muscatine Beautiful (KMB) was formed on October 1, 2007 to enhance ownership, pride, and beautification of Muscatine County. KMB continues to assist with community clean ups, beautification projects, and numerous other programs that help beautify the Muscatine County Area.

8.3.5. Methane Collection System

A methane gas collection system was installed at the Scott Area Landfill by the Waste

Commission of Scott County and Linwood Mining and Minerals. The system extracts methane from the landfill, and the recovered methane was used as a partial replacement of fuel in the kilns and drying mills in the production of limestone. Currently, the methane is not being used due to a switch to natural gas in the kilns. Renewable Natural Gas (RNG) is currently being considered. Public education is provided to groups touring the landfill.

8.3.6. Landfills

The planning area will continue to look at its existing landfill viability and need for expansion. All planning area members are currently evaluating disposal capacity, landfill design and funding mechanisms. This includes evaluation of expansion options, leachate management, alternative landfill best practices, operational issues, and closure/post-closure impacts. One of the items to be evaluated in the future is best practices for landfill methods, particularly recirculation of leachate and PFAS management. Issues of illegal dumping and litter abatement are also of interest.

8.3.7. Assessing Program Strategies for Continued Goal Progress

Program strategies for continued progress toward sustainable material management (SMM).

Participate in the SSM visioning process to identify a preferred system for Iowa as it relates to living sustainably through improved solid waste management policy and programs, that reduce waste and its impact on our air, water and land.

Follow the progress toward rethinking Iowa's current integrated solid waste management system to a sustainable system. The Iowa DNR website outlines the program:

PURPOSE

Build upon the shared stakeholder vision identified in the SMM Phase I effort to direct the State of Iowa to transition from its present solid waste management policies and infrastructure to a comprehensive SMM system to better protect public health and safety and the environment.

GOAL

Establish a clear direction for implementing an SMM system with immediate, medium and long-term strategies

APPROACH

Establish SMM priorities. Evaluate the applicability to Iowa of SMM implementation processes in other states. Apply life cycle analysis (LCA) to selected materials. Recommend strategies to implement SMM policies, programs, facilities, funding measures, and progress metrics

PROCESS

Prioritize material categories. Select specific material types within each category. Define specific strategies. Legislation Policies Programs Infrastructure Funding mechanism. Identify implementation timeline, responsible party, and performance metric.

“Sustainable materials management is an approach to using and reusing materials most

productively throughout their entire life cycles” (EPA).

Participating in this process will allow evaluation of how proposed improvements will impact the planning area. It will also allow for better planning to meet the new requirements.

Program strategies for continued progress for recycling, composting and reuse include:

- Continue existing programs for composting, recycling, and reuse
- Continue electronics recycling and monitor changes in technology as many outdated or obsolete items are being discarded.
- Continue construction and demolition debris recycling
- Further reuse opportunities, good donations, and events recycling
- Implement new opticals to enhance single stream processing and collection
- Evaluate unit-based pricing collection and multi-family collection
- Evaluate curbside collection of e-waste
- Increase business/industry recycling through Iowa Waste Exchange
- Investigate the addition of fluorescent tubes, compact fluorescent lights, other products containing mercury, , and e-waste collection and processing
- Increase collection of batteries, including lithium ion batteries, to prevent fires at recycling centers, transfer stations and landfills. Expanding localized stream clean-up efforts throughout the planning area is envisioned.
- Evaluate the potential of food waste and other organics composting.

Program strategies for continued goal progress related to either combustion, landfilling, waste transfer or other techniques to enhance or sustain the solid waste management system are:

- **Monitor Emerging Technologies** as a regional activity. Agencies in the region recognize the necessity of evaluating new, emerging technologies for solid waste processing and disposal. Agencies will continue monitoring emerging technologies and consider a consistent method for evaluating proposed facilities.
- **Foster Financial Stability.** As stated in the 2011 update, Muscatine Recycling Center and Transfer Station and Muscatine County Landfill had a drop-in tonnage in 2009. From 2009 to 2015, tonnage has stabilized at 35,000-38,000 tons per year. In 2023, total landfilled tonnage in Muscatine County was 40,166 tons. Financial stability was created by establishing commercial contracts with large industries in Muscatine, which have since continued. The Muscatine County Solid Waste Management Agency and the City of Muscatine continue to review the progress with staff to determine if this is the best way to foster financial stability for the Muscatine Recycling Center and Transfer Station and the Muscatine County Landfill.

With constant threat of lost waste flow, board policies limiting out-of-county waste, new landfill rules, expanding services, etc., the agencies must continue to address the cost of providing services. An evaluation of this nature should include the following:

- Complete an inventory of all solid waste facilities in the region including information on operational costs, necessary improvements, and capacity
 - Identify current and possible areas for regional cooperation and work toward win-win results for all public agencies and their stakeholders and residents
 - Consider participation in IA DNR's environmental management system (EMS) program
 - Planning for what ifs, explaining the need and purpose of financial assurance funds, explaining what agency fees cover, maintaining control by considering the impact of the Oneida-Herkimer U.S. Supreme Court ruling, and including the financial satiability as part of an educational process
 - Examining ongoing issues such as landfill market price decreases, competition for waste, some haulers reducing deliveries, and potential for privatization
 - Develop Business Implementation Plans to meet the appropriate needs of each agency
- **Public Education Opportunities.** Interspersed in the text above, there are references to public education opportunities within the planning area. To reiterate and emphasize these points, this section highlights particular education components of the integrated solid waste management system. Joint efforts or coordination of public education messages in the planning area have enhanced and will continue to raise the level of awareness of solid waste options available to residents and businesses.
 - **Board Orientation.** Throughout the planning area, board members as decision-makers come from many backgrounds unrelated to solid waste management. There is consistent turnover in board member representation. The planning area partners expressed interest in developing orientation information to engage board members in strategic issues. This may include information on the planning area, comprehensive planning, the 28E agreement, the benefit of integrated solid waste management systems, staffing directories, open meetings laws, and a glossary of technical terms.

Clinton County Area Solid Waste Agency has created a basic Board Orientation Manual for new members of 28E governing board of directors. Items to be included in the process to date are: mandatory new board member tours of agency facilities; explanation of the organizational structure of staff and the 28E agreement; a breakdown and analysis of voting; role of officers, committees, sub-contract operator, consultant, etc.; a list of past, current, and anticipated projects; explanation of how and why cells are built as they are;

brief explanation of rules and regulations; discussion on closure and post-closure rules; and site maps.

- **Urban and Rural Residences.** Within the planning area, both rural and urban residences are provided with waste management information through social media; guidebooks; directories; direct mail; website resources; newsletters; and/or paid advertising via newspaper, radio, and/or television. The planning area provides free ongoing tours and presentations covering solid waste and environmental issues to local schools, student organizations, after-school programs, neighborhood committees, and senior citizen groups upon request. Inserts/tabs are run periodically in area newspapers to promote special events, create awareness of new solid waste management programs, and keep residents informed of current solid waste issues. Within the planning area, paid television spots and public service announcements run periodically on several different cable channels, targeting different demographics and waste and recycling messages. Periodic radio spots for special events and campaigns have the same effect. Press releases are issued to announce waste management information, upcoming events, holiday hours, etc. Phone numbers and websites are distributed with all public education information. Booths are setup and staffed at area fairs, celebrations, and festivals. This involves face-to-face interaction with residents, distribution of informational materials and promotional giveaways, and creates general awareness of existence.
- **Farms.** In the planning area, the Regional Collection Centers (RCCs) are working with farms to promote programs and distribute information. Pesticide containers and old tires are accepted for recycling from farmers. The RCCs provide disposal options and assistance for the agricultural community.
- **Businesses.** Flyers focusing on source reduction, reusing, and recycling materials are inserted in area Chamber of Commerce newsletters within the planning area. Flyers also include contact information and examples of easy ways to get started. Referrals are made to state programs for grants and waste reduction assistance.
- **Industries.** General recycling is promoted through public education efforts in the planning area. Information is distributed promoting the Iowa Waste Exchange and referrals are made to the program. Special waste management services are provided to industries upon request.
- **Institutions.** Free tours and presentations are available to all schools (K-12 and colleges) in the area. Assistance is provided on special projects at the request of the school or teacher. The planning area has representatives on various schools' Recycling Teams to serve as a resource and also to ensure that recycling is ongoing in the school district. The planning area makes referrals to goods donations establishments to encourage recycling and reuse of items not typically handled through existing 28E agency/commission programs.
- **Governments.** Assistance is provided to all area communities/governments in waste disposal, recycling, household hazardous material management, composting, public education, and community cleanup events. Special services are provided upon request, such as efficiency studies and recycling information.

- **Backyard Composting.** The planning area works closely with compost facilities and community yard waste disposal programs. An active role is taken in public education of their services. Compost facilities in the planning area are referenced and explained in many print publications, on websites, and mentioned in most tours and presentations. The planning area has conducted training on backyard composting, held compost bin sales, and worked with master gardeners and Iowa State Extension offices on special projects.
- **Classroom Composting.** Following a 2015 tour of the Clinton County Solid Waste Agency (CCASWA), staff members worked with a 3rd and 4th Grade Talented and Gifted Class/Lego League Group to establish a classroom composting bin at Camanche Elementary School. CCASWA donated compost bins and helped advise the groups on composting techniques.
- **Household Hazardous Materials.** As previously mentioned, proper HHM disposal is referenced in guides/directories, tours and presentations, direct mailings, collection events, and through various media. CESQG's are also provided information and assistance with their hazardous materials.

Program strategies tied to the respective waste management system needs and coupled with education needs indicated above will be an important component for both existing programs and future ones.

IX. Analysis of Solid Waste Alternatives: 101.12(2) "j"

An Alternative Technology Review to evaluate newer and/or evolving technologies in the solid waste management industry was also completed for the last comprehensive plan update. The technologies reviewed included gasification, plasma arc, thermal depolymerization, ethanol, and anaerobic digestion. Each technology was reviewed through a process overview; product recovery/uses; environmental concerns; regulatory issues; current interest; previous experience; and sources of information including technology vendors, public agencies, and regulatory agencies. The following is a brief description of each technology that was reviewed:

9.1. Gasification

Gasification converts wastes to gases, liquids, and char. The gasification process is a thermal process that utilizes controlled air to support combustion. Gasification using air results in a nitrogen-rich, low Btu fuel gas. If gasification is conducted using pure oxygen, then higher Btu fuel is produced. If the gasification process uses steam to support combustion, the output is a Syngas. The Syngas has a composition of hydrogen and carbon dioxide.

9.2. Plasma Arc

Plasma arc is a method of waste management that uses high electrical energy and high temperatures created by an electrical arc. The electric arc forms plasma that is used to break down MSW into elemental gas and slag. The process has been intended to be a net generator of electricity (depending upon input wastes) and to reduce the requirements for redirecting waste to landfill sites. This technology is currently used to process small-scale industrial waste, military, and medical/biological wastes. There is some limited use of plasma technology for MSW.

9.3. Thermal Depolymerization

Thermal depolymerization is a process of converting complex organic material into light crude oil. The organic feedstock is usually ground in the first stage to small chunks of material. The material

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is placed in a vessel where it is subjected for 15 minutes to temperatures of 250°C and pressure of 600 psig. The pressure is then released rapidly, which causes the remaining water to evaporate. The result is a mix of crude hydrocarbons and solid minerals.

9.4. Ethanol

The production of ethanol (grain alcohol) from waste products is known by a variety of process descriptions, including “biomass to ethanol” and “acid hydrolysis.” It refers to the process of using “thermo-chemical and enzymatic processing of cellulosic biomass to produce non-petroleum based fuels, fuel cells, and industrial chemicals.” This means turning organic materials, including components of the municipal solid waste stream, into fuel grade ethanol by passing it through a series of refining processes to release, ferment, and distills available sugars.

Production of ethanol through acid hydrolysis is a technology that has been known and used for over 100 years, with its most extensive use occurring during World War II. Low petroleum prices in comparison to high ethanol production costs kept the process from being adopted for commercial use in the late 1940s. However, ethanol production has received increasing attention in the past 10 to 20 years from agricultural generators seeking additional markets for corn and other farm products or byproducts. Similarly, changes in federal and global environmental policies are driving increased interest in the development of non-petroleum based fuel sources, including ethanol.

9.5. Renewable Natural Gas (RNG)

A producer is able to take already produced biogas from the landfill decomposition and apply a two-step process, membrane filtration and cryogenic distillation, to upgrade the landfill biogas and produce pipeline quality renewable natural gas.

Membrane filtration removes the carbon dioxide (CO₂) and impurities from landfill gas. The gas is then cooled in a cryogenic vessel to isolate the methane (CH₄) from the oxygen (O₂) and nitrogen (N₂). This process successfully recovers 90% of the methane contained in landfill gas, for energy yields that are three times higher than solutions where the gas is burned to generate electricity.

The planning area continues to monitor emerging technologies.

X. Implementation Timeline: 101.12(2)“j”

It is under the goal framework of the planning area that an implementation timeline can be conceived and then achieved. The strategies for implementation are outlined for two planning cycles, short-term of five years and long-term of 10 years. There are activities that will continue to serve the solid waste management system on an on-going basis, either as mature programs or newly initiated within the last planning period. These on-going programs are:

- Encourage green building techniques continuation
- Use Earth Week and National Recycling Day events to highlight source reduction and recycling benefits and options
- Work closely with the local Iowa Waste Exchange representative and with the Chambers of Commerce to provide greater education outreach to business and industry
- Continue existing programs for composting, recycling and reuse
- Continue electronics recycling and battery uses and management, and monitor changes in technology as many outdated or obsolete items are being discarded.

- Continue construction and demolition debris recycling
- Further reuse opportunities, good donations and events recycling
- Continue use of multi-media campaigns to target a wide variety of audiences – rural and urban residences, business, industry, governments and institutions, related to source reduction, recycling, backyard composting, household hazardous material and toxicity, landfilling and emerging technologies

These on-going programs are envisioned to address the integrated solid waste management system needs of the planning area. Programs will be evaluated on need, feasibility and funding availability. Efforts to maintain the existing programs and related educational efforts will be the primary focus with new strategies and activities integrated into the system as time and funding allow. The following activities are in addition to existing programs.

Proposed Activity: CONSIDER PARTICIPATION IN THE IA DNR ENVIRONMENTAL MANAGEMENT SYSTEM PROGRAM – The Environmental Management System (EMS) program began in 2008 and establishes a program and process that allows solid waste agencies to be designated as an EMS by demonstrating compliance and a commitment to continuous improvement in six areas: organics management, household hazardous materials management, water quality improvement, greenhouse gas reduction, recycling services and environmental education. It moves landfills beyond the measurement of diversion goals to a new focus on environmental resource management. The Waste Commission of Scott County participates and will continue to provide information and encourage EMS participation by planning area partners. Muscatine has recently joined the EMS process. Other counties in the planning area will consider participation.

Location(s): Agency by Agency

Responsible Organization(s): Solid Waste Agency(ies) in partnership with the IA DNR

Implementation Milestone(s): Short Term (0-5 Years); Target Year 1 and 2

Public Education Strategies: Utilize planning area’s multi-media approach in coordination with outside resources including IA DNR’s media campaign, The Recycling Partnerships programs, EPA and MRPPI programs and other resources that meet the strategies of the planning area.

Anticipated impact on Waste Stream/Diversion: Not known at this time

Proposed Activity: RECYCLING PROGRAM ENHANCEMENTS - Increase business/industry recycling through Iowa Waste Exchange and monitor law changes that will allow more efficient and convenient opportunities for recycling, composting, drug disposal for residents and other diversion opportunities.

Location(s): Agency by Agency

Responsible Organization(s): Solid Waste Agency in cooperation with local businesses

Implementation Milestone(s): Short Term (0-5 Years); Target Year 2 or 3

Public Education Strategies: Continue use of multi-media campaigns to target a wide variety of audiences – rural and urban residences, business, industry, governments and institutions – related to source reduction, recycling, household hazardous material and toxicity, landfilling and emerging technologies

Anticipated impact on Waste Stream/Diversion: Determine with Iowa Waste Exchange on

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business/industry impacts.

Proposed Activity: MONITOR EMERGING TECHNOLOGIES - Agencies in the region recognize the necessity of evaluating new, emerging technologies for solid waste processing and disposal. A review of several alternative processing technologies was discussed as part of the previous comprehensive plan update. Continue monitoring emerging technologies and consider a consistent method for evaluating proposed facilities.

Location(s): Planning Area-wide

Responsible Organization(s): Solid Waste Agencies in cooperation with Iowa Department of Natural Resources and other solid waste trade organizations

Implementation Milestone(s): Short Term (0-5 Years) and Long Term (6-10 years); continue to monitor conversion technology projects for potential application within planning area. Discuss projects at planning area meetings.

Public Education Strategies: Provide information on emerging technologies to Board's, elected officials and public as they are proposed; incorporate into comprehensive planning process with future updates

Anticipated impact on Waste Stream/Diversion: Not known at this time

Proposed Activity: FOSTER FINANCIAL STABILITY - Maintaining stable financial conditions is a fundamental responsibility of every public solid waste administrator and board. With constant threats of lost waste flow, board policies limiting out-of-county waste, new landfill rules, expanding services, etc., the agencies must continue to plan and focus on financial issues. Facilities, programs and services are provided in the planning area by the public sector waste agencies. These are important assets for the communities. It will be important to build on these assets and/or protect and improve them as facilities, programs and services mature over time. In the interest of an integrated solid waste management system, it will be critical to assess the status and condition of these assets and how they will serve the planning area in the long term. Consider grant funding to help address the cost of such a planning process. Refer to Section VIII for details.

Location(s): Planning Area-wide

Responsible Organization(s): Solid Waste Agencies

Implementation Milestone(s): Short Term (0-5 years); Target year 4 or 5

Public Education Strategies: Communicate to local policy makers via Solid Waste Agencies and utilize local media to explain long term asset evaluation and impacts locally

Anticipated impact on Waste Stream/Diversion: Not known at this time

Proposed Activity: ESTABLISH GREEN HOUSE GAS EMISSION BASELINE - With growing concern of the role landfills and other solid waste facilities play in the emission of Green House Gases, it becomes more important to establish a baseline of each facilities greenhouse gas (GHG) emissions. Knowing a baseline for GHG will also allow the solid waste agencies to evaluate their emissions and provide data needed to assess if reduction measures need to be taken. Monitoring the level of GHG emissions will continue to provide more data as well as indicate whether reduction measures have been successful.

Location(s): Planning Area-wide

Responsible Organization(s): Agency by Agency

Implementation Milestone(s): Short Term (0-5 Years) and Long Term (6-10 Years)

Public Education Strategies: Communicate to local policy makers via Solid Waste Agencies and utilize local media to explain GHG emissions and impacts locally

Anticipated impact on Waste Stream/Diversion: Not known at this time

Proposed Activity: BOARD ORIENTATION - Board members as decision-makers come from many backgrounds unrelated to solid waste management. There is consistent turnover in board member representation. Agency administrators expressed interest in developing new board member orientation books and processes to engage board members in strategic issues.

Location(s): Planning Area-wide

Responsible Organization(s): Solid Waste Agencies in cooperation with their member communities

Implementation Milestone(s): Short Term (0-5 Years); Target Year 1 and implement as turnover occurs on an on-going basis

Public Education Strategies: Communicate and engage to local policy makers via Solid Waste Agencies' representatives to explain integrated solid waste management system assets, financial conditions, waste impacts, emerging technologies, etc.

Anticipated impact on Waste Stream/Diversion: Not known

Proposed Activity: MARKETING THE WASTE INFRASTRUCTURE - Selling public service and solidifying the value of the waste system was identified. There are important community related benefits stemming from the local public solid waste agency programs and facilities. The regional agency managers will promote, market and educate on the importance of integrated waste management services.

Location(s): Planning Area-wide

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Responsible Organization(s): Solid Waste Agencies in cooperation with their member communities

Implementation Milestone(s): Short Term (0-5 Years); Target Year 2 and implement on an on-going basis thereafter

Public Education Strategies: Communicate and engage to local policy makers via Solid Waste Agencies' representatives to explain integrated solid waste management system assets, financial conditions, waste impacts, emerging technologies, etc.; use Board orientation to encourage agency representatives to become solid waste management advocates

Anticipated impact on Waste Stream/Diversion: Not known

Proposed Activity: ASPHALT SHINGLE RECYCLING – Share program information and materials in addition to learned experience from program implementation to evaluate possible implementation elsewhere within the planning area.

Location(s): Planning area-wide

Responsible Organization(s): Solid Waste Agencies

Implementation Milestone(s): Short Term (0-5 Years) and Long Term (6-10 Years)

Public Education Strategies: Communicate to roofing and construction companies via Solid Waste Agencies and utilize a multimedia approach to explain program and its conditions and impacts locally

Anticipated impact on Waste Stream/Diversion: Not known at this time

Proposed Activity: PRODUCT STEWARDSHIP – Participate in product stewardship activities to reduce unnecessary waste generation and to encourage efficient and economical disposal or recycling solutions.

Location(s): Planning area-wide

Responsible Organization(s): Solid Waste Agencies and the Product Stewardship Institute

Implementation Milestone(s): Short Term (0-5 Years) and Long Term (5-10 Years)

Public Education Strategies: Communicate and engage with local policy makers and major manufacturers via Solid Waste Agencies' representatives and the Product Stewardship Into explain product stewardship and new initiatives for end-of-life plans for products.

Anticipated impact on Waste Stream/Diversion: Not known

Proposed Activity: MONITOR AND PARTICIPATE IN SMM PROCESS – Participate in product stewardship activities to reduce unnecessary waste generation and to encourage efficient and economical disposal or recycling solutions.

Location(s): Planning area-wide

Responsible Organization(s): Solid Waste Agencies and the Product Stewardship Institute

Implementation Milestone(s): Short Term (0-5 Years) and Long Term (5-10 Years)

Public Education Strategies: Communicate and engage with local policy makers and major manufacturers via Solid Waste Agencies' representatives and the Product Stewardship Into explain product stewardship and new initiatives for end-of-life plans for products.

Anticipated impact on Waste Stream/Diversion: Not known

Proposed Activity: SINGLE STREAM RECYCLING VERSION 2.0 – Evaluate option of partnerships with new single-stream recycling processing option at the Scott Area Recycling Center.

Location(s): Agency by Agency and/or by municipality

Responsible Organization(s): Local Government in Cooperation with Solid Waste Agency(ies)

Implementation Milestone(s): Short-Term (0-5 Years) and Long-Term (5-10 Years)

Public Education Strategies: To be determined as part of the technical analysis

Anticipated impact on Waste Stream/Diversion: Increased diversion rates and collection efficiency.

Proposed Activity: ORGANICS DIVERSION – Promote, and encourage the diversion of organics from landfills through food rescue partnerships and other methods such as anaerobic digesters.

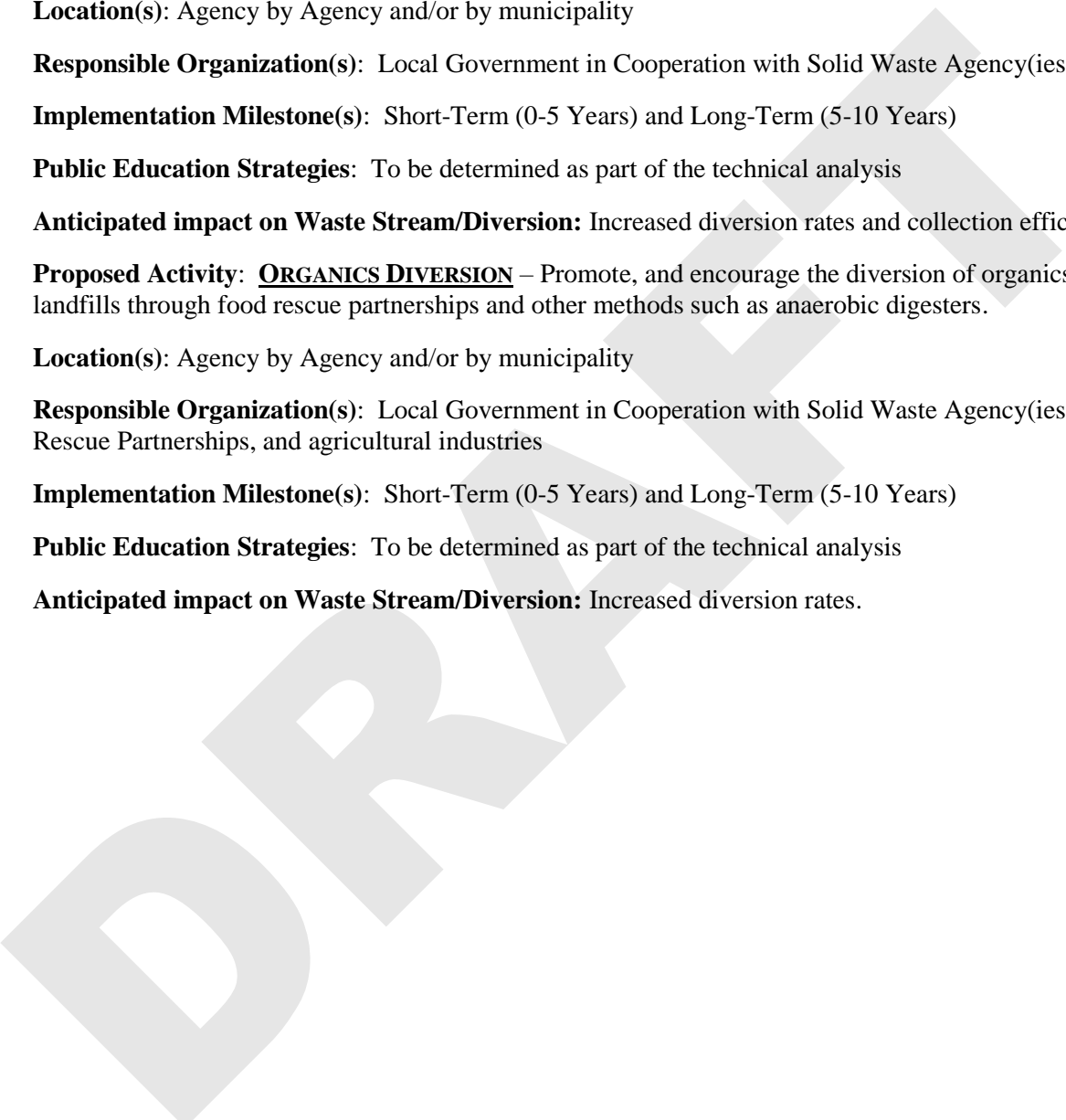
Location(s): Agency by Agency and/or by municipality

Responsible Organization(s): Local Government in Cooperation with Solid Waste Agency(ies), Food Rescue Partnerships, and agricultural industries

Implementation Milestone(s): Short-Term (0-5 Years) and Long-Term (5-10 Years)

Public Education Strategies: To be determined as part of the technical analysis

Anticipated impact on Waste Stream/Diversion: Increased diversion rates.



APPENDIX A

Reporting:

Permitted Facilities

Permitted Facilities in the Bi-State Planning Area

Permitted facilities are shown graphically on the Iowa DNR website at:

<https://www.iowadnr.gov/Environmental-Protection/Land-Quality/Solid-Waste/Comprehensive-Planning>

Cedar County Transfer Station

1202 240th St, Tipton, Iowa

Contact: Gary Crock

ph: (563) 886-6437

email: ccswc@netins.net

Areas Served : Bennett, Clarence, Durant, Lowden, Mechanicsville, Stanwood, Tipton, Unincorporated Cedar County, West Branch, Wilton

Facility Services : Transfer Station

Clinton County Sanitary Landfill (East Site)

4292 220th Street, Clinton, Iowa 52732

Contact: Brad Seward

ph: (563) 243-4749

email: ccaswa@gmtel.net

Areas Served : Andover, Calamus, Camanche, Charlotte, Clinton, DeWitt, Delmar, Goose Lake, Grand Mound, Lost Nation, Low Moor, Toronto, Unincorporated Clinton County, Welton, Wheatland

Facility Services : Appliance Demanufacturing Permit, Household Hazardous Materials, Municipal Landfill

Waste Authority of Jackson County Transfer Station

25046 164th St, Andrew

Contact: Frank Frieberg

ph: (563) 652-3909

email: frankf@wasteauth.org

Areas Served : Andrew, Baldwin, Bellevue, La Motte, Maquoketa, Miles, Monmouth, Preston, Sabula, Spragueville, Springbrook, St. Donatus, Unincorporated Jackson County

Facility Services : Transfer Station

Muscatine County Sanitary Landfill

2700 Highway 61 N, Muscatine

Contact: Dave Popp

ph: (563) 263-9689

email: dpopp@muscatineiowa.gov

Areas Served : Atalissa, Conesville, Fruitland, Muscatine, Nichols, Stockton, Unincorporated Muscatine County, West Liberty

Facility Services : Municipal Landfill

**Comprehensive Solid Waste
Management Plan 2023**

**Muscatine Transfer Station, Recycling Center and Household Hazardous Material Collection
Center**

1000 S Houser St, Muscatine

Contact: Dave Popp

ph: (563) 263-9689

email: dpopp@muscatineiowa.gov

Areas Served : Atalissa, Conesville, Fruitland, Muscatine, Nichols, Stockton, Unincorporated Muscatine
County, West Liberty

Facility Services : Transfer Station

Scott Area Sanitary Landfill

0.8 mi NE of Intersect 110th Ave + Hwy 22, Buffalo

Waste Commission of Scott County

11555 110th Avenue, Davenport, Iowa 52804

Contact: Kathy Morris

ph: (563) 381-1300

email: kmorris@wastecom.com

Areas Served : Bettendorf, Blue Grass, Buffalo, Davenport, Dixon, Donahue, Eldridge, Le Claire, Long
Grove, Maysville, McCausland, New Liberty, Panorama Park, Princeton, Riverdale, Unincorporated Scott
County, Walcott

Facility Services : Appliance Demanufacturing Permit, Municipal Landfill

APPENDIX B

Evidence of Cooperation:

Resolutions from All Participating Governments and/or 28E Agreements

Agendas from Participating Governments and/or 28E Agreements

RESOLUTION IN SUPPORT OF
THE COMPREHENSIVE SOLID WASTE MANAGEMENT PLAN FOR
CEDAR COUNTY SOLID WASTE COMMISSION, CLINTON COUNTY AREA SOLID WASTE
AGENCY, JACKSON COUNTY SANITARY DISPOSAL AGENCY, MUSCATINE COUNTY
SOLID WASTE MANAGEMENT AGENCY AND WASTE COMMISSION OF SCOTT COUNTY
2023

WHEREAS, section 455B.302 of the Code of Iowa requires every city and county of this state to provide for the establishment and operation of a comprehensive solid waste reduction program consistent with the waste management hierarchy under section 455B.301A, and a sanitary disposal project for final disposal of solid waste by its residents; and

WHEREAS, section 455B.306(1) of the Code of Iowa requires that all cities and counties or their representative 28E agencies/commissions file with the director of the Department of Natural Resources a comprehensive plan detailing the method by which the city or county will comply with the requirements of section 455B.302 to establish and implement a comprehensive solid waste reduction program for its residents; and

WHEREAS, a proposed comprehensive plan, as described in section 455B.306 of the Code of Iowa has been prepared cooperatively by the Planning Area members, including Cedar County Solid Waste Commission, Clinton County Area Solid Waste Agency, Jackson County Sanitary Disposal Agency, Muscatine County Solid Waste Management Agency, Waste Commission of Scott County at the direction of and participation with the cities, counties and commissions in the Planning Area, which plan is entitled *The Comprehensive Solid Waste Management Plan For Cedar County Solid Waste Commission, Clinton County Area Solid Waste Agency, Jackson County Sanitary Disposal Agency, Muscatine County Solid Waste Management Agency, Waste Commission Of Scott County 2023*, herein referred to as “Comprehensive Plan 2023” ; and

WHEREAS, the [INSERT 28E Agency Name] Board has determined that the adoption and implementation of the proposed comprehensive plan is in the best interest of the cities, counties and commissions in the Planning Area with respect to satisfying the statutory duties.

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE [INSERT 28E Agency Name] BOARD

1. That [INSERT 28E Agency Name] does hereby approve and adopt the Comprehensive Plan 2011 as its comprehensive solid waste reduction plan, subject to any revisions in said plan hereafter required by the Iowa Department of Natural Resources.
2. That the [INSERT 28E Agency Name] shall implement and participate in the programs set forth in the Comprehensive Plan 2011.
3. That the [INSERT 28E Agency Name] is to submit the Comprehensive Plan 2016 in cooperation with the Planning Area to the Iowa Department of Natural Resources in satisfaction of section 455B.306(1) of the Code of Iowa.

Adopted this ___ day of May, 2023.

Signatories...

APPENDIX C

Public Input Documentation

Notice of Public Meeting

Affidavit of Publication

Comments Received from Open Forum Public Meeting

Response to Public Comment

NOTICE OF PUBLIC MEETING

Comprehensive Solid Waste Management Plan 2023

For Cedar County Solid Waste Commission, Clinton County Area Solid Waste Agency, Waste Authority of Jackson County, Muscatine County Solid Waste Management Agency, and Waste Commission of Scott County

IN PERSON

May 30, 2023 1:00 – 2:30 PM
Eastern Avenue Branch Meeting Room A
Davenport Public Library
6000 Eastern Avenue, Davenport, IA

VIRTUALLY

May 31, 2023 12:00 – 1:30 PM

Join Zoom Meeting:

<https://us02web.zoom.us/j/85437148228?pwd=THlMZ2x2dTdCeGJGNFU2SFkxaGdGZz09>

Or by phone: 1 312 626 6799 US (Chicago)

Meeting ID: 854 3714 8228

Passcode: 041393

The public is hereby notified that two public meeting opportunities for comment. The first will be held at the Eastern Avenue Branch of the Davenport Public Library on May 30, 2023 from 1:00-2:30 p.m. to take comments on Comprehensive Solid Waste Management Plan 2023 for Cedar County Solid Waste Commission, Clinton County Area Solid Waste Agency, Waste Authority of Jackson County, Muscatine County Solid Waste Management Agency, and Waste Commission of Scott County. The second public meeting will be offered virtually via Zoom set for May 31, 2023 from 12:00 noon – 1:30 p.m.

A copy of the document is available for review, beginning Friday, May 26, 2023 online at www.bistateonline.org or by appointment at Bi-State Regional Commission, 1504 Third Avenue, Rock Island, Illinois between 8:00 a.m. and 4:30 p.m. Monday through Friday, or through the following agencies: Cedar County Solid Waste Commission, Clinton County Area Solid Waste Agency, Waste Authority of Jackson County, Muscatine County Solid Waste Management Agency or Waste Commission of Scott County.

The in-person meeting will be conducted in an open forum format. No formal presentation will be made. Solid waste managers from said counties and Bi-State Regional Commission staff will be present with copies of the draft to discuss it individually. The virtual meeting will include a short slide presentation with staff available to discuss the draft with virtual participants. Written statements will be accepted at the meeting. Written comments may also be conveyed to Bi-State Regional Commission, P.O. Box 3368, Rock Island, Illinois 61204-3368, (309)793-6300 prior to June 5, 2023. The final plan will be submitted to the Iowa Department of Natural Resources by July 1, 2023.

DRAFT

APPENDIX D

OTHER DOCUMENTATION