



Measurement and Reporting of Recycling Alternatives

SMM – Vision for Iowa

Iowa Department of Natural Resources
6200 Park Avenue
Des Moines, Iowa 50321

SCS ENGINEERS

27220308.01 | April 2026

1690 All State Court, Suite 100
West Des Moines, Iowa 50265
515-631-6160



Table of Contents

Section	Page
---------	------

	1.0 EXECUTIVE SUMMARY	1
--	------------------------------------	----------

- | | | |
|--|--|---|
| | 1.1 Purpose and scope..... | 1 |
| | 1.2 Summary of state systems evaluated | 1 |
| | 1.3 Key Iowa challenges | 2 |

	2.0 INTRODUCTION	5
--	-------------------------------	----------

- | | | |
|--|---|---|
| | 2.1 Background and Purpose..... | 5 |
| | 2.2 The Case for Collecting Recycling Data..... | 6 |
| | 2.3 Scope of the study | 6 |

	3.0 NATIONWIDE SUMMARY OF RECYCLING DATA COLLECTION.....	8
--	---	----------

- | | | |
|--|---|----|
| | 3.1 Introduction | 8 |
| | 3.2 Programs by Neighboring States..... | 11 |

	4.0 USING STATE EXPERIENCE TO INFORM IOWA'S RECYCLING DATA COLLECTION APPROACH.....	13
--	--	-----------

- | | | |
|--|--|----|
| | 4.1 Alignment Between Data Purpose and Program Design | 13 |
| | 4.2 Common Structural Features of Effective Programs..... | 13 |
| | 4.3 Tradeoffs Between Data Detail and Reporting Burden | 14 |
| | 4.4 Importance of Legal Authority and Flexibility..... | 14 |
| | 4.5 Implications for Iowa..... | 14 |



5.0 DATA COLLECTION OPTIONS FOR IOWA..... 15

5.1	Decision criteria used to evaluate Iowa options	15
5.2	Using an Existing Iowa Authority for Data Collection	16
5.3	Voluntary Recycling Data Collection Through State Surveys	19
5.4	Statutory Authority for Recycling Data Collection	21

6.0 RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT..... 26

6.1	What data are we talking about?	26
6.2	Core and Advanced Recycling Data Sets	30

7.0 IMPLEMENTATION CONSIDERATIONS AND ADDITIONS 40

7.1	Timeline and Phasing	40
7.2	Program Governance and Operating Model	40
7.3	Stakeholder Engagement and Communication.....	40
7.4	Resource Needs, Systems, and Program Sustainability	42
7.5	Data Quality, QA/QC, and Validation	42
7.6	Confidentiality, Reporting Universe, Publication Rules, and Risk Mitigation.....	44
7.7	Designing for Future Data Needs (Proactive Data Strategy).....	44

Figures

Figure 1.	State Recycling Data Reporting Status	9
-----------	---	---

Tables

Table 1.	Recycling Data Types to Support State Policy and Program Decisions.....	29
Table 2.	Facility Reporting Elements: Core vs. Advanced	30
Table 3.	Municipal Reporting Elements: Core vs. Advanced.....	31



Table 4.	Facility Reporting Elements: Core Recycling Data (Voluntary Collection).....	32
Table 5.	Municipal Reporting Elements: Core Recycling Data (Voluntary Collection).....	33
Table 6.	Summary of Potential Benefits to Reporting Entities.....	34
Table 7.	Facility Core Data and State Uses.....	35
Table 8.	Municipal Core Data and State Uses	35

Appendices

Appendix A	Reporting Requirements for States with Mandatory Reporting
Appendix B	State Program Overview
Appendix C	State Program Profiles
Appendix D	Potential Statutory Framework for Statewide Recycling Reporting



1.0 EXECUTIVE SUMMARY

1.1 PURPOSE AND SCOPE

This report was prepared for the Iowa Department of Natural Resources (DNR), a recommendation by Sustainable Materials Management initiative stakeholders, to evaluate practical options for improving statewide recycling measurement and reporting for traditional municipal recyclables (e.g., paper, cardboard, plastic containers, metal containers, and glass). Iowa has a long history of supporting recycling through planning and targeted financial assistance, but the state currently lacks a consistent, comprehensive mechanism to routinely collect, verify, and analyze recycling data across the state. As materials and markets evolve and expectations for transparency increase, the absence of consistent data limits Iowa's ability to:

- **Understand** material flows and system performance
- **Target** infrastructure and program investment
- **Evaluate** the outcomes of state policy and program decisions

1.2 SUMMARY OF STATE SYSTEMS EVALUATED

SCS Engineers (SCS) conducted a nationwide scan of recycling data collection practices and found that approaches vary widely. Some states operate mature, mandatory reporting programs anchored in permitting, registration, or certification systems—most commonly requiring reporting from material recovery facilities (MRFs) and processors. Other states rely primarily on municipalities, counties, or solid waste districts to report program and service data, sometimes complemented by voluntary facility reporting. A third group of states has no formal statewide program and relies on periodic voluntary surveys or grant-based reporting. For Iowa, the most instructive examples from other states are programs that:



Begin with a manageable “core” dataset



Protect confidential business information



Are built on clear statutory authority paired with flexible regulatory through aggregation and clear use limitations implementation that can evolve over time

1.3 KEY IOWA CHALLENGES

Iowa's current recycling data landscape is fragmented. Existing data does not provide a consistent statewide picture of recycling system performance, material flows, access to services, or market outcomes. Iowa also faces practical constraints common in states without dedicated recycling reporting programs: limited statewide standardization of definitions and material categories; uneven capacity across counties and communities; confidentiality concerns among private-sector operators; and the absence of a comprehensive inventory of recycling processing facilities. These constraints make it difficult to rely on any single entity type for all information needs. In practice, facilities are best positioned to report tonnage, material categories, and general destinations, while municipalities/local programs are best positioned to report service availability, access, and program context.

1.3.1 Recommended path forward (phased approach)

This report recommends a phased approach that begins with voluntary collection of a core dataset while Iowa develops a more durable statewide recycling reporting framework through statutory changes. This approach would allow Iowa to establish a credible baseline, build stakeholder trust, refine definitions and reporting tools, and demonstrate the practical value of better data before transitioning to required reporting. At the same time, the long-term program should be grounded in clear statutory authority, with the core reporting framework established directly in Iowa Code and administrative rules reserved for narrower implementation details.

Recommendation 1

Launch a voluntary reporting effort using a clear core dataset



In the near term, DNR should implement an annual voluntary data collection effort focused on information that stakeholders are most likely to provide with relatively low burden and limited confidentiality risk. Section 6 identifies a practical starting point for this effort, including the core data elements summarized in Tables 5 through 8. The recommended voluntary approach separates the reporting request by entity type:

- **Facilities (MRFs/processors):** Report core tonnage and system characteristics that facilities are best positioned to track, including total tons received/processed (or marketed), tons by broad material category, inbound geography at an aggregated level (e.g., county or region), general destination type (in-state, out-of-state, or export), and a qualitative contamination indicator.
- **Municipalities/local programs (and, where available, haulers):** Report core service and program context, including geography served, whether recycling services are available (curbside, drop-off, or both), approximate residential versus non-residential service where feasible, directional year-to-year change, and key program challenges.

To support participation, the voluntary effort should include clear confidentiality protections, standardized definitions and templates, and transparent communication about how data will and will not be used. A voluntary program is most likely to succeed if participants see that their data are handled consistently, summarized responsibly, and translated into practical actions such as technical assistance, grant targeting, and infrastructure planning.



Recommendation 2.

Establish explicit statutory authority for statewide recycling reporting directly in Iowa Code

While voluntary reporting can help Iowa build a baseline and improve stakeholder confidence, it will not by itself produce complete and consistent statewide data over time. For that reason, Iowa should pursue explicit and sufficiently detailed statutory authority for recycling reporting directly within Iowa Code Chapters 455D and 455B, as described in Section 5.4. Under this approach, the core structure of the reporting program would be established in statute, including the entities subject to reporting, minimum reporting requirements, reporting frequency, confidentiality protections, enforcement authority, and DNR authority to administer the program.

This approach would provide greater legal certainty and long-term program stability than relying primarily on administrative rules to define the reporting framework. Administrative rules would still play an important role but would be more narrowly focused on implementation details such as reporting forms, submission procedures, technical definitions, and methodologies.

The statutory framework could support a dual structure in which:

- **Chapter 455D** addresses facility-based reporting requirements for recycling facilities and processors; and
- **Chapter 455B** addresses jurisdictional or planning-area reporting requirements for counties, planning areas, councils of governments, or other designated local governmental entities.

This structure would allow Iowa to collect both facility-level material flow information and jurisdiction-level program and service information through a more durable and clearly authorized legal framework.

Recommendation 3.

Implement the program through phased expansion, stakeholder engagement, and right-sized resources



The recommended path forward is not to move immediately from no statewide system to a highly detailed mandatory program. Instead, Iowa should use a phased implementation strategy. The voluntary phase should focus on core data elements that are easiest to collect, least sensitive, and most directly useful for planning and program development. Once statutory authority is established, later phases can transition to required reporting and expand the program where justified to include additional data elements, stronger QA/QC procedures, and a broader reporting universe. Program success will depend on sustained engagement with facilities, municipalities, haulers, and industry associations; clear guidance and training; and sufficient staffing and data systems to support intake, validation, analysis, and publication of results. To implement this phased approach, DNR could:

- 1 Confirm the scope of “traditional recyclables,” reporting entities, and key reporting definitions.
- 2 Finalize core voluntary reporting templates for facilities and municipalities using the framework in Section 6.
- 3 Identify and recruit a pilot group of voluntary participants through existing contacts, trade associations, grant recipients, and local government networks.
- 4 Establish confidentiality, aggregation, and publication rules up front to support trust and participation.
- 5 Develop a legislative roadmap for amendments to Chapters 455D and 455B that would establish the statutory foundation for statewide reporting.
- 6 Plan for staffing, data management, QA/QC, and reporting tools so the program can scale from a voluntary baseline effort to a sustainable required reporting program.

Taken together, this phased approach allows Iowa to begin improving recycling measurement now while also building toward a more complete, consistent, and durable statewide reporting system.

Acknowledgment: Preparation of this report was supported by funding provided through the U.S. Environmental Protection Agency’s Solid Waste Infrastructure for Recycling (SWIFR) grant program.



2.0 INTRODUCTION

2.1 BACKGROUND AND PURPOSE

Iowa has a long history of supporting waste reduction and recycling through state policy, planning, and targeted financial assistance. Statutes such as the Groundwater Protection Act established early waste diversion objectives, while subsequent initiatives have provided grant funding to support recycling infrastructure, education, and program development. Despite these efforts, consistent statewide recycling data remains limited in Iowa. Existing reporting requirements are largely tied to grant participation or specific regulatory programs, resulting in fragmented data that does not fully capture recycling system performance, material flows, or market outcomes.



Previous studies and planning efforts, including the Sustainable Materials Management (SMM) Plan – Vision for Iowa and the 2024 Hub and Spoke Study and Update, have highlighted the importance of reliable recycling data to support long-term planning, infrastructure investment, and policy development. However, Iowa currently lacks a comprehensive mechanism to routinely collect, verify, and analyze recycling data across facilities, local programs, and regions. As recycling markets evolve and expectations for accountability and transparency increase, the absence of consistent data limits the state's ability to evaluate program effectiveness, identify gaps, and respond proactively to changing conditions.

The purpose of this study is to evaluate how other states collect and manage recycling data and to assess potential pathways for Iowa to improve its own data collection framework. By examining existing state approaches, statutory authorities, and reporting practices, this report aims to identify practical options that align with Iowa's policy goals, administrative capacity, and stakeholder landscape. The findings are intended to support informed decision-making by the DNR as it considers strategies for strengthening recycling data collection to better support planning, performance measurement, and long-term program sustainability.

2.2 THE CASE FOR COLLECTING RECYCLING DATA

State agencies play a vital role in managing materials and shaping recycling policy, making accurate, consistent data an essential tool for informed decision-making. Understanding what materials are being recycled, in what quantities, and where they ultimately go helps agencies evaluate program effectiveness and identify opportunities for improvement or new strategies.

A well-structured data collection system also strengthens policy development by grounding decisions in real-world conditions. It enables the state to respond to market fluctuations, anticipate infrastructure needs, and align regulatory and funding efforts with evolving demands. Just as importantly, reliable data enhances transparency and accountability, fostering clearer communication among agencies, the public, local governments, and industry stakeholders.

This report examines how select states collect and use recycling data. By reviewing existing structures, tools, and reporting practices nationwide, it aims to provide insights that can help Iowa develop a data collection system that supports long-term planning and policy development.

2.3 SCOPE OF THE STUDY

This study explores how states and other entities collect recycling processing data from targeted facilities (e.g., material recovery facilities, processors), as well as how they receive information from jurisdictions, solid waste districts, or other authorities. By reviewing existing reporting methods, the study highlights different approaches for gathering, verifying, and incorporating recycling data into broader waste management efforts.

It also explores practical strategies for regularly collecting important recycling program data from facilities and local programs. By identifying key challenges and opportunities, the goal is to develop actionable recommendations to help Iowa build a reliable reporting system that supports long-term planning and policy decisions.

For clarity, this study uses the following definitions to describe recyclable materials, facilities, and reporting entities.

► **Recyclable Materials (Traditional Recyclables):**

For purposes of this study, *recyclable materials* refers to traditional municipal recyclables commonly collected through residential and commercial recycling programs, including paper, cardboard, plastic containers, metal containers, and glass. The study does not evaluate data collection practices for specialty or non-traditional recyclable materials such as scrap metal, construction and demolition debris, tires, batteries, electronics, or organics, except where noted for context.



► **Recycling Processing Facilities:**

Recycling processing facilities are facilities that receive, consolidate, sort, bale, store, or otherwise prepare traditional recyclable materials for transportation to end markets. This includes material recovery facilities (MRFs) and similar processors handling single-stream or source-separated recyclables. This term does not include scrap metal yards, manufacturers using recycled feedstocks, brokers that do not physically manage materials, or facilities primarily handling non-traditional recyclable materials, unless explicitly stated.



► Reporting Entity:

A *reporting entity* is any organization or facility identified by a state as responsible for submitting recycling data. Depending on the state program, reporting entities may include recycling processing facilities, municipalities, counties, solid waste districts, or other designated authorities. The specific reporting entity varies by state and is tied to statutory authority and program design.



► Recycling Data:

Recycling data refers to quantitative and qualitative information used to track recycling activity, including but not limited to material-based tonnage, material categories, reporting period, and, in some cases, origin or destination of materials. The scope and level of detail required vary across states and are influenced by the intended use of the data.



This study focuses on data collection frameworks for traditional recyclables and does not evaluate comprehensive materials management systems or reporting programs for non-traditional recyclable materials. While some states include broader material categories in their reporting systems, analysis of those materials is outside the scope of this study.





3.0 **NATIONWIDE SUMMARY OF RECYCLING DATA COLLECTION**

3.1 **INTRODUCTION**

Recycling data is a foundational element for tracking progress toward diversion goals and informing policy and infrastructure decisions. However, the methods and rigor of recycling data collection vary significantly across U.S. states. This report was developed to provide a summary of current state-level data collection efforts and offer tailored recommendations to support Iowa in developing or refining its own approach.

3.1.1 **Research Approach**

Research began with a nationwide scan of all remaining 49 states to assess whether and how each state collects recycling data. This preliminary review was conducted through publicly available information, primarily using the internet and website searches of state environmental or solid waste agency resources.

3.1.2 **Key Findings**

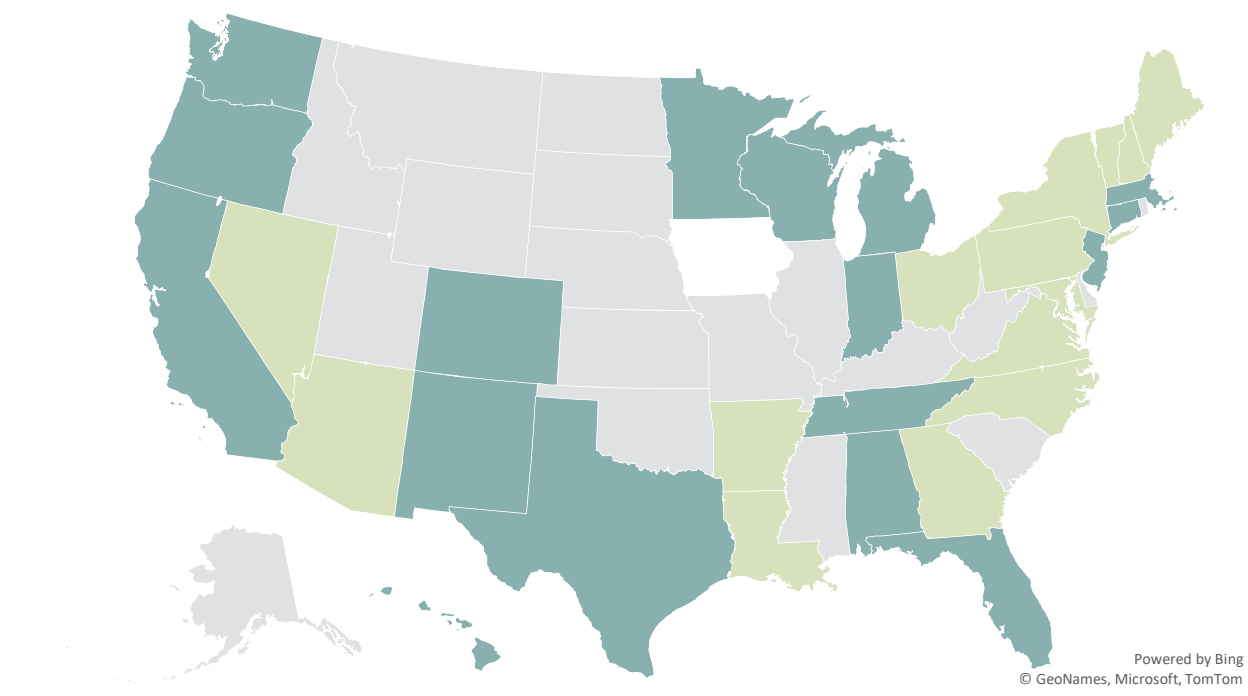
To understand how states across the U.S. approach recycling data collection, SCS reviewed 49 states to determine whether a formal mechanism exists for collecting recycling-related data and whether participation in data reporting is mandatory, voluntary, or not required:

17 states have mandatory recycling data reporting requirements. These requirements apply to haulers or material recovery facilities (MRFs), and reporting is often tied to permitting or certification requirements.

14 states have mandatory recycling data reporting requirements for municipalities or other designated authorities. In these states, reporting is typically tied to state goals, funding eligibility, or performance tracking. While reporting by authorities is mandatory, some of these states also encourage voluntary data submission from recycling facilities through guidance or technical assistance; however, facility reporting is not required and is not enforced.

18 states currently have no formal mechanism for statewide recycling data collection, but may have voluntary data collection programs for facilities or local governments. Data may be collected inconsistently at the local level or not at all, and the state agencies do not publish consolidated information.

Figure 1. State Recycling Data Reporting Status



Has mandatory reporting requirements for facilities, collectors, or transporters.		Data collection relies on cities, counties, or districts. Voluntary, minimal, or no facility reporting.		No recycling data reporting or reliance on voluntary data reporting.	
Alabama	Minnesota	Arizona	New Hampshire	Alaska	Nebraska
California	New Jersey	Arkansas	New York	Delaware	North Dakota
Colorado	New Mexico	Georgia	North Carolina	Idaho	Oklahoma
Connecticut	Oregon	Louisiana	Ohio	Illinois	Rhode Island
Florida	Tennessee	Maine	Pennsylvania	Kansas	South Carolina
Hawaii	Texas	Maryland	Vermont	Kentucky	South Dakota
Indiana	Washington	Nevada	Virginia	Mississippi	Utah
Massachusetts	Wisconsin			Missouri	West Virginia
Michigan				Montana	Wyoming

Additional information was compiled for states that had mandatory reporting requirements. The goal of this initial phase was to identify:

- Whether a state had a formal mechanism for collecting recycling data;
- The types of entities that are required to report (e.g., facilities, local governments, haulers);
- The type of data collected (e.g., tonnage, inventory flows, material types); and
- The reporting frequency and method (e.g., online portals, forms, annual certifications).

Appendix A provides a summary of the information collected for the 17 states with mandatory reporting requirements. The table identifies the mechanism used by the state to obtain data, the frequency which data must be reported, and the entity that is required to report. All states on the table require tonnage data, but most also require reporting or recordkeeping on other “inventory” items such as origin of material, length of time in storage, or market destinations. Some require an annual “balancing” of incoming and outgoing material. Most states require reporting on typical single-stream recyclable materials, but may include other materials such as organics, electronics, or tires.

Mechanisms used for data collection vary in complexity and technology, including:



Online portals with standardized reporting forms:

- State-specific portals (e.g., California’s Recycling Disposal Reporting System [RDRS], Florida Business Portal, Colorado online reporting system, Massachusetts EEA ePLACE Portal).
- Re-TRAC Connect™.
- Excel-based templates submitted to state agency.



Surveys administered to local governments or recycling service providers.



Integration into broader solid waste reporting systems.



3.2 PROGRAMS BY NEIGHBORING STATES

Before deciding on which states to study further, DNR staff requested information on reporting requirements in other EPA Region 7 states and states contiguous to Iowa.

State	Data Collection Summary
	<i>EPA Region 7 State</i> The state does not have a comprehensive recycling data reporting system, however, grant recipients are required to report recycling tonnage during the grant period, and some grantees continue reporting for the duration of any security interest agreement associated with grant-funded equipment. Beyond grant-related reporting, Missouri only has the authority to collect tonnage data from in-state landfills and transfer stations that export waste for disposal.
	<i>EPA Region 7 State</i> The state tracks municipal solid waste (MSW) tonnage from landfills and transfer stations. In 2015, state personnel conducted a voluntary survey to estimate Kansas' recycling rate. More recently, in 2022, Wichita State University conducted a statewide survey to collect both quantitative and qualitative data on recycling.
	<i>EPA Region 7 State</i> Recycling data is not regularly reported to the state. However, the Nebraska Recycling Council (NRC) conducts an annual municipal survey to collect information on waste management practices, including recycling, composting, construction and demolition (C&D) debris, community engagement, costs, and partnerships. This survey does not include tonnage data.
	<i>EPA Region 5 State</i> The state requires counties to develop solid waste management plans, which must be updated every five years. The state has set a 25% recycling goal for municipal waste, but counties are no longer required to submit annual progress reports on recycling efforts. While some counties may still track and report this data voluntarily, the state does not require ongoing reporting beyond the planning updates.
	<i>EPA Region 5 State</i> Both recycling responsible units (RUs) and material recovery facilities (MRFs) must submit annual reports to the DNR. RUs are typically a municipality, county, tribe, or other local government entity tasked with managing recycling programs under Wisconsin law. RUs must report annually to confirm compliance with program criteria (i.e., provision of recycling services to residents, outreach and education). MRFs annually self-certify compliance with program criteria (e.g., compliance, maintain marketability of recyclables, timely processing) and provide the tonnage of recyclable material collected.

State	Data Collection Summary
 	<i>EPA Region 5 State</i> County and facility report data. Facilities, including recycling facilities, report data on waste received or transported, amounts and types of waste, areas served, tipping fees, personnel training, and more. Counties submit data to detail trends in waste generation, management, and disposal (SCORE report).
	<i>EPA Region 8 State</i> The state last used a voluntary survey to estimate diversion in 2011.

3.2.1 State Outreach and Qualitative Insights

In addition to the document and website review summarized above, SCS conducted a limited set of informal discussions with staff from select state agencies to better understand how reporting programs operate in practice and to help interpret publicly available materials. These discussions were used to clarify implementation details that are not always evident in statutes, guidance, or published reports and to identify practical lessons that may be transferable to Iowa.



Appendix A summarizes key takeaways from these conversations and identifies the states consulted. The discussion is presented as common themes and implementation considerations and reflects the fact that each state's approach is shaped by its own statutory authorities, reporting universe, and operational context. These cross-cutting themes are used in Section 4 to frame how observed state experience can inform Iowa's recycling data collection approach, including common program design choices, tradeoffs, and practical implementation considerations.



4.0 USING STATE EXPERIENCE TO INFORM IOWA'S RECYCLING DATA COLLECTION APPROACH

The nationwide review of recycling data collection practices highlights clear patterns in how states structure effective, sustainable reporting programs. While individual state systems vary based on statutory authority, resources, and policy priorities, the data reveal several consistent themes that are directly applicable to Iowa as it considers options for improving statewide recycling data collection.

4.1 ALIGNMENT BETWEEN DATA PURPOSE AND PROGRAM DESIGN

Across states, the structure and complexity of recycling data collection programs closely align with how the data are intended to be used. States that rely on recycling data primarily for compliance and oversight tend to require limited, facility-based reporting focused on material tonnage. In contrast, states that use recycling data to support planning, policy development, performance measurement, or investment decisions generally collect more detailed information, including material types, sources, and destinations.

This distinction underscores the importance of clearly defining Iowa's objectives for recycling data collection at the outset. If the state's goal is to support long-term planning, evaluate diversion strategies, and guide funding or infrastructure decisions, a minimal or ad hoc reporting approach is unlikely to provide sufficient insight. Programs designed with a clear policy and planning purpose are better positioned to justify reporting requirements and sustain participation over time.

4.2 COMMON STRUCTURAL FEATURES OF EFFECTIVE PROGRAMS

Despite differences in scope, most states with established recycling data programs share several foundational characteristics:

- ▶ **Processing facilities as primary reporting entities.** States most commonly require reporting from material recovery facilities and other processors, rather than generators, because facilities are best positioned to track material quantities, composition, and disposition.
- ▶ **Standardized material categories and reporting units.** States typically define allowable materials and units of measure (most often tons) to promote consistency and comparability.
- ▶ **Routine reporting on a predictable cycle.** Annual reporting is the most common frequency, balancing data needs with reporting burden.
- ▶ **Integration with existing regulatory or administrative structures.** Many states link reporting to permitting, registration, certification, or planning requirements to improve compliance and reduce administrative duplication.

These shared features suggest that Iowa would benefit from anchoring any expanded data collection effort within existing administrative frameworks where possible, while standardizing definitions and reporting expectations statewide.

4.3 TRADEOFFS BETWEEN DATA DETAIL AND REPORTING BURDEN

State experience also highlights a recurring tradeoff between data quality and reporting burden. Programs that require highly detailed reporting can strain both state resources and reporting entities, particularly smaller or rural operations. Several states noted that collecting more data does not necessarily improve decision-making unless the information can be reliably verified and analyzed.

Successful programs tend to phase in requirements over time, beginning with core data elements such as material-based tonnage and expanding as systems, staffing, and stakeholder familiarity mature. This incremental approach allows states to build credibility, refine definitions, and demonstrate the value of the data before introducing additional complexity.

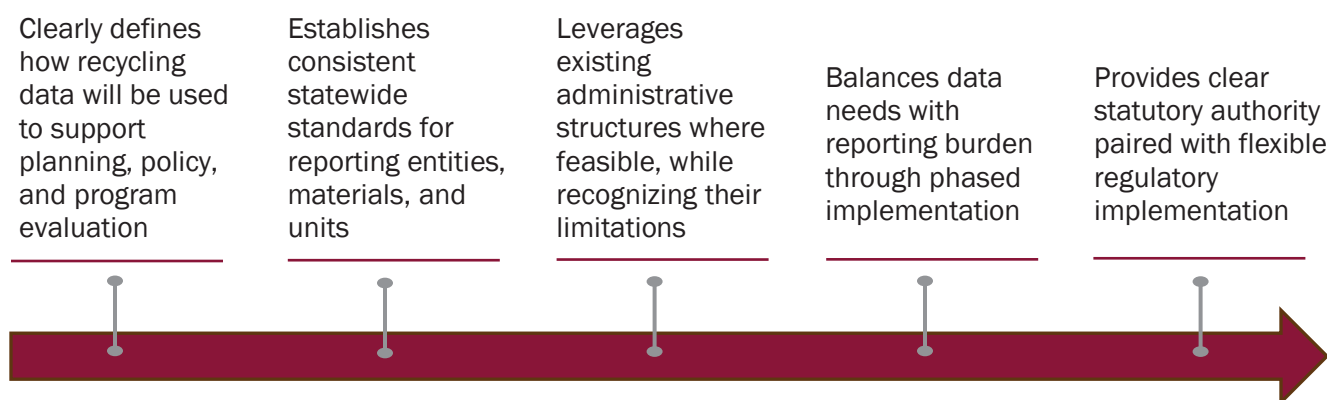
4.4 IMPORTANCE OF LEGAL AUTHORITY AND FLEXIBILITY

The review confirms that states with clear statutory authority for recycling data collection are better positioned to implement consistent and enforceable programs. At the same time, states emphasized the value of flexibility to adapt reporting requirements as markets, materials, and technologies evolve.

States that pair broad statutory authority with regulatory detail are able to adjust reporting elements, formats, and schedules without repeated legislative action. This approach supports long-term program sustainability while maintaining legal defensibility.

4.5 IMPLICATIONS FOR IOWA

Taken together, these findings suggest that Iowa's most effective path forward may be one that:



Rather than replicating any single state's program, Iowa can draw on these common elements to design a data collection framework that reflects its policy goals, institutional capacity, and stakeholder landscape. The following section evaluates specific options available to Iowa and assesses how each aligns with these observed best practices.



5.0 DATA COLLECTION OPTIONS FOR IOWA

Accurate and consistent recycling data can support evaluations of program performance, support policy development, and guide investments in waste reduction and recycling infrastructure. At present, Iowa does not have a single, comprehensive mechanism to collect statewide recycling data, and existing authorities provide only partial or indirect access to the information needed to assess material flows and program outcomes.

This section examines four potential approaches for improving recycling data collection. The first considers the use of existing solid waste planning and reporting requirements, which could be expanded to incorporate more detailed recycling data at the county or regional level. The second evaluates the state's existing "legitimate recycling" authority, which allows targeted data requests from recycling facilities but was designed primarily for compliance and enforcement rather than routine data collection. The third approach explores voluntary surveys as a cooperative method to gather information from recyclers without imposing mandatory reporting obligations. The fourth approach assesses the establishment of new statutory authority to explicitly require recycling data reporting, providing a clear and enforceable foundation for statewide data collection.

Each approach is evaluated in terms of feasibility, legal considerations, administrative burden, and the quality and completeness of data it is likely to produce. Together, these options illustrate a range of pathways the state could pursue, from leveraging existing authorities to adopting new statutory tools, depending on policy priorities, resource availability, and desired levels of data consistency and accountability.

5.1 DECISION CRITERIA USED TO EVALUATE IOWA OPTIONS

To keep the recommendations in this report consistent, implementable, and aligned with Iowa's needs, the options in Section 5 are evaluated using the following decision criteria:

Legal authority and defensibility: Whether the approach has clear authority under existing law (or requires new statutory authority), and whether requirements are enforceable and resilient to legal challenge.

Reporting burden and feasibility: Level of effort required for reporting entities and for DNR administration, including how easily requirements can be standardized across the state.

Confidentiality and stakeholder acceptance: Ability to protect confidential business information and encourage participation, particularly during a voluntary phase.

Cost and resource needs: Expected costs for both the state and reporting entities, including staffing, systems, training, and ongoing program administration.

Data usefulness and decision value: Whether the data will be actionable for planning, infrastructure investment, market development, and program evaluation (not just collected for reporting's sake).

Data quality, completeness, and comparability: Likelihood that data will be consistent, sufficiently complete, and comparable across time and geography.

Scalability over time: Whether the approach can begin with a feasible “core” dataset and expand to advanced elements as authority, systems, and trust mature.

5.2 USING AN EXISTING IOWA AUTHORITY FOR DATA COLLECTION

5.2.1 Iowa Planning Requirements

Overview

In Iowa, cities and counties are required to develop comprehensive solid waste management plans to support waste reduction, recycling, and proper disposal. These requirements are established in Iowa Code Chapters 455B.302 and 455B.306 and further defined in Iowa Administrative Code Chapter 567-101, which outlines planning standards and reporting expectations.

Local governments may prepare plans individually or collaborate through regional planning areas, often formalized via 28E agreements. Each planning area must submit a comprehensive solid waste management plan to the DNR for approval. Plans are required to address waste reduction strategies, recycling goals, diversion methods, disposal capacity, and service providers. Importantly, they must also describe how waste and recycling data will be tracked and reported. Once approved, comprehensive solid waste management plans are generally updated on a five-year cycle.

Only planning areas that participate in the Environmental Management System (EMS) program are required to submit annual reports, which are reviewed by the DNR through internal and external auditing processes. Failure to meet EMS requirements can result in enforcement actions or loss of EMS designation.

This existing planning and reporting framework provides a potential pathway for expanding recycling data collection without directly regulating private recyclers or haulers.

Comparable State Approaches

Several states rely on municipalities, counties, or regional planning entities as intermediaries for recycling data collection:

State	Data Collection Summary
 CONNECTICUT	Requires municipalities to submit annual recycling reports detailing program implementation and recycling destinations.

State	Data Collection Summary
 PENNSYLVANIA	Uses a tiered system in which municipalities report to counties, and counties compile and submit statewide data.
 VIRGINIA	Requires Solid Waste Planning Units to submit recycling data annually or on a multi-year cycle, depending on population.
 SOUTH CAROLINA	Requires counties to report annually on waste disposal and recovery to track progress toward state goals.
 WISCONSIN	Requires Responsible Units (RUs), which include local governments, tribes, or solid waste management systems, to report annually on materials collected and document that residents within their jurisdictions have access to recycling services.

Application to Iowa

Requiring counties or regional planning areas to collect and report recycling data as part of their solid waste management plans represents a viable third-party data collection approach. Because counties already have statutory planning and reporting obligations, this option could build on existing structures rather than creating an entirely new reporting program.

This approach offers several advantages. It leverages established planning and reporting processes, improving statewide data availability while minimizing the need for new statutory authority. Counties would gain a clearer understanding of recycling performance within their jurisdictions, supporting local planning, program design, and resource allocation. Statewide, more complete data would improve benchmarking, policy evaluation, and the ability to target grants or technical assistance. Requiring local reporting may also increase accountability by tying outcomes more directly to local decision-making.

However, this approach also presents challenges. County capacity varies widely, and some jurisdictions may lack the staffing, technical expertise, or systems needed to collect and analyze recycling data consistently. Without clear guidance, differences in definitions, methodologies, and reporting periods could limit data comparability across the state. Counties may also view expanded reporting requirements as an unfunded requirements, particularly if they must rely on voluntary data

sharing from private haulers or processors that are not under county control. Even with county involvement, private operators may resist sharing proprietary information unless contracts, franchises, or ordinances require it. Finally, the state would still bear responsibility for reviewing reports and addressing noncompliance, potentially increasing oversight demands on the DNR.

Recommendation

Using county-level reporting through solid waste management plans can serve as a practical interim or complementary strategy for improving recycling data collection in Iowa, particularly where direct state authority is limited. However, this approach should not be viewed as a complete substitute for explicit statutory authority to collect recycling data. Its effectiveness depends heavily on county capacity, consistent guidance, and cooperation from private-sector operators.

If pursued, this option would benefit from clear statewide standards for data definitions, reporting formats, and confidentiality protections, as well as technical assistance to support counties with limited resources. Over the long term, county-level reporting is best positioned as part of a broader data collection framework; one that complements, rather than replaces, direct state authority to collect recycling data where appropriate.

5.2.2 Iowa's Legitimate Recycling Requirement

Overview

In 2018, Iowa enacted House File 2303, now codified in Iowa Code Chapter 455D, establishing a “legitimate recycling” requirement to help confirm that materials collected for recycling are actually processed and to strengthen oversight of recycling facilities. The law was developed in response to facilities that accumulated materials without sending them to recycling markets, sometimes leaving abandoned stockpiles that posed environmental hazards and costly liabilities.



Under the law, most recycling facilities must maintain records of end users, track inventory, and demonstrate that at least 75 percent of materials accepted annually are shipped for recycling. Materials failing to meet these standards are treated as solid waste, giving the DNR authority to inspect facilities, review records, and require proper disposal. Scrap metal dealers are exempt.

Iowa enforces this requirement reactively, initiating inquiries when there is reason to suspect noncompliance rather than auditing all operations routinely. Because recycling facilities are not permitted or registered, the state does not maintain a comprehensive inventory of facilities and does not proactively inspect or monitor recycling operations. Instead, the law provides a mechanism for the DNR to request records and pursue enforcement when concerns are raised through complaints, referrals, or other indications of potential issues. Facilities must provide information on material handling, tonnage, and end-user documentation when requested.

Many states address this gap by requiring recycling processing facilities to register, certify, or otherwise identify themselves to the state—even when the state does not (or does not yet) require

detailed tonnage reporting. A basic registration approach provides the agency with an up-to-date inventory of facilities and core information needed for outreach, baseline planning, and future reporting implementation (e.g., facility name, physical location, owner/operator contact information, facility type/operations, and primary materials processed). For example, Alabama requires materials recovery facilities (MRFs) and recovered material processing facilities (RMPFs) to be registered with the state before operating, and Wisconsin requires annual self-certification for MRFs that serve as part of a Responsible Unit's recycling program. These types of registration/certification tools help states define the reporting universe and support oversight without immediately requiring more sensitive or burdensome reporting elements.

Limitations of Using Iowa's Legitimate Recycling Law for Annual Reporting

Iowa Code 455D.4A establishes the legal distinction between "legitimate recycling" and "solid waste" disposal. The statute's primary intent is to prevent facilities from indefinitely stockpiling waste under the pretense of recycling, thereby mitigating potential environmental hazards. Under this statute, a "recycling facility" is defined as any facility, business, or operation that has the state primary purpose of facilitating the recycling of materials that would otherwise be solid waste.

To be excluded from solid waste regulations, a facility must demonstrate that its primary purpose is recycling by meeting three specific criteria:



1. Potentially Recyclable and Feasible:

Facilities must maintain at least one formal contract or agreement with an end-user to prove a viable market exists and that there is a feasible method for converting the materials into a valuable product.

2. Managed as a Valuable Commodity:

Operators must document that materials are handled as valuable assets rather than waste. This includes maintaining records that track the flow of inventory from arrival through storage to final shipment.

3. Not Speculatively Accumulated:

To prevent indefinite storage, facilities must prove through inventory logs that at least 75% of the material on hand at the start of the calendar year is recycled or transferred for recycling by year's end.

Compliance and Enforcement: Non-compliance with these criteria subjects a facility to DNR Solid Waste regulations. Furthermore, scrap metal is not subject to the provisions of Section 455D.4A.

5.3 VOLUNTARY RECYCLING DATA COLLECTION THROUGH STATE SURVEYS

Some states choose to collect recycling data through voluntary surveys of recyclers as a practical approach when statutory authority to compel reporting is not available or when the state seeks supplemental information. In this model, participation is entirely optional, and the state cannot require respondents to provide data. Nevertheless, with careful planning, outreach, and support, voluntary surveys can yield meaningful insights into recycling practices, material flows, and infrastructure needs.

A typical voluntary survey begins by defining objectives and scope.

The state identifies the survey's purpose, such as estimating statewide recycling tonnage, tracking material types, or understanding operational challenges. It also determines which types of recyclers to include, for example, municipal programs, private haulers, MRFs, specialty processors, or end-market facilities, and sets a timeframe for data collection, often on an annual or semi-annual basis.

2

Identifying and engaging participants is critical for maximizing response rates.

States typically compile contact lists from licensing databases, trade associations, or municipal program lists. Outreach should clearly explain the purpose of the survey, the benefits of participation, and assurances of confidentiality. To encourage participation, states may offer incentives such as benchmarking reports, feedback summaries, or recognition for participating entities.

4

1

The next step is to develop the survey instrument.

Surveys are most commonly administered online, though paper alternatives may be offered to smaller or rural operations. Questions should be concise and structured to capture information such as operation type, material types collected, tonnage, destination markets, and operational challenges. Pilot testing the survey with a small subset of recyclers can help identify ambiguities or logistical issues before broad distribution.

3

Survey administration generally allows 4–6 weeks for responses, with periodic reminders sent by email or phone.

Clear instructions and support contacts helps ensure data completeness and accuracy. To enhance credibility and efficiency, some states partner with universities or third-party organizations to administer the survey, as Kansas recently did. These partners can manage data collection, perform quality checks, and follow up on inconsistencies, while also offering impartial analysis.

Once data are collected, analysis involves aggregating results by material type, recycler type, or region.

Trends, capacity gaps, and operational insights are identified, and qualitative feedback from participants can provide additional context. In reporting, confidentiality is maintained by presenting data in aggregate form. The state can then disseminate findings to stakeholders — municipalities, recyclers, and policymakers — along with potential recommendations for improving future data collection efforts.

6

5

Finally, states may choose to institutionalize the survey by establishing a recurring cycle, such as annual or biennial data collection.

Long-term partnerships with universities, consultants, or industry associations can support consistency, improve participation rates, and enhance the overall quality of statewide recycling data.

Voluntary surveys, while inherently limited by participation rates, offers a flexible and practical approach for Iowa to capture valuable insights into recycling operations, monitor trends over time, and inform policy and program development.

5.4 STATUTORY AUTHORITY FOR RECYCLING DATA COLLECTION

Without clear statutory authority, Iowa cannot require recyclers to provide comprehensive data, which limits the ability to collect consistent and actionable information. Establishing explicit statutory authority would provide a solid legal foundation, clarify obligations for recycling entities, and reduce the risk of legal challenges.

Two approaches are commonly considered for structuring this authority: a specific statute that defines reporting requirements directly, and a broad statutory requirement that grants authority while delegating technical details to regulations. Both approaches have distinct advantages and trade-offs, which are discussed in detail below.

5.4.1 Specific Statute with Direct Reporting Requirements

A specific statutory approach establishes detailed requirements for recycling data collection directly in the law. The statute would identify the types of entities required to report, such as MRFs, commercial recyclers, and municipal programs. It would also define the data elements that must be collected, including quantities of materials, material types, and information on end destinations, along with the frequency of reporting and enforcement provisions for noncompliance. By codifying these requirements, this approach provides immediate clarity for both the agency and regulated entities, ensuring that all stakeholders understand their obligations and the consequences of noncompliance.

Data Collection Options for Iowa

A specific statute would clearly define all elements of recycling data collection in the law itself. **Key features** of this approach might include:

Definition of terms:

The statute should define what is meant by "recyclables," "solid waste," "recycling facility," etc., so there's consistency in reporting.

Entities required to report:

The statute would identify which facilities, programs, or organizations must submit data (e.g., MRFs, commercial recyclers, municipal programs).

Data elements and frequency:

The statute could specify what information must be collected (e.g., tonnage, material types, end-user destinations) and how often it must be reported (e.g., annually or quarterly).

Enforcement authority:

The statute would give the agency clear power to request records, inspect facilities, and impose penalties for noncompliance.

Confidentiality protections:

The statute could include provisions to safeguard proprietary business information.



One of the main benefits of a specific statute is legal certainty. Because the reporting obligations are clearly spelled out in legislation, there is less room for dispute regarding the DNR's authority. Compliance expectations are straightforward, and enforcement actions are more defensible in court. Additionally, a specific statute can embed protections for proprietary business information, assuring recyclers that sensitive data will be safeguarded.

However, this approach also has limitations. The recycling landscape is constantly evolving, with new materials, technologies, and markets emerging over time. Updating reporting requirements embedded in a statute requires legislative action, which can be slow and inflexible. As a result, a highly prescriptive statute risks becoming outdated and may not adapt well to new materials or processing methods. Furthermore, a detailed legislative approach increases the burden on lawmakers, who must consider technical and operational details that may be better handled by agency experts.

Overall, a specific statute provides clarity and enforceability, but it may lack the flexibility needed for a dynamic recycling system. It works best when legislative certainty and unambiguous legal authority are the primary priorities.

5.4.2 Broad Statutory Requirements with Regulatory Detail

A broad statutory approach takes the opposite approach, focusing on establishing the DNR's authority to collect recycling data, while leaving the technical details to administrative regulations. Under this model, the statute would articulate the DNR's authority, define the types of entities subject to reporting in general terms, and set enforcement authority, including the ability to request records, inspect facilities, and impose penalties for noncompliance. Specific requirements, such as reporting formats, data elements, submission deadlines, and procedures for handling unique facility types or materials, would be established through regulations.

Example **Regulatory Components** may include:



Material Categories and Reporting Units:

Regulations could specify which materials must be reported (e.g., paper, plastics, metals, glass, organics) and how quantities should be measured (e.g., tons, cubic yards, or standardized weight estimates). Special provisions could apply to new or emerging materials, such as mixed plastics or electronic waste.

Reporting Formats and Data Elements:

Regulations could require recyclers to report the total amount of each material accepted, the amount shipped to end markets, and the identity of the receiving facility. Standardized forms or digital templates could simplify reporting and ensure consistent data across all entities.

Frequency and Deadlines:

Regulations could set the schedule for submissions, such as annual or quarterly reporting, along with deadlines and procedures for late submissions.

Aggregation Rules and Confidentiality Protections:

To protect sensitive business information, regulations could allow aggregated reporting at the county or regional level rather than facility-specific disclosures. They could also specify which data is public versus confidential.



Exemptions and Special Cases:

Regulations could define exemptions for very small operations, specialty recyclers, or entities that do not handle regulated materials, as well as procedures for requesting temporary exemptions or waivers.

Compliance Procedures and Enforcement:

Regulations could outline documentation requirements, inspection protocols, and processes for addressing noncompliance, including corrective action plans or penalties.

The primary advantage of this approach is flexibility. Regulations can be updated much more quickly than statutes, allowing the DNR to respond to changes in recycling markets, new materials, or advances in data collection technology. This means the state can maintain accurate, relevant, and actionable recycling data over time without waiting for legislative amendments. It also allows the DNR to streamline reporting procedures and adapt to practical challenges in the field, reducing administrative burdens for both the state and recycling entities.

A broad statutory requirement does come with certain risks. If the statute is written too vaguely, regulated entities could challenge specific regulatory requirements as exceeding the DNR's authority. To avoid this, the statute must clearly articulate the DNR's power to collect data, the scope of regulated entities, and the purposes of data collection. Additionally, developing regulations requires a formal rulemaking process, including public notice and comment periods, which can delay initial implementation. Despite these considerations, the long-term flexibility and adaptability of this approach make it well-suited for a dynamic recycling system.

5.4.3 Regulatory Context – Executive Order 10

In 2023, Iowa Executive Order 10 directed state agencies to review existing administrative rules and evaluate whether rules should be retained, revised, or repealed. The order also increased scrutiny of agency rulemaking authority and emphasized the importance of clearly authorized statutory authority for regulatory programs.

As a result, reliance primarily on administrative rules to establish recycling reporting requirements may create greater uncertainty over time, particularly if reporting authority is not explicitly and specifically supported in statute. Future rule reviews, revisions, or repeals could affect the long-term consistency and enforceability of a recycling reporting program if core requirements are contained primarily within administrative regulations.

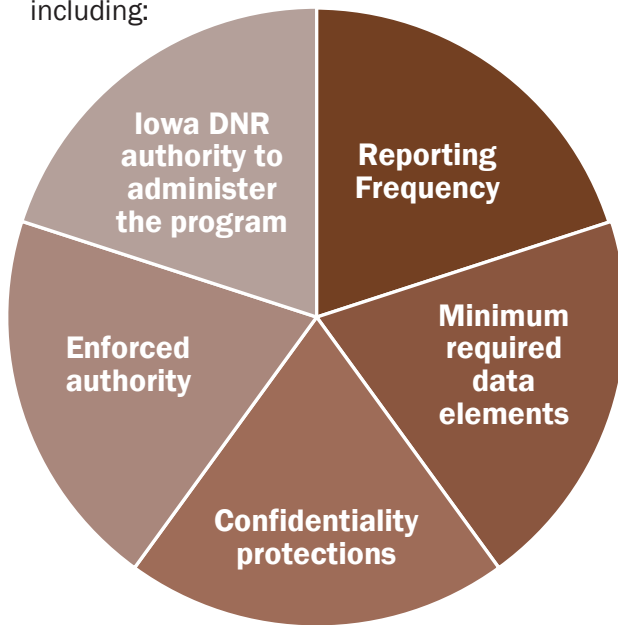
Accordingly, Iowa may wish to consider establishing the primary reporting framework directly within Iowa Code, while reserving administrative rules for limited implementation details such as reporting forms, submission procedures, schedules, and technical guidance.

5.4.4 Recommendation

After considering the advantages and limitations of both approaches, the recommended approach is to establish explicit and sufficiently detailed statutory authority for recycling reporting directly within Iowa Code Chapters 455D and 455B.

Data Collection Options for Iowa

Under this approach, statutes would establish the core elements of the reporting program, including:



Administrative rules would still play a role but would be more narrowly focused on implementation details such as reporting forms, submission procedures, material category definitions, and technical methodologies.

This approach may provide several advantages under Iowa's current regulatory framework:

- Greater legal certainty regarding Iowa DNR authority;
- Reduced vulnerability to future rule challenges or repeal;
- Clearer expectations for regulated entities and reporting jurisdictions;
- Improved long-term program stability; and
- Reduced reliance on broad delegated regulatory authority

Under this framework, Iowa could establish:

- ▶ **Facility-based reporting requirements** under Chapter 455D for recycling facilities, materials recovery facilities (MRFs), composting facilities, anaerobic digestion facilities, and other recycling processors; and
- ▶ **Jurisdictional or planning-area reporting requirements** under Chapter 455B for comprehensive planning areas, counties, councils of governments, or other designated local governmental entities.

This dual-framework approach would allow Iowa to collect both facility-level material flow data and jurisdiction-level programmatic and planning information while maintaining a more durable and clearly authorized statutory framework for statewide recycling reporting.

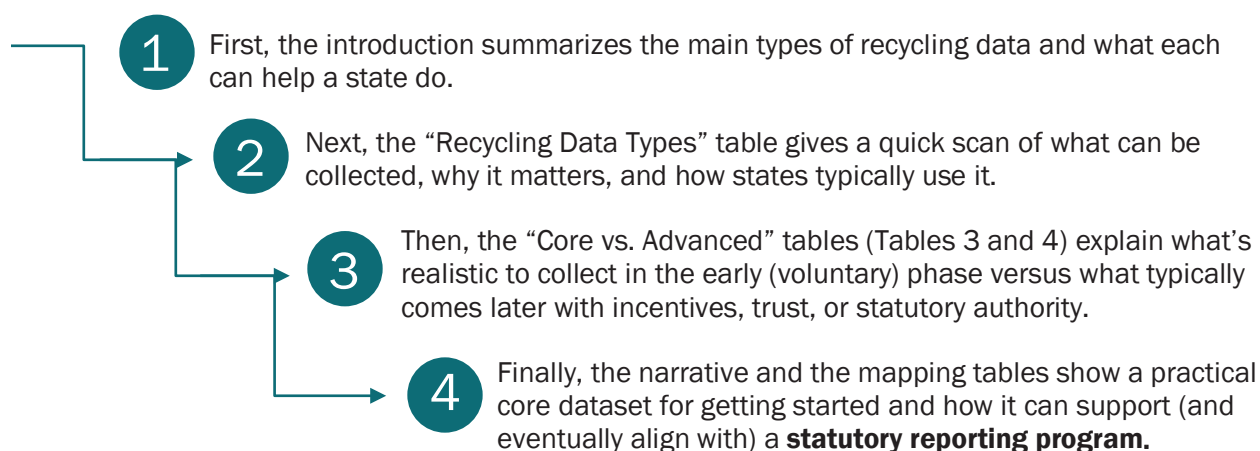
Potential amendments to Chapter 455D could include definitions of recycling facilities and recyclable materials, annual reporting requirements, confidentiality protections, and enforcement authority. Potential amendments to Chapter 455B could establish jurisdictional reporting requirements for planning areas or local governmental entities. Example statutory concepts are provided in Appendix C.



6.0 RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

This section lays out a prioritized set of recycling data elements that work well for **voluntary reporting** and can scale to a future **statutory reporting program**, and it explains how each one connects to practical policy and program decisions.

Bottom line: Start with the voluntary core dataset to build a credible baseline and trust, then use the Core vs. Advanced table to stage what could be added later if the state moves to statutory reporting.



6.1 WHAT DATA ARE WE TALKING ABOUT?

To make real progress on recycling policy and program performance, states need data they can actually use—data that helps answer what’s working, what’s missing, and where to invest next. A good data strategy starts with information that can be collected consistently now, and builds toward more complete reporting over time.

Because no single entity observes every part of the recycling system, Iowa will get the most reliable data by matching each data element to the entity that most directly observes it. Municipalities and local programs are best positioned to report *service availability and access* (e.g., curbside vs. drop-off, coverage), program context (e.g., collection model, participation indicators where tracked), and certain program-level estimates (e.g., residential vs. non-residential split). In contrast, facilities (MRFs/processors) are best positioned to report material flow and tonnage (inbound/outbound totals), broad material categories, aggregated inbound geography, general destination types (in-state/out-of-state/export), and quality/contamination indicators (at least qualitatively). This division reduces reporting burden and improves data reliability.

RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

6.1.1 Materials and Generation

Material type and quantity are the starting point for any recycling data system. Tracking tons collected and processed by material category (e.g., paper, cardboard, plastics by resin, metals, glass, organics) helps states see what materials are being captured, which ones dominate the recyclables stream, and where the biggest additional diversion opportunities are. These data can support material-specific approaches—like targeted education, bans, incentives, or extended producer responsibility programs.

Source and generator information helps states understand program effectiveness and equity. Knowing whether materials come from residential, commercial, industrial, institutional, or construction and demolition sources helps show which sectors are performing well and which may need more policy attention. This is especially helpful when designing sector-specific programs, setting diversion goals, or directing grant funding.



6.1.2 System Performance and Access



Recycling access and participation indicators show how widely recycling services are available and used. Information on service coverage (e.g., curbside availability, drop-off access), program type, and participation rates can help states spot underserved communities and infrastructure gaps. These data can inform decisions about service expansion, rural access, targeted education and outreach, and broader program improvement.

6.1.3 Infrastructure and Markets

Facility and infrastructure capacity data support planning and investment decisions. Information on the number, type, and capacity of recycling facilities, such as MRFs, composting sites, and specialty processors, helps states understand system constraints and vulnerabilities. This data is critical for infrastructure grant programs, economic development initiatives, and long-term system resilience planning.

Material destination and end-market data strengthen accountability and market development. Data on where collected materials are sent for processing or manufacture, whether in-state, out-of-state, or international, help states assess market stability, identify reliance on external markets, and support local end-market development. This information is increasingly important for policies aimed at “legitimate recycling” and supply-chain transparency.

Contamination and material quality data inform education and program design. Data on contamination rates, rejected loads, or quality issues provide insight into operational challenges

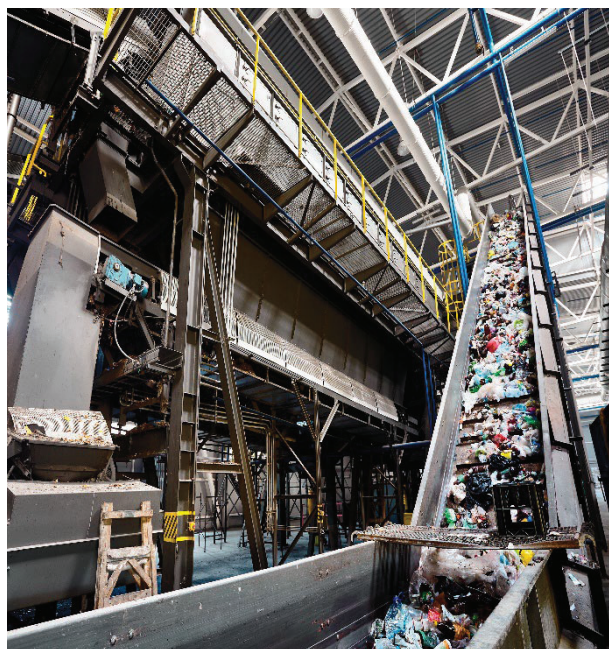
RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

and resident behavior. States can use this information to guide outreach strategies, standardize accepted materials lists, and reduce costs associated with processing contamination.

6.1.4 Costs, Policy Context, and Tracking Over Time

Program cost and economic data support funding and rate-setting decisions. While often more difficult to obtain, data on collection, processing, and program costs help states evaluate cost-effectiveness, design grant programs, and assess the financial impacts of proposed policies. When paired with tonnage data, cost information allows for comparisons across program models and regions.

Policy and regulatory context data provide essential qualitative insight. Information on existing local ordinances, state requirements, reporting obligations, and enforcement practices helps explain variations in performance and informs future policy design. Understanding how regulatory structures interact with program outcomes allows states to refine or modernize their approach over time.



Finally, trend and longitudinal data enable performance tracking and policy evaluation. Consistent data collected over multiple years allow states to measure progress toward diversion goals, assess the impact of new policies or investments, and adjust strategies based on observed outcomes rather than assumptions.

Taken together, these data types support a balanced approach that moves beyond simple recycling rates. By prioritizing information that is actionable, scalable, and tied to policy objectives, states can use recycling data to guide investments, improve program performance, strengthen markets, and advance long-term waste reduction and materials management goals.

RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

6.1.5 Summary of Data Elements

The table below summarizes the main data options. The following sections narrow data options to core elements.

Table 1. Recycling Data Types to Support State Policy and Program Decisions

Data Type	Primary Reporting Entity	What Is Collected	Why It Matters	How States Use the Data
Material Type and Quantity	Facility (MRF/processor); sometimes hauler	Tons collected or processed by material (e.g., paper, cardboard, plastics by resin, metals, glass, organics)	Shows the overall scale of recycling and which materials matter most	Use the numbers to shape material-specific policies, prioritize investments, and track diversion goals
Source / Generator Type	Municipality/local program (core); facility (limited/estimated)	Origin of materials (residential, commercial, institutional, industrial, C&D)	Shows which sectors contribute most—and where more support is needed	Use this to build sector-specific programs, target grants, and set goals that fit each sector
Service Access and Coverage	Municipality/local program	Availability of recycling services (curbside, drop-off, multifamily, rural access)	Helps spot gaps in access across regions and communities	Use this to expand services, support rural or underserved communities, and keep equity in view
Participation Indicators	Municipality/local program; hauler (where available)	Program enrollment, set-out rates, or reported participation levels	Shows how well programs are working, not just whether they exist	Use this to focus education and outreach and fine-tune program design
Facility and Infrastructure Capacity	Facility (for capacity/operations); state/third party (inventory)	Number, type, location, and capacity of MRFs, compost sites, and processors	Helps identify bottlenecks and where infrastructure is needed	Use this to guide infrastructure grants and support economic development and resilience planning
Material Destinations and End Markets	Facility (destinations); municipality (limited via contracts)	Processing and manufacturing destinations (in-state, out-of-state, international)	Makes material flows more transparent and highlights market dependence	Use this to strengthen markets, confirm legitimate recycling, and add safeguards where needed
Contamination and Quality Metrics	Facility (core qualitative; advanced measured)	Contamination rates, rejected loads, material quality issues	Highlights operational challenges and where education can help	Use this to cut processing costs, standardize what's accepted, and target outreach
Program Cost Data	Municipality/local program (primary)	Collection, processing, and program administration costs	Helps with budgeting and understanding what policies may cost	Use this to compare cost-effectiveness, design funding approaches, and inform rate-setting
Policy and Regulatory Context	Municipality/local program; state	Applicable ordinances, mandates, reporting requirements, enforcement practices	Adds context so differences in performance make sense	Use this to refine regulations and better align policy tools with program outcomes
Trends Over Time	Shared (depends on metric)	Multi-year changes in tonnage, participation, access, and costs	Makes it possible to track progress and evaluate change over time	Use this to track impacts, adjust strategies, and report progress toward goals

6.2 CORE AND ADVANCED RECYCLING DATA SETS

Core data represent information that is most realistic to collect in voluntary reporting and that provides immediate value for policy and program planning; these elements also form the backbone of a future reporting program if the state transitions to statutory requirements. Advanced data are more sensitive, resource-intensive, or commercially confidential and are typically collected later, often requiring a higher level of trust, incentives, and/or statutory authority.

Table 2. Facility Reporting Elements: Core vs. Advanced

Data Category	Core Data (Most Realistic)	Advanced Data (Aspirational)	Why This Distinction Matters
Material Type and Quantity	Annual tons by broad material category (paper, cardboard, plastics, metals, glass)	Tons by detailed subcategories (plastic resin, grade, bale quality)	Broad categories are simpler to report; detailed breakdowns take more time and can raise confidentiality concerns
Facility Type	Type of facility (MRF, processor) and basic operation type (single-stream vs. dual-stream/source-separated, as applicable)	Facility-level throughput, design capacity, and/or utilization rates	Most facilities will share high-level descriptors, but not detailed capacity or utilization
Geographic Aggregation (Inbound Service Area)	County- or region-level inbound service area (where material comes from), reported in aggregate	Facility-specific customer lists and/or route-level inbound detail	Aggregating inbound geography protects confidentiality and usually increases participation
Material Destinations	General destination type (in-state, out-of-state, export)	Named end markets or buyers; destination by specific facility	General destination info is often OK to share; specific buyers are usually proprietary
Contamination Indicators	Qualitative assessment (low/moderate/high) or simple categorical notes	Measured contamination percentages, residue rates, or rejected-load tracking	Qualitative ratings reduce reporting burden and avoid inconsistent measurement methods
Trends Over Time	Year-to-year changes in total inbound/outbound tons	Material-specific trend analysis by customer type or route	Facilities can support trend tracking without providing highly granular customer-level data

RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

Table 3. Municipal Reporting Elements: Core vs. Advanced

Data Category	Core Data (Most Realistic)	Advanced Data (Aspirational)	Why This Distinction Matters
Service Access	Presence of recycling services (yes/no, curbside vs. drop-off)	Detailed service metrics (collection frequency, cart size, accepted materials list changes, etc.)	Local programs can usually confirm basic access; detailed operational metrics take more effort and standardization
Participation Indicators	Qualitative participation assessment or basic indicators if tracked (e.g., participation increasing/stable/declining)	Measured set-out rates, route-level participation, or household enrollment metrics	Quantified participation typically requires hauler data and consistent measurement methods
Geographic Aggregation	Program-level totals by city/county/district (where services are provided)	Neighborhood- or route-level service and participation detail	Program-level aggregation is feasible; finer resolution increases burden and privacy considerations
Material Type and Quantity (as available)	Total tons collected (and, where available, broad material categories based on vendor reports)	Tons by detailed subcategories (resin/grade) or composition studies	Municipalities may have totals via contracts, but detailed breakdowns depend on downstream facility reporting
Program Costs	Not collected or reported qualitatively (e.g., "cost pressure increasing") unless already tracked	Detailed cost per ton / per household, commodity revenue, or contract pricing detail	Cost data are sensitive and not consistently structured across local programs
Trends Over Time	Year-to-year changes in total tons collected and service availability	Program-specific trend analysis tied to major service or policy changes	Local programs can track directional progress without extensive new data collection systems

6.2.1 Focusing on Realistic, Stakeholder-Supported Data

Before starting any recycling data collection effort, DNR should plan around a simple reality: what's available depends a lot on stakeholder willingness to participate, especially when collecting data through voluntary reporting. Haulers, processors, and municipalities may worry about extra workload, confidentiality, data misuse, or unintended regulatory consequences. That's why it helps to focus first on data elements that stakeholders see as reasonable, low-risk, and clearly useful.

In most cases, the best place to start is a small core dataset that captures aggregated material quantities and a few basic system characteristics. Stakeholders are often comfortable reporting annual tonnage by broad material category, particularly when a neutral third party collects the information and the state reports results only in aggregate. Because many organizations already track these figures for billing, operations, or contracts, the added effort is usually manageable.

The same is often true for high-level geographic and facility-type information, for example, reporting by county or region and noting whether the respondent is a hauler, MRF, or processor. This kind of information adds real system insight while avoiding facility-by-facility details that could raise competitive concerns.

Requests get harder once they move into operational detail or financially sensitive territory. Items like measured contamination rates, named end markets, processing capacity, and program costs

RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

can be proprietary, or simply time-consuming to compile. When collected through voluntary reporting, these topics are often more workable in qualitative or categorical form, if they're collected at all. For instance, asking for "low, moderate, or high" contamination can still provide useful direction without requiring precise measurements.

If DNR wants to go beyond the core data, it usually takes relationship-building and trust. Being clear about how the data will be used—and just as importantly, how it won't be used—goes a long way. Many successful efforts use third-party administrators (such as universities or consultants) to reinforce neutrality and confidentiality. Over time, sharing tangible value back to participants—like simple benchmarking summaries, infrastructure planning insights, or a clear feedback loop—can make stakeholders more comfortable providing additional detail.

A phased approach may work well for Iowa. Start with a core dataset that's easy to report and demonstrates value quickly. As participants see the data handled responsibly and used constructively, the state can introduce additional elements over time or formalize reporting through incentives, grant eligibility, or statutory authority.

By matching data requests to stakeholder capacity and trust, states can build a recycling data system that lasts and improves over time, instead of one that stalls because the initial ask was too much.

Table 4. Facility Reporting Elements: Core Recycling Data (Voluntary Collection)

Core Data Element	What Is Requested	Why It Is Reasonable to Request	How Iowa Can Use the Data
Reporting Entity Type	Identification of respondent role (MRF, processor)	Low burden and not commercially sensitive	Use this to understand facility roles and coverage across the system
Geographic Area Served (Inbound)	County, region, or multi-county inbound service area (where material comes from), reported in aggregate	Can be reported in aggregate without revealing customer lists or competitive details	Use this to spot regional gaps, understand material flows, and inform infrastructure planning
Total Recycling Tons	Annual total tons received/processed (or outbound marketed tons), as defined in guidance	Most facilities already track tonnage for operations, billing, or internal reporting	Use this to set a baseline, track trends over time, and support statewide estimates
Broad Material Categories	Annual tons by major material group (paper, cardboard, plastics, metals, glass)	Avoids highly detailed sorting/quality reporting that raises burden or confidentiality concerns	Use this to support material-specific policies, market development, and prioritization
General Material Destinations	Broad destination category for outbound marketed material (in-state, out-of-state, export)	Does not require disclosure of specific buyers, pricing, or contracts	Use this to understand market reliance and support in-state end-market development
Qualitative Contamination Indicator	Self-reported contamination/residue level (low/moderate/high) for inbound loads or overall stream	Avoids inconsistent measurement and reduces reporting burden while still providing actionable signal	Use this to guide education priorities and understand processing challenges
Year-to-Year Change	Indication of increase, decrease, or stable tons (overall)	Easier than requiring precise multi-year analytics	Use this to monitor direction of progress and flag areas for follow-up
Operational Challenges (Optional)	Open-ended or checklist of key barriers (e.g., contamination, staffing, markets)	Voluntary and non-quantitative; supports context without adding major burden	Use this to shape policy, target technical assistance, and set funding priorities

RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

Table 5. Municipal Reporting Elements: Core Recycling Data (Voluntary Collection)

Core Data Element	What Is Requested	Why It Is Reasonable to Request	How Iowa Can Use the Data
Reporting Entity Type	Identification of respondent role (municipality/county/solid waste district)	Low burden and not commercially sensitive	Use this to understand who is providing services and where
Geographic Area Served	County, city, or planning area covered by the program	Already known/defined for local programs and planning entities	Use this to spot regional gaps, underserved areas, and planning needs
Total Recycling Tons (if available)	Annual total tons collected (from contracts/vendor reports), if already tracked	Often available through hauler or processing contracts; can be reported in aggregate	Use this to establish a baseline and compare regions and program models
Residential vs. Non-Residential Split	Approximate share of collected material from residential vs. other sources	Can be estimated using service type, customer base, or vendor input	Use this to see how sectors are performing and target outreach or programs
Service Availability	Whether recycling service is offered (curbside, drop-off, both) and general coverage	Local programs can answer this with simple categorical information	Use this to identify access gaps and plan service expansion (including rural and multifamily)
Year-to-Year Change	Indication of increase, decrease, or stable tons and/or service availability	Easier than precise trend reporting; can be based on local experience and vendor summaries	Use this to monitor direction of progress and prioritize follow-up support
Operational Challenges (Optional)	Open-ended or checklist of key barriers (funding, hauling contracts, education needs)	Voluntary and non-quantitative; provides context for program support	Use this to fine-tune programs, target technical assistance, and design grants or incentives

6.2.2 Potential Value of Reporting for Recycling Facilities

Benefits of Recycling Reporting to Reporting Entities

While the primary benefits of standardized recycling reporting accrue to the state, particularly in the areas of system visibility, performance measurement, and policy development, reporting entities can also realize a range of secondary benefits. These benefits are generally indirect and may vary based on how reported data are used, shared, and integrated into decision-making processes at the state and local levels.

At their most effective, reporting systems can support improved program management, inform financial planning, and enhance transparency. However, the extent to which these benefits are realized depends largely on the degree to which reporting entities have access to their own data in a usable format, and whether the state actively returns value through data sharing, analysis, and programmatic support.

The categories below summarize the primary areas where reporting entities may experience value from participation in a standardized reporting system.

RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

Table 6. Summary of Potential Benefits to Reporting Entities

Benefit Category	Description	When Benefit is Realized
Operational and Program Management	Reporting requires consolidation and review of data across collection programs, contracts, and facilities. This can improve internal understanding of material flows, contamination, and program performance.	When entities actively review and use reported data to inform operational decisions, contract management, or service adjustments.
Contract Oversight and Procurement	Standardized data can support verification of hauler or processor performance and provide a baseline for future procurement or contract negotiations.	When reporting requirements are aligned with contract terms and data are used in performance evaluation or procurement processes.
Financial Planning and Budget Justification	Documented tonnage and program performance can support local budgeting processes, including justification for program continuation, expansion, or modification.	When reported data are translated into cost, diversion, or service-level metrics that are meaningful for local decision-makers.
Access to Funding and Incentives	In some cases, reporting is tied to eligibility for grants or other funding programs, or may position entities to compete more effectively for future funding opportunities.	When the state links reporting compliance to funding programs or uses reported data to inform funding allocations.
Regulatory Readiness and Risk Management	Establishing consistent reporting practices positions entities to respond more efficiently to future regulatory requirements and reduces the need for reactive data collection.	When reporting frameworks remain consistent over time or expand in scope, allowing entities to build on existing systems.
Transparency and Communication	Reporting provides a basis for communicating program performance to residents, elected officials, and other stakeholders, supporting transparency and public engagement.	When entities use reported data in outreach materials, annual reports, or stakeholder communications.
Benchmarking and Peer Comparison	Aggregated data can allow entities to compare performance with similar communities or regions, helping to identify realistic targets and improvement opportunities.	When the state provides access to normalized, comparable data across jurisdictions.
System-Level Improvements	Statewide data can inform infrastructure planning, market development, and policy decisions that ultimately affect service availability, cost, and program effectiveness at the local level.	When the state actively uses reported data to guide investments, policy development, and program design, and communicates outcomes back to participants.

Key Consideration

It is important to note that many of these benefits are contingent on active use of the reported data. In the absence of data sharing, analysis, or programmatic feedback from the state, reporting may be perceived primarily as an administrative requirement rather than a value-generating activity. As such, the design of the reporting system, including how data are returned to reporting entities, plays a critical role in determining the extent to which these benefits are realized.

6.2.3 Linking Core Data to Its Use

This core dataset reflects information that stakeholders are most likely to share in voluntary reporting when confidentiality is protected and the reporting burden is kept low. Together, these data help states establish a credible baseline, see system-level trends, and support policy and program development, while also setting the groundwork for more complete reporting if the program later transitions to statutory requirements.

The following tables link core, realistically collectible data elements to the specific policy and program levers that Iowa can act on. They're designed to answer a common stakeholder question: *"What will the state actually do with this data?"*

Table 7. Facility Core Data and State Uses

Core Data Element	What the Data Tells the State	Policy and Program Levers Supported
Reporting Entity Type (Facility)	Who is participating on the processing side of the system and in what role (MRF, processor)	Target technical assistance and outreach; build/maintain facility inventory; tailor reporting guidance by facility type
Geographic Area Served (Inbound)	Where recyclables originate (by county/region) and how materials flow through the processing network	Regional planning; identify underserved areas and potential transfer/processing needs; support infrastructure siting and grant targeting
Total Recycling Tons (Received/Processed or Marketed)	Overall scale of material managed by the processing system and changes over time	Baseline and trend tracking; support funding or legislative requests; identify capacity stress or market disruptions
Broad Material Categories	Which materials dominate inbound/outbound streams and where diversion potential is concentrated	Material-specific policy development; market development priorities; targeting education and contamination-reduction efforts
General Material Destinations	Reliance on in-state vs. out-of-state vs. export markets (at a high level)	Economic development and end-market recruitment; supply-chain resilience; support "legitimate recycling" transparency without disclosing buyers
Qualitative Contamination Indicator	Perceived quality issues in inbound material (directional signal)	Improve education/outreach; inform accepted-materials guidance; reduce processing costs and residue
Year-to-Year Change	Directional trends in processing volumes and system performance	Program evaluation; identify regions/materials needing follow-up; inform phased expansion of reporting
Operational Challenges (Optional)	Barriers facilities are facing (e.g., contamination, labor, equipment, markets)	Target technical assistance and grant programs; inform future rulemaking priorities; refine stakeholder engagement

RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

Table 8. Municipal Core Data and State Uses

Core Data Element	What the Data Tells the State	Policy and Program Levers Supported
Reporting Entity Type (Municipal)	Which local programs are participating and at what scale (municipality/county/solid waste district)	Target technical assistance; design survey outreach; tailor guidance and templates by program type
Geographic Area Served	Where services are offered and where geographic gaps exist	Regional planning; prioritize rural and underserved areas; align infrastructure and education investments
Total Recycling Tons (if available)	Total material collected through local programs (often via contracts/vendor reports)	Baseline and trend tracking by program type/region; support funding requests; identify where better measurement is needed
Residential vs. Non-Residential Split	How much of local recycling is coming from households vs. other sectors (even approximate)	Sector-specific outreach and program design; support commercial recycling initiatives; target grants and technical assistance
Service Availability	Whether recycling service exists and what general model is used (curbside, drop-off, both)	Access expansion; prioritize multifamily and rural service; inform education and infrastructure investments
Year-to-Year Change	Directional trends in tons collected and/or service availability	Program evaluation; identify where support is needed; inform phased expansion of reporting expectations
Operational Challenges (Optional)	Barriers local programs are facing (funding, hauling contracts, education needs, access constraints)	Target grant programs and technical assistance; refine outreach; inform future statutory and rulemaking priorities

6.2.4 Why This Mapping Matters

This mapping shows that a small core dataset can support real state decisions, especially in an early voluntary phase. By linking each data request to a clear policy or program use, DNR can help stakeholders see the point of reporting, build confidence in the process, and create a smoother path if the program later becomes statutory.

6.2.5 What This Data Will Not Be Used For

To make it easier for entities to participate and to protect confidential business information, DNR should clearly state that the following commitments apply to voluntary collection (i.e., information submitted voluntarily through the initial survey or template described in this report). These commitments are intended to build trust and encourage participation while Iowa develops the statutory and regulatory framework for a future program. If reporting later becomes statutory, Iowa may establish compliance expectations for the *reporting requirement itself*; however, the state can still maintain strong confidentiality protections and limit public reporting to aggregated results. The following are possible **voluntary information collection and use boundaries** for consideration:



Regulatory enforcement or compliance actions (during voluntary collection):

Information submitted voluntarily will not be used to assess permit, license, or regulatory compliance, and it will not trigger inspections or enforcement. (If Iowa later adopts a statutory reporting program, any enforcement would be limited to compliance with the reporting requirement, consistent with applicable law and rules.)



Facility or company-specific performance comparisons:

DNR will not publish rankings, scorecards, or side-by-side comparisons of individual facilities, haulers, municipalities, or companies.



Public disclosure of proprietary or confidential information:

Individual responses, customer lists, end-market relationships, pricing, or contracts will not be released; results will be reported only in aggregate.



Rate-setting or cost audits:

Data will not be used to evaluate, challenge, or audit collection rates, processing fees, or contractual pricing.



Penalties or fines (during voluntary collection):

Choosing to participate will not create new reporting obligations during voluntary collection, and there are no penalties for not participating or for incomplete voluntary submissions. If reporting later becomes statutory, any penalties or enforcement provisions would apply only to the *requirement to submit a report* (and related administrative deadlines), not to punish individual performance outcomes (e.g., recycling rate, contamination level, or market choices).



Immediate policy requirements based on single-year data:

DNR will not use one year of data on its own to justify sudden regulatory changes without additional analysis and stakeholder input.

These voluntary collection boundaries should be communicated up front in the data collection instructions and reinforced in program communications. If Iowa transitions to a statutory reporting program, DNR can preserve the same core trust-building principles (e.g., confidentiality protections, aggregation thresholds, and transparency about how data are used) while adding appropriate compliance mechanisms for required reporting.

6.2.6 Intended Use of the Data

DNR should commit to using the data only to support practical, system-level decision-making, focused on program improvement, planning, and investment, rather than to evaluate individual entities. Specifically, the data can be used to:

RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

Establish a credible statewide baseline (and track trends over time): Develop an annual snapshot of total tons and broad material categories, summarized at an appropriate geographic level (e.g., statewide/region/county) to understand overall scale, directional change, and market/infrastructure pressures.



Identify service and performance gaps (access, coverage, and system constraints): Use municipal/local program inputs to map where recycling is available (curbside/drop-off/both), where service models differ, and where participation or performance appears to be trending up/down, so the DNR can prioritize rural access, multifamily strategies, and underserved areas.

Target technical assistance and grants where they will have the most impact: Use the mapped “policy and program levers” (Tables 7–8) to (1) prioritize infrastructure investments (e.g., collection, transfer, processing), (2) focus contamination-reduction education and outreach, and (3) design grant scoring criteria that reflect documented needs (e.g., access gaps, market dependence, operational barriers).

Inform longer-term policy development with context and safeguards: Use multi-year, aggregated results (not single-year snapshots) to evaluate which approaches are working, to test the case for new program tools (e.g., incentives, standardization efforts, future reporting requirements), and to support transparent communication with stakeholders and the public about progress and constraints.

Support market development and resilience planning (without exposing proprietary details): Use high-level destination categories (in-state/out-of-state/export) and broad material trends to understand market reliance, identify opportunities for in-state end-market recruitment, and anticipate risks from market disruptions—while keeping buyer-specific information confidential.

Increase public transparency and accountability (with appropriate aggregation and confidentiality protections): Publish periodic, plain-language summaries of statewide and regional recycling trends (e.g., total tons, broad material categories, service access indicators, and high-level destination patterns) so legislators, communities, and the public can understand progress, constraints, and priority needs—without disclosing facility-specific or proprietary information.

Create a transparent feedback loop for participants: Provide participating facilities and communities with periodic aggregated summaries (e.g., statewide and regional trends, common challenges, contamination themes) so reporters can see the value of participation and use results for their own planning and communications.

Improve data quality and consistency over time: Use early voluntary cycles to refine definitions, templates, and basic validation checks; document assumptions; and identify where guidance or training is needed so that data become more comparable across geography and over time.

RECYCLING DATA TO SUPPORT POLICY AND PROGRAM DEVELOPMENT

Together, these intended uses, and the “not used for” commitments above, create a clear value proposition for voluntary participation: DNR will protect confidentiality, report results in an appropriately aggregated form, and translate the information into visible program actions (planning, grant targeting, technical assistance, and market development). Over time, as definitions and templates are refined and data quality improves, these same principles can carry forward into a future statutory reporting program—providing greater completeness and consistency while maintaining stakeholder trust and transparency through clear rules on data handling, aggregation, and public reporting.





7.0 IMPLEMENTATION CONSIDERATIONS AND ADDITIONS

This section consolidates implementation considerations for launching and sustaining a statewide recycling data collection program. It combines the operational considerations previously described in Section 5 with additional implementation “gap areas” identified during review, with the goal of making the recommended phased approach (voluntary core reporting transitioning to statutory reporting) easier to execute.

7.1 TIMELINE AND PHASING

Iowa could consider a phased implementation approach that begins with voluntary data collection while statutory and regulatory foundations are developed. An initial phase can focus on convening stakeholders, defining core data elements, and piloting a voluntary survey or reporting template with a small set of facilities and programs to establish a baseline and refine definitions. In parallel, the state could draft and advance legislation and begin rulemaking to establish clear authority, confidentiality protections, and reporting procedures. Once statutory authority and implementing regulations are in place, subsequent phases can transition to mandatory reporting, expand the universe of reporting entities, and add data quality assurance and validation processes. Establishing realistic timelines and milestones helps manage expectations, supports participation, and allows the agency to adjust procedures before full statewide rollout.

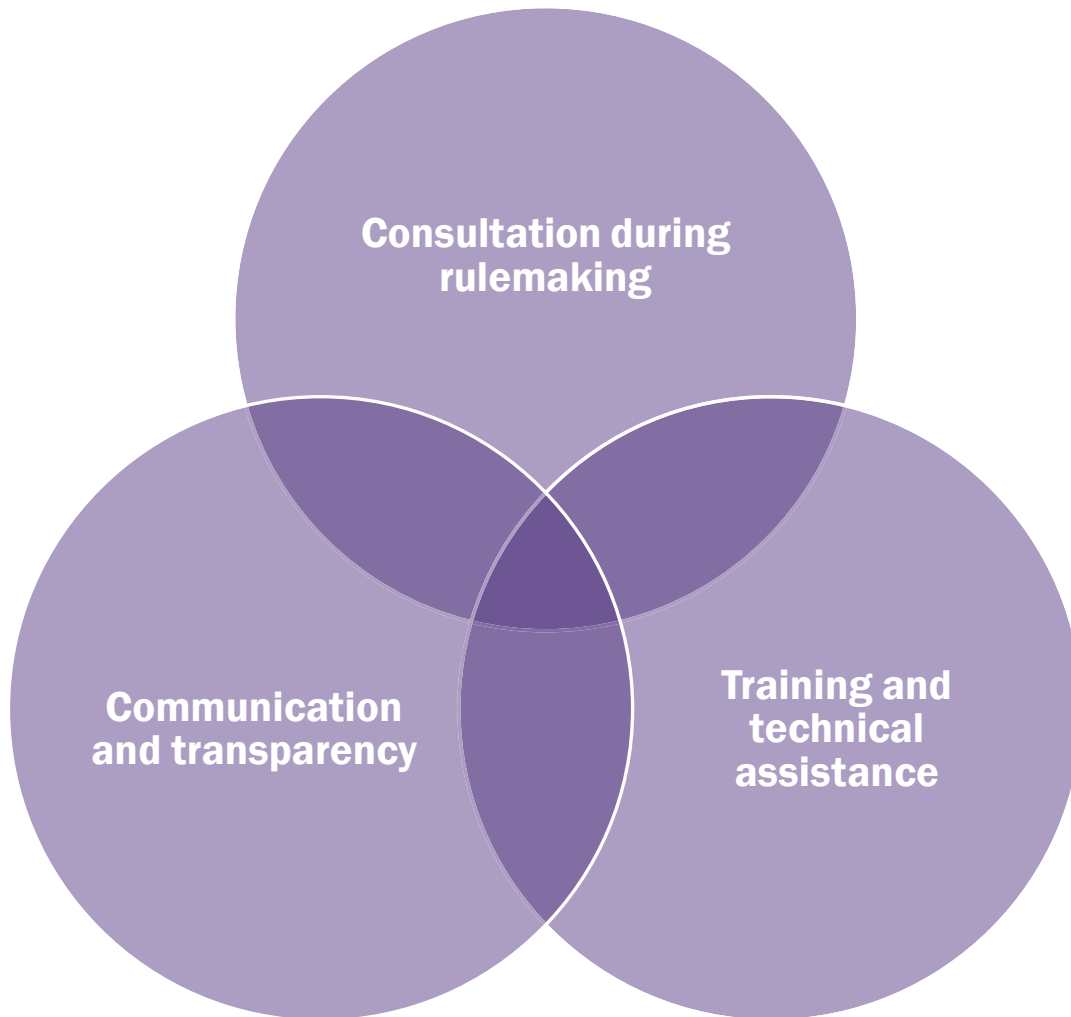
7.2 PROGRAM GOVERNANCE AND OPERATING MODEL

DNR should define who owns the program within the agency (e.g., program manager, analyst, and IT support), the annual reporting cycle (outreach → intake → validation → analysis → publication → participant feedback), and decision points (e.g., approval of aggregation thresholds, public reporting products, and changes to definitions). If a third-party administrator is used for intake or analysis, the division of responsibilities should be documented clearly, including how DNR will retain oversight, manage confidentiality, and approve final published outputs.

7.3 STAKEHOLDER ENGAGEMENT AND COMMUNICATION

Early and ongoing engagement with stakeholders is critical to program success. Stakeholders may include MRFs/processors, haulers, municipalities, solid waste planning entities, and industry associations. Engagement should start during the voluntary phase and continue through rulemaking and program expansion. Stakeholder engagement and communication could include:

Consultation during rulemaking: Provide clear opportunities for stakeholders to comment on proposed rules so practical challenges can be identified early and compliance expectations are well understood.



Communication and transparency: Program goals, timelines, and confidentiality/aggregation commitments consistently, and maintain a feedback loop so participants see how the data are used and what statewide trends show. States interviewed noted that many programs use reported data to document progress toward state recycling or diversion goal rates and routinely make aggregated results available to the public, often through an annual report and/or an online dashboard.

Training and technical assistance: Offer guidance on reporting procedures, templates, and definitions to improve consistency and reduce rework. States interviewed noted that fewer training and technical assistance resources are typically needed over time as reporting programs mature; however, in the early years, and when onboarding new reporters, more hands-on support is often required to walk reporters through expectations, definitions, and submission steps.

7.4 RESOURCE NEEDS, SYSTEMS, AND PROGRAM SUSTAINABILITY

Effective implementation will require sufficient staffing, technical systems, and financial resources. DNR should estimate the level of effort required to administer the program (staff time for outreach, intake support, QA/QC, analysis, and communications), including the likely need for dedicated staff as reporting scales from voluntary to statutory. **Evaluations** could include the following:

Staffing:

Dedicated personnel are needed to manage reporting, review submissions, follow up on inconsistencies, and produce public/participant summaries. This may include a program coordinator and data analyst capacity, with additional support as the reporting universe expands. In interviews, states did not identify a consistent FTE need across programs; staffing requirements tend to be higher during program start-up and early implementation (e.g., outreach, training, intake support, and template refinement) and lower once reporting processes, systems, and reporter familiarity are established. Personnel needs can also vary based on the intended use of the data and the state's desired outputs. For example, developing an annual report or dashboard with analysis and narrative typically requires a larger ongoing resource commitment than maintaining a basic spreadsheet for internal tracking.

Technical infrastructure:

Systems must support data submission, secure storage, basic validation, and analysis. Options range from standardized spreadsheets (early) to a simple submission portal and dashboards (later), with appropriate access controls. In designing a reporting system, the DNR should also consider reporting mechanisms already in place and the platforms used to collect data (for example, landfill tonnage reporting systems) and assess whether those tools could be leveraged or expanded to support recycling reporting. Several states have converted to Re-TRAC Connect™, a private subscription-based reporting platform, as an off-the-shelf option for online submission and data management.

Financial resources:

Budget planning should account for staff, systems, training/outreach, and communications. Identifying sustainable funding sources early will reduce implementation risk and avoid gaps between pilot phases and a statutory program. In interviews, states often could not identify a single, discrete “program budget” because funding may be distributed across multiple sources. For example, waste-reduction or recycling-program funds are used to manage intake, QA/QC, and annual reporting; enforcement resources are used if compliance becomes an issue; and IT funds may be used to develop, maintain, or subscribe to reporting platforms.

7.5 DATA QUALITY, QA/QC, AND VALIDATION

To maintain credibility, DNR should establish a basic, transparent QA/QC and validation approach that fits the voluntary core dataset and can scale later. Validation expectations should be communicated as part of reporting instructions (so reporters know what will be checked and what follow-up to expect).

IMPLEMENTATION CONSIDERATIONS AND ADDITIONS

States interviewed noted that these QA/QC and validation become easier over time as year-to-year trends and expected ranges become apparent, making reporting anomalies more straightforward to identify. In addition, some **state reporting platforms** can automatically flag unusual results (e.g., outliers or large deviations from prior submissions) to support more efficient review and follow-up. Data QA/QC and validation should include:

1

Reasonableness checks:

Flag missing values, negative values, and implausible totals.

2

Year-to-year outlier review:

Identify large changes and confirm whether they reflect real shifts (service changes, market disruptions, contract changes) or reporting errors.

3

Basic reconciliation (where applicable):

Compare inbound/outbound totals or residue indicators when those fields are included.

4

Documentation of assumptions:

Record definitions used, estimation methods, and any known limitations so trends are interpreted correctly.

Over time, the statutory phase can incorporate additional validation tools (e.g., audit sampling or more formal reconciliation requirements) if justified by program objectives and resources.



7.6 CONFIDENTIALITY, REPORTING UNIVERSE, PUBLICATION RULES, AND RISK MITIGATION

Several related implementation items should be addressed together because they directly affect participation, trust, and the usefulness of published results. These **implementation items** include the following”

► Facility universe and inventory strategy:

Develop and maintain a baseline inventory of relevant recycling processing facilities and other reporting entities (MRFs/processors and, as applicable, local programs/haulers). Clarify inclusion criteria (what is “in scope”), update cadence, and how the list will be built (e.g., existing DNR contacts, grant recipient lists, industry associations, complaints/referrals, and voluntary self-identification). As Iowa evaluates longer-term program design, DNR should also consider whether a low-burden facility registration or certification requirement is warranted, consistent with approaches used in several other states, to ensure DNR can reliably define and maintain the “universe” of in-scope facilities. At a minimum, a registry should capture facility name, physical location, owner/operator contact information, facility type/operations (e.g., MRF vs. processor; single-stream vs. source-separated, as applicable), and primary materials processed.

► Confidentiality, aggregation thresholds, and publication rules (operationalized):

Translate the “not used for” commitments into implementable rules for data handling and reporting—for example, what data are collected as confidential, who can access raw submissions, minimum-count thresholds for publishing by geography/material, and suppression rules for small samples. Specify the public reporting products (e.g., annual summary, regional dashboards, methodology memo) and how corrections or revisions will be handled.

► Common challenges and mitigation strategies:

Anticipate barriers such as stakeholder resistance (mitigated by clear confidentiality protections and aggregated reporting), data quality/consistency issues (mitigated by standardized templates, training, and validation), resource constraints (mitigated by phasing and early budget planning), and legal challenges (mitigated by clear statutory authority and careful rule drafting).

7.7 DESIGNING FOR FUTURE DATA NEEDS (PROACTIVE DATA STRATEGY)

States noted that it can be valuable to take a proactive approach to data gathering and design a system that meets today’s recycling measurement needs while also positioning the state to answer questions that often arise as solid waste and materials management programs evolve. Building flexible definitions, material categories, and reporting structures up front can reduce future rework and allow Iowa to add new data elements over time without redesigning the full program.

For example, some states emphasized planning ahead for data needs that support potential future initiatives. This can be done by using modular templates (core fields plus optional modules), maintaining a consistent facility and program inventory, and selecting a reporting platform that can accommodate additional material streams and program metrics. Examples of **forward-looking data needs** include:



Organics management:

baseline information on food waste and yard waste management pathways (e.g., quantities managed, types of facilities, and general destinations), which can support future organics diversion planning and infrastructure investment.



Extended producer responsibility (EPR) and packaging policy:

higher-level packaging material categories and system performance indicators that could support producer reporting, needs assessments, and program evaluation if an EPR framework (or similar policy) is pursued in the future.



Construction and demolition (C&D) materials:

high-level baseline information on C&D generation and management pathways (e.g., estimated quantities and primary material types such as concrete/brick/wood, and where materials are taken for processing or disposal), which can support future diversion initiatives, facility planning, and targeted market development.



Market resilience and end-market development:

information that helps the state understand reliance on specific destination types and processing capacity (e.g., in-state vs. out-of-state vs. export share by broad material category; general processor/end-market capacity indicators), which can support contingency planning, targeted infrastructure investment, and strategies to strengthen in-state markets.

This proactive framing aligns with Iowa's phased approach: start with a focused core dataset but build the program so that additional modules can be added later when there is a clear use case, stakeholder readiness, and supporting resources.



Appendix A

Reporting Requirements for States with Mandatory Reporting

State	Data Acquisition					Data Collected		
	Voluntary	Mandatory	Certification	Frequency	Responsible Entity	Tonnage	Inventory	Materials
Alabama		X		Semi-Annual	Registered recycling facilities	X	X	Plastic, glass, newspaper, aluminum, cardboard, mixed paper, ferrous metals, other metals, kitchen grease, yard waste, electronics, batteries, and "other"
California		X		Quarterly	Recycling facilities; Composting facilities; Transformation facilities; Transfer/processor facilities; Contract haulers; Brokers; and Transporters	X	X	Brown goods, carpet, CDI, designated waste, disaster waste, furniture, glass, metal, mixed, organics, paper, plastic, white goods, and "other."
Colorado		X		Annual	Recycling Facilities	X	X	Metal containers (aluminum/steel/tin); Metal scrap (white goods and MSW sources of metal, no industrial metal); Paper; Cardboard; Glass; Plastics (#1-7); Yard Waste; Food Waste; Electronics; Tires; Household Hazardous Waste; Paint; Batteries; Lighting; Textiles; Mixed recycling; Construction and demolition debris; Concrete and Asphalt; Industrial and Agricultural Compost Feedstocks (sludges, manure, biosolids); Oil and antifreeze; Tires used for energy recovery; Produced water; Beneficial use (land application of organics, and other suitable materials); Coal combustion residuals
Connecticut		X		Annual	Municipalities Collectors	X	X	Bottles/cans/cartons/paper, vehicle batteries, scrap metal, waste oil, used textiles, electronics, NiCd batteries, plastic wrap/film, source separated organics
Florida		X		Quarterly	Facilities	X	X	Source separated recyclables
		X		Annual	Counties	X	X	Paper, plastic, metals, glass, rubber, textiles
Hawaii		X	X	Annual	Business > 600 tons per year of any material	X		
		X		Annual	Permitted material recovery facilities	X	X	Metals, glass, electronics, organics, paper, plastic, remediated soil, and "other"
Indiana		X		Annual	Recyclers	X	X	Glass, metals, paper, plastics

State	Data Acquisition					Data Collected		
	Voluntary	Mandatory	Certification	Frequency	Responsible Entity	Tonnage	Inventory	Materials
	X				Facilities not meeting mandatory requirements (scrap metal, manufacturers, retailers)	X	X	
Massachusetts	X	X	X	Annual	A permitted recycling facility that accepts more than 250 tons of recyclables per day, not including paper	X	X	Materials managed
		X		Annual	Solid waste facility with onsite recycling	X	X	Paper, cardboard, plastic, single-stream recyclables
Michigan		X		Quarterly or Annual (facility choice)	Recycling establishment (>100 tons per year)	X		Glass, paper and paper products, plastic and plastic products, ferrous metal, including white goods, nonferrous metals, textiles, and single stream recyclable materials
	X				Other recyclers	X		
Minnesota		X		Annual	Recycling facilities	X	X	Paper, glass, metal, plastic, other (very broad: electronics, C&D, mattresses, appliances, tires)
New Jersey								Corrugated; mixed office paper; newspaper; other paper/mag/junk mail; glass containers; aluminum containers; steel containers; plastic containers; heavy iron; nonferrous/aluminum scrap; white goods & light iron; antifreeze; batteries (automobile); tires; used motor oil; brush/tree parts; grass clippings; leaves; stumps; consumer electronics; concrete/asphalt/brick/block; food waste; fluorescent lights; batteries (dry cell); paints & stain; other glass; other plastic; oil contaminated soil; process residue; textiles; wood scraps
	X	X	Annual	Class A, B, C & D Recycling Facilities		X	X	
New Mexico		X	Annual	Recycling facilities		X	X	Mixed paper, cardboard, newspaper, office paper, phone books, chip board, plastic, aluminum, steel cans, glass, scrap metal/white goods, carpet padding, pallets, electronic scrap, plastic film, other plastics, household items, textiles/clothing, other

State	Data Acquisition					Data Collected		
	Voluntary	Mandatory	Certification	Frequency	Responsible Entity	Tonnage	Inventory	Materials
Oregon		X		Annual	Recycling facilities	X	X	Glass, metal, paper, plastic, organics, other.
		X		Annual	Collection companies	X	X	
Tennessee		X		Annual	Recovered Materials Processing Facilities (RMPF) that manage over 100 tons per year	X	X	Glass, metals, paper, plastic, rubber, leather, textiles, electronics, batteries, mercury lamps, scrap tires
Texas		X*		Annual	Non-exempt facilities and exempt facilities with “incidental” (non-recyclable material) rate higher than 10%			
Washington		X		Annual	Permitted or exempt recycling facilities	X	X	Newspaper; Cardboard; High Grade Paper; Mixed Waste Paper; Cartons; Container Glass; PET Plastics (#1); HDPE Plastics (#2); LDPE Plastics (#4); Other Recyclable Plastics; Aluminum Cans; Steel Cans; Ferrous Metals; Non-Ferrous Metals; Appliances; Electronics; Fluorescent Lights; Antifreeze; Used Oil; Tires; Vehicle Batteries; Household Batteries; Asphalt; Concrete; Construction or Demolition Debris; Wood Waste; Land clearing Debris; Yard Debris; Food and/or Food Scraps; Textiles; Comingled Recyclables; Other Recyclables
Wisconsin		X		Annual	Responsible Recycling Units (RUs)	X		Glass, Metal, Plastic, Paper, Tires
			X	Annual	Material Recovery Facilities serving as part of an RU program	X	X	
Voluntary = reporting encouraged but not required by law or regulation Mandatory = reporting required by law, regulation, permit, registration, or similar program requirement Recordkeeping = entities must maintain records that may be reviewed by the state, even if routine submission is not required Certification = entities must attest to compliance, status, or submitted information, sometimes as part of registration or annual renewal								
* Texas mandatory annual reporting is for operating status. Facilities are required to maintain internal records of materials managed.								



Appendix B

State Program Overview

1 OVERALL THEMES ACROSS THE STATES

Across the states reviewed, several common themes emerge in how recycling data is collected, managed, and used. While each state has developed its system based on unique policy goals and resources, clear patterns can be seen in reporting structures, data quality approaches, and the tradeoffs between simplicity and comprehensiveness.

1. No single state has a perfect system.

The states fall along a spectrum. Colorado and Michigan are simpler and easier to administer, but less detailed. Oregon and Minnesota are much more comprehensive, but they also require more staff time and system coordination. Indiana is especially strong where the goal is reliable tracking of MSW recyclables moving through the processing system.

2. The biggest design choice is who must report.

States that rely only on facilities tend to have cleaner administration but weaker visibility into collection and generation. States that add counties, haulers, or regional entities get a broader picture, but also create more complexity and more QA/QC burden.

3. End-market tracking is uncommon and difficult.

Oregon and Indiana go furthest in requiring destination information. Most other states either stop at the processor level or collect destination information only partially. That means many programs can estimate recycling activity, but cannot fully document final disposition.

4. QA/QC is where resource needs become real.

Nearly every stronger system depends on active staff review, anomaly follow-up, and reconciliation across datasets. Oregon is the clearest example of a high-value but labor-intensive system. Florida, Indiana, Wisconsin, and Minnesota also all rely on staff intervention to make the data usable.

5. Double counting is a central reporting problem.

Indiana addresses it through shipment-based reporting. Wisconsin addresses it by using MRF tonnage as the primary statewide reference point. Colorado and Florida also described measures to minimize duplicate reporting, but with more limitations.

6. Broad policy goals can distort the data.

Florida is the clearest cautionary example: when the recycling goal includes landfill gas, renewable energy, and heavy materials, the resulting metric becomes less useful as a true picture of recycling performance. Minnesota and Oregon also show how broader system goals can stretch reporting structures over time.

2 STATE PROGRAM ATTRIBUTES

The table below highlights the defining characteristics of each state's recycling data reporting system, emphasizing what each is most known for in terms of structure, strengths, and overall approach.

State	Distinguishing feature
Colorado	Simplicity and a clear policy tradeoff: no permit, but mandatory reporting and a turnover requirement.
Florida	Broad statewide coverage because both facilities and counties report, though the metric structure creates distortions.
Indiana	Strongest shipment-based MSW recycler reporting and one of the clearest models for reducing double counting.
Michigan	Cooperative, non-punitive registration/reporting model with mandatory and voluntary participation.
Minnesota	Broadest multi-source framework among the Midwestern states reviewed, with counties, haulers, and facilities all contributing.
Oregon	Most comprehensive material flow model, including origin, destination, exports, inventory, and residuals.
Tennessee	Regional planning-oriented model that combines system reporting with processor reporting.
Wisconsin	Strong local accountability model using Responsible Units, with MRF data used to reconcile totals.

3 PRACTICAL TAKEAWAYS FOR IOWA

- If Iowa wants a system that is simple and manageable, Colorado and Michigan offer useful models.
- If Iowa wants a system that is strong for tracking recyclable material movement and reducing double counting, Indiana is probably the best model.
- If Iowa wants a system that is broad and policy-useful but more complex, Minnesota is a useful reference.
- If Iowa wants the most comprehensive material flow model, Oregon is the clearest example—but it also shows the staffing burden that comes with that ambition.



Appendix C

State Program Profiles

1.0 INTRODUCTION

This Appendix provides individual profiles of the states consulted, describing their reporting obligations, submission mechanisms, and data collection requirements. The profiles are intended as a consistent organizing framework to capture information most relevant to each state's program; however, not every topic below applies to every state, and the level of detail available varies by program design and by what is publicly documented versus discussed during outreach. The information is intended to provide practical context for the observations summarized in Sections 3 and 4 and is not presented as a survey of states or a comprehensive inventory of all state programs. The presented information includes the following:

- Overview of statutory authority and regulatory requirements for reporting (with selected excerpts included for context, where available).
- Reporting entities (who must report).
- Data collected (e.g., material types, tonnage, contamination indicators, inventory tracking, and/or market information).
- Reporting frequency (e.g., annual, quarterly) and whether reporting is mandatory, voluntary, a certification requirement, and/or a recordkeeping requirement.
- Reporting mechanism or platform (e.g., online portal, subscription platform, spreadsheet/template).
- Compliance approach (e.g., validation checks, follow-up, and penalties where applicable).
- How the data are used (e.g., program evaluation, public reporting, funding allocation).
- State administrative resources (staffing/level of effort to implement and maintain the reporting program, including intake, review, QA/QC, and follow-up on data verification).

Together, the outreach summary and state profiles are intended to illustrate how reporting programs are structured and implemented, what information is typically collected, and how states translate reported data into program oversight and public-facing products. The examples are provided to inform Iowa's considerations and highlight practical design choices and tradeoffs observed in other state programs.

2.0 SUMMARY

The following tables provide a comprehensive comparison of recycling data reporting systems across the states reviewed, highlighting key similarities, differences, and defining features of each approach.

Table 1. State Recycling Data Reporting Comparison (CO, FL, IN, MI)

Category	Colorado	Florida	Indiana	Michigan
Overall model	Facility-based reporting tied to recycling exemption	Dual reporting: facilities + counties/regions	Shipment-based reporting focused on MSW recyclers	Facility registration and reporting model
Primary reporting entities	Recycling facilities	Recovered materials dealers, counties, C&D facilities	MRFs, brokers, SWMDs, transfer stations	Recycling establishments, with voluntary reporters allowed
Reporting required?	Yes	Yes	Yes	Yes
Reporting frequency	Annual	Annual	Annual or quarterly	Annual or quarterly
Reporting platform	Online forms; compost partly manual	Re-TRAC + Excel workbook support	Re-TRAC Connect integrated with other programs	Re-TRAC Connect
System maturity	Moderate	Moderate-high	High	Moderate

Table 2. State Recycling Data Reporting Comparison (MN, OR, TN, WI)

Category	Minnesota	Oregon	Tennessee	Wisconsin
Overall model	Multi-stream system: counties, haulers, facilities	Dual survey system: collectors + private recyclers	Regional planning model + processing facility reporting	Local government "Responsible Unit" model + MRF self-certification
Primary reporting entities	Counties, haulers, permitted facilities	Collection service providers and private recyclers/processors	Recovered Materials Processing Facilities and solid waste regions	Responsible Units and MRFs
Reporting required?	Yes	Yes	Yes	Yes
Reporting frequency	Annual	Annual	Annual; quarterly voluntary for facilities	Annual
Reporting platform	Re-TRAC Connect across multiple reporting streams	Excel-based surveys; modernization underway	Not clearly specified in available information	State-built online system; paper also accepted
System maturity	Moderate-high but fragmented	High and long-running	Moderate-low based on available info	Moderate-high

Table 3. Scope of Data Collected (CO, FL, IN, MI)

Category	Colorado	Florida	Indiana	Michigan
Material types	Broad categories including paper, metals, plastics, organics, etc.	Broad categories including traditional recyclables and special wastes	Standardized categories in statute/reporting form	Glass, paper, plastics, ferrous, nonferrous, textiles, single stream
Source / origin tracking	Wasteshed/origin and source required in law/forms; interview notes suggest limited consistent sector detail	County of origin required	No sector origin; facility-based origin context only	Not clearly specified
Destination / end market tracking	Limited; in-state destination used to reduce double counting, out-of-state only high level	Limited beyond initial processing; not comprehensive	Strong destination tracking by recycler, broker, end user, state/country	Quantities shipped reported, but destination detail unclear/limited
Residuals / contamination	Some residuals from large facilities; contamination not consistent statewide	Residual/disposal data reported; contamination not tracked	No contamination or residual tons required in core recycling reporting	Not clearly specified
Inventory tracking	Turnover standard functions as an inventory control tool	Not routine; checked through complaints/outliers	Not in reporting system; addressed through inspections/processor trigger	Not specified

Table 4. Scope of Data Collected (MN, OR, TN, WI)

Category	Minnesota	Oregon	Tennessee	Wisconsin
Material types	Traditional recyclables, organics, HHW, e-waste, reuse/beneficial use categories	Detailed categories including specific plastic classes and paper/cardboard groups	Not clearly specified in available information	Core recyclables plus regulated materials like tires, oil, appliances, yard waste
Source / origin tracking	Strongest in hauler reporting by city/county and tip location	Strong washed and source tracking; direct vs. indirect receipt reported	County of origin required for RMPFs	Residential/non-residential split; RU source relationships and MRF receipt categories
Destination / end market tracking	Partial; some tip-point and out-of-state visibility, but not full end-market chain	Strong domestic and export market tracking	Not clearly specified	Tracks shipment to processors/end markets, but not detailed location reporting
Residuals / contamination	Limited residual/contamination tracking	Disposal reported; some contamination/residual limits remain, especially downstream	Regional disposal is reported; facility-level residual detail unclear	Disposal/residuals reported by MRFs
Inventory tracking	Not formalized in reporting streams	Beginning and ending inventory required; mass-balance expectation	Not specified	Storage capacity reported, but not full inventory balance

Table 5. Verification, Transparency, and Administration (CO, FL, IN, MI)

Category	Colorado	Florida	Indiana	Michigan
QA/QC approach	Trend review and follow-up on anomalies	Automated checks plus staff/vendor follow-up	Certification, Re-TRAC review, targeted follow-up, inspections	Not clearly described in available material
Estimated staffing	About 2 FTE	About 2 FTE, especially during reporting/verification season	About 1 FTE for recycling reporting; more across related programs	Not specified
Public access	Aggregated/public-facing data via Tableau and reports	Annual/county-level public reporting	Reports and downloadable databases publicly available	Only aggregate statewide totals released
Confidentiality	Confidential business information can be claimed	Trade secret process with full + redacted reports	No confidentiality for reported recycling data	Strong confidentiality; facility-level data FOIA-exempt

Table 6. Verification, Transparency, and Administration (MN, OR, TN, WI)

Category	Minnesota	Oregon	Tennessee	Wisconsin
QA/QC approach	Strong for SCORE/county data; weaker for haulers and facilities	Intensive manual reconciliation across surveys	Not clearly described in available material	All MRF reports reviewed; some RU review; change thresholds flagged
Estimated staffing	About 6 FTE across branches/streams	About 1 core FTE for QA/QC plus support	Not specified	About 0.25–0.5 FTE currently, with specialist vacancy noted
Public access	SCORE/public data available, with detailed data on request	Aggregated annual reports public	Not clearly specified	Aggregated reporting public; individual reports not typically surfaced
Confidentiality	End-market data can be proprietary; public/non-public versions required	Private recycler data confidential by statute; released in aggregate	Not specified	Aggregate public reporting; limited practical confidentiality issues noted

3.0 COLORADO

3.1 STATE SNAPSHOT

- Reporting Required: Yes (facility-based)
- Primary Reporting Entities: Recycling facilities (no haulers or generators)
- Reporting Frequency: Annual
- System Type: Online reporting forms (transitioned from spreadsheets)
- Data Quality: Approximate; estimation and conversions commonly used
- Key Limitation: No comprehensive material flow (no generator or hauler data)

3.2 STATUTORY AUTHORITY

- Relevant State Law(s): Colorado Revised Statutes § 30-20-102 (5) and § 30-20-122 establish the legal framework for recycling data collection.
- Key Statutory Excerpts:
 - § 30-20-102 (5): "The department shall compile data on recycling and waste diversion, including materials recovered for beneficial use, as reported by regulated entities."
 - § 30-20-122: "All registered recycling facilities must submit annual reports detailing quantities processed, diversion rates, and final disposition of recovered materials."

3.3 REGULATORY IMPLEMENTATION

3.3.1 Implementation:

- Administrative Code or Regulations: 6 CCR 1007-2-8 governs recycling facility operations and reporting requirements.
- Key Regulatory Excerpts:
 - 6 CCR 1007-2-8, Section 8.1: "All recycling facilities must submit annual reports detailing material types, tonnages processed, and diversion rates."
 - 6 CCR 1007-2-8, Section 8.3: "Facilities must maintain records for a minimum of five years and provide access for audits upon request."

3.3.2 Key Requirements

- Recycling facilities must demonstrate a minimum 75% material turnover rate (3-year rolling average) to qualify as a recycling operation.
- Facilities are not subject to solid waste permitting if they meet recycling criteria.
- Facilities must submit annual reports including:
 - Types of recyclable materials
 - Quantities (by weight or volume)
 - Facility and operator information

3.3.3 Policy Context

- Colorado uses a regulatory tradeoff approach:
- No permitting requirements for recycling facilities
- In exchange for mandatory registration and reporting

3.4 PROGRAM IMPLEMENTATION

Regulating Agency: Colorado Department of Public Health and Environment (CDPHE)

3.4.1 Who Reports

- Recycling facilities (registration required upon opening)
- No reporting required for:
 - Generators
 - Haulers
 - Municipal programs (directly)

3.4.2 Reporting Process

- Frequency: Annual (due March 1)
- Submission Method: Online forms
- Registration and reporting are completed electronically
- System Evolution:
 - Previously spreadsheet-based
 - Transitioned to online forms in recent years
 - Compost data still partially tracked manually

3.4.3 Data Collected

- Facilities report:
 - Types of recyclable materials handled
 - Quantities (tons, volume, or converted units)
 - Limited information on material destination (primarily in-state tracking to avoid double counting)
 - Some facilities report residual (non-recycled) material
- Material Categories Include:
 - Paper
 - Metals
 - Plastics

- Glass
- Organics
- Electronics
- Tires and rubber
- Construction & demolition debris
- Used oil, antifreeze, and other special wastes

3.5 DATA QUALITY & VERIFICATION

3.5.1 Validation Approach

- CDPHE reviews data year-over-year to identify anomalies
- Follow-up conducted with facilities when inconsistencies are identified
- Validation relies heavily on:
 - Staff knowledge of facilities
 - Trend analysis

3.5.2 Accuracy & Limitations

- Data is considered approximate (“ballpark”), not precise
- Heavy reliance on:
 - Estimates
 - Standard conversion factors (e.g., EPA conversions)
 - Limited standardized measurement across facilities

3.5.3 Recordkeeping & Audits

- Facilities must maintain documentation to support:
 - 75% recycling rate requirement
- Supporting records may include:
 - Invoices
 - Bills of lading
- Documentation is reviewed when:
 - Data anomalies are identified
 - Throughput thresholds are not met

3.6 MATERIAL FLOW & INVENTORY TRACKING

3.6.1 Inbound Materials

- Limited tracking of material origin (e.g., residential vs. commercial)
- No consistent statewide requirement for source-separated reporting

3.6.2 Outbound Materials / End Markets

- Facilities report in-state destinations (to avoid double counting)
- Out-of-state movement is tracked only at a high level
- Limited visibility into:
 - Final end use
 - Export markets

3.6.3 Inventory Requirements

- Facilities must demonstrate material turnover consistent with the 75% recycling threshold
- Inventory accumulation may trigger review if turnover expectations are not met

3.6.4 Non-Recycled Materials

- Some reporting of residuals (primarily by larger facilities)
- No consistent statewide requirement for:
 - Contamination rates
 - Final disposal destination of residuals

3.7 PUBLIC ACCESS & CONFIDENTIALITY

3.7.1 Transparency

- Data is aggregated and published by the state
- Tableau is used for public-facing data visualization

3.7.2 Confidentiality

- Facilities may claim Confidential Business Information (CBI)
- State evaluates confidentiality claims and notifies facilities if data is requested

3.7.3 Unique Policy Features

- No Permitting Requirement: Recycling facilities are exempt from solid waste permitting if they meet recycling criteria
- 75% Recycling Threshold: Defines whether a facility qualifies as a recycling operation
- Tradeoff Model: Reduced regulatory burden in exchange for reporting
- Local Control Influence: State relies on facility reporting rather than comprehensive system-wide reporting

3.7.4 Gaps & Challenges

- No reporting from generators or haulers
- Limited ability to track full material flows
- Heavy reliance on estimates and conversions
- Incomplete organics and compost data
- Limited end-market transparency, especially out-of-state
- Potential for double counting without careful tracking
- Data system still evolving (manual components remain)

3.8 RESOURCE REQUIREMENTS

3.8.1 Staffing:

- Approximately 2 FTE for:
 - Registration
 - Reporting oversight
 - Data review and enforcement

3.8.2 Data System:

- Developed in-house
- Approximately 4 years old and still being refined

3.8.3 Tools:

- Online reporting forms
- Tableau for data publication

3.9 LESSONS LEARNED / TRANSFERABLE INSIGHTS

- Policy tradeoffs can drive participation: Eliminating permitting requirements incentivized facility compliance with reporting
- Keep reporting systems simple: Transitioning from spreadsheets to online forms improved usability
- Expect imperfect data: Recycling data is often directional rather than precise
- Facility-only reporting has limits: Without generator or hauler data, system-wide visibility is incomplete
- Build systems that can evolve: Colorado continues to refine its reporting platform and data approach
- Focus on trends, not exact numbers: Year-over-year comparisons are more valuable than point-in-time precision

3.10 KEY TAKEAWAY

Colorado's system is a facility-based, low-burden reporting model that prioritizes participation and regulatory flexibility, but provides limited data precision and material flow visibility. It is effective for high-level trend tracking, but not for detailed system analysis or end-market accountability.

4.0 FLORIDA

4.1 STATE SNAPSHOT

- Reporting Required: Yes (facilities and counties)
- Primary Reporting Entities: Recovered materials dealers (>600 tons), counties, C&D facilities
- Reporting Frequency: Annual (February 1 deadline for facilities)
- System Type: Re-TRAC Connect + supplemental Excel tools
- Data Quality: Moderate; structured but dependent on county input and estimates
- Key Limitation: Limited material flow tracking beyond initial processing

4.2 STATUTORY AUTHORITY

- Relevant State Law(s): Florida Solid Waste Management Act (Chapter 403, Florida Statutes) governs recycling data reporting.
- Key Statutory Excerpts:
 - § 403.7032: "Public entities, including schools and state agencies, must report annual recycling data to their counties. Private businesses are encouraged but not required to report."
 - § 403.706: "Counties must develop and implement recycling programs and report progress toward the state's 75% recycling goal."
 - § 403.7046: "Recovered materials processing facilities handling more than 600 tons annually must obtain certification from the Florida Department of Environmental Protection (DEP)."
 - § 403.7047: "Certified facilities must submit annual reports detailing material types, quantities processed, and end-use destinations."

4.3 REGULATORY IMPLEMENTATION

4.3.1 Implementation

- Administrative Code or Regulations: Florida Administrative Code Chapters 62-716 & 62-722
- Key Regulatory Excerpts:
 - 62-716.450: "Counties must submit annual recycling reports detailing material types, quantities processed, and diversion rates."
 - 62-716.460: "Public entities must report recycling data to counties, which then submit aggregated reports to DEP."
 - 62-722.400: "Facilities handling 600+ tons of recovered materials must apply for certification and submit annual reports to DEP and counties from which materials were received."

4.3.2 Key Requirements

- Reporting entities must provide:
 - Material types and quantities (by county of origin)

- Total recovered materials handled
- Amount and disposal destination of solid waste generated
- Reports must be submitted to:
 - The state
 - All counties from which materials originated

4.3.3 Policy Context

- 1988 Solid Waste Management Act established the foundation for recycling policy and funding
- 2008 legislation set a 75% statewide recycling goal (including renewable energy and landfill gas recovery)
- The state has not met the 75% goal (current ~48%)
- Recycling goal still exists but includes non-traditional recycling activities (e.g., energy recovery)

4.4 PROGRAM IMPLEMENTATION

Regulating Agency: Florida Department of Environmental Protection (FDEP)

4.4.1 Who Reports

- Recovered materials dealers (>600 tons/year)
- Counties (annual recycling reporting)
- Construction & Demolition (C&D) facilities (report landfilled and recycled tons)

4.4.2 Key Structure:

- Facility data is reported to both the state and counties
- Counties incorporate facility data into their own reports

4.4.3 Reporting Process

- Frequency: Annual
- Deadline: February 1 (facilities)
- Submission Platforms:
 - Certification: FDEP Business Portal
 - Reporting: Re-TRAC Connect
- Supplemental Tools:
 - Solid Waste Management Workbook (Excel) used for:
 - Material tracking
 - Vendor information
 - Additional county-level data

4.4.4 Data Collected

- Reporting includes:
 - Material types and quantities (tons)
 - County of origin
 - Total recovered materials received
 - Residual waste quantities and disposal location
 - Vendor/end recipient (in some cases)
- Units:
 - Primarily tons
 - Yard waste may be reported in cubic yards and converted by staff
- Material Categories: Examples include:
 - Paper and OCC
 - Plastics
 - Metals
 - Glass
 - Electronics
 - Used oil and batteries
 - Mixed recyclables
 - Yard waste
- Source Reporting
 - Residential and commercial materials are combined
 - Counties may estimate generation by sector independently

4.5 DATA QUALITY & VERIFICATION

4.5.1 Validation Approach

- FDEP conducts QA/QC through Re-TRAC and manual review
- Key methods:
 - Automated flags (e.g., $\pm 10\%$ variation)
 - Comparison to landfill disposal data

- Cross-checking with county reports
- Direct follow-up with facilities or vendors

4.5.2 Accuracy & Limitations

- Data quality varies by:
 - County size and capacity
 - Availability of local resources
- Smaller counties often:
 - Have limited staff
 - Rely more on estimates

4.5.3 Resource Commitment

- ~2 FTE for:
 - ~2 months of intensive verification after reporting deadline
 - Up to 6 months total for:
 - Data collection
 - QA/QC
 - Publishing results
 - Data must be finalized and published by July 1 annually

4.6 MATERIAL FLOW & INVENTORY TRACKING

4.6.1 Inbound Materials

- Facilities report materials by county of origin
- Limited visibility into:
 - Specific generators
 - Sector-level sources

4.6.2 Outbound Materials / End Markets

- Recovered materials dealers report:
 - Where materials are sent (in some cases)
- However:
 - Limited tracking beyond initial processing
 - No comprehensive tracking of out-of-state flows

4.6.3 Inventory & Stockpiling

- Not routinely reported
- Investigated only when:
 - Complaints are received
 - Data anomalies are identified

4.6.4 Non-Recycled Materials

- Facilities report:
 - Residual waste quantities
 - Disposal locations
- Not required:
 - Contamination rate reporting
 - Detailed tracking of unrecycled materials

4.7 PUBLIC ACCESS & CONFIDENTIALITY

4.7.1 Transparency

- State publishes annual recycling data reports
- Data is generally shared at the county level, not by individual facility

4.7.2 Confidentiality

- Certain reported data qualifies as trade secret under state law
- Facilities must now submit:
 - A full report
 - A redacted version for public release
- Confidential data typically includes:
 - Facility-specific material and customer information

4.7.3 Unique Policy Features

- Dual Reporting Structure: Facilities report to both the state and counties, and counties incorporate that data
- Certification Program (Not Permitting): Reporting entities must certify annually, but this is not a permit
- 600-Ton Threshold: Establishes who is required to report
- Broad Definition of Recycling: Includes:
 - Renewable energy
 - Landfill gas recovery

- Landfill cover

4.8 GAPS & CHALLENGES

- Weight-based recycling goal distorts behavior:
 - Incentivizes heavy materials (e.g., concrete)
 - Undervalues traditional recyclables (e.g., paper, plastics)
 - Inclusion of renewable energy in recycling metrics complicates tracking
- Limited visibility into:
 - End markets
 - Out-of-state material flows
 - No contamination reporting
- Smaller counties face:
 - Resource constraints
 - Data collection challenges
- Limited enforcement mechanisms:
 - No strong penalties for non-compliance

4.9 RESOURCE REQUIREMENTS

- Staffing:
 - ~2 FTE for reporting, QA/QC, and publishing
- System Costs:
 - Re-TRAC Connect: ~\$40,000/year (shared across programs)
- Funding:
 - No dedicated recycling program funding (e.g., grants have sunsetted)
 - Heavy reliance on partnerships

4.10 LESSONS LEARNED / TRANSFERABLE INSIGHTS

- Shared reporting responsibility improves data completeness: Combining facility and county reporting creates a more comprehensive dataset
- User-friendly systems matter: Re-TRAC is viewed as intuitive and improves participation
- Technical assistance is critical: Smaller jurisdictions need support to ensure consistent reporting
- Weight-based goals can create unintended consequences: Metrics should be carefully designed to reflect true recycling performance

- Data validation requires active management: Automated checks + manual follow-up are both necessary
- Broad definitions of recycling reduce data clarity: Including energy recovery can obscure material recycling performance

4.11 KEY TAKEAWAY

Florida's system is a comprehensive, dual-reporting model (facilities + counties) that achieves broad statewide coverage, but is influenced by policy design choices—particularly a weight-based recycling goal—that can distort performance metrics. It provides strong overall data availability but limited insight into true material recovery and end markets.

5.0 INDIANA

5.1 STATE SNAPSHOT

- Reporting Required: Yes (mandatory for MSW recyclers)
- Primary Reporting Entities: Recycler facilities (MRFs, brokers, SWMDs, transfer stations)
- Reporting Frequency: Annual or quarterly
- System Type: Re-TRAC Connect (integrated across solid waste programs)
- Data Quality: Strong for MSW recycling flows; limited outside MSW
- Key Strength: Detailed shipment-based tracking of recyclable materials
- Key Limitation: No generator-level or end-market (manufacturer) reporting

5.2 STATUTORY AUTHORITY

- Relevant State Law(s): Indiana Code § 13-20-25-9 governs mandatory recycling data reporting.
- Key Statutory Excerpts:
 - § 13-20-25-9(a): "A recycler shall report the recycler's recycling activities under this section."
 - § 13-20-25-9(b): "A recycler may elect to report annually or quarterly, with annual reports due by March 1 and quarterly reports due within 30 days after the end of each quarter."
- House Enrolled Act 1183 (2014)
 - Established a 50% recycling goal for municipal solid waste (MSW)
 - Required reporting of recyclable materials processed from the MSW stream

5.3 REGULATORY IMPLEMENTATION

5.3.1 Implementation

- Administrative Code or Regulations: Indiana Recycling Activity Reporting Rules
- Key Regulatory Excerpts:
 - Mandatory Reporting: "Recyclers must submit reports detailing material types, quantities processed, and market destinations."
 - Reporting System: "Reports are submitted online through IDEM's Re-TRAC Solid Waste and Recycling Data Reporting Program."

5.3.2 Key Requirements

- Recycler facilities must report:
 - Type of recyclable material
 - Quantity (by weight)
 - Shipment destination
- Reporting applies specifically to:

- Recyclables from the MSW stream
- Non-MSW recycling reporting is voluntary

5.3.3 Policy Context

- Indiana has tracked solid waste disposal since 1990
- Recycling reporting was added in 2014 to support:
 - Credible recycling rate measurement
 - Statewide goal tracking
- The program reflects a measurement-driven approach, aligned with EPA recycling rate methodologies

5.3.4 Key Definitions

- Recycler: Includes MRFs, brokers, solid waste facilities with recycling operations, and Solid Waste Management Districts (SWMDs)
- Recycling: Recovery of materials from the waste stream for reuse, raw material conversion, or new product manufacturing
- Important Limitation: Manufacturers/end users (e.g., paper mills, steel mills) are not required to report

5.4 PROGRAM IMPLEMENTATION

Regulating Agency: Indiana Department of Environmental Management (IDEM)

5.4.1 Who Reports

- Required:
 - MRFs
 - Transfer stations with recycling activity
 - Brokers
 - Solid Waste Management Districts (SWMDs)
- Not Required:
 - Municipalities (directly)
 - Manufacturers/end users

5.4.2 Reporting Structure

- Reporting is based on shipments of recyclables from facilities, not collection
- Focus is on movement of materials through the system (MRF shed-based approach)

5.4.3 Reporting Process

- Frequency:
 - Annual (most facilities)
 - Quarterly (some, e.g., transfer stations)
- System:
 - Re-TRAC Connect (implemented post-2014 legislation)
 - Integrated with other programs:
 - Solid waste
 - Compost
 - Tires
 - E-waste
- Scale:
 - ~150 registered reporting facilities
 - ~80% report annually

5.4.4 Data Collected

- Facilities report:
 - Material type (by standardized categories)
 - Quantity (primarily tons; pounds for e-waste)
 - Shipment destination:
 - In-state recyclers
 - Brokers
 - Manufacturers/end users
 - Out-of-state destinations

5.4.5 Material Categories

- Glass
- Ferrous metals (including white goods)
- Non-ferrous metals
- Paper and paper products
- Plastics
- Single-stream recyclables
- Other specified materials

5.4.6 Source Reporting

- No direct reporting by:

- Residential
- Commercial
- Industrial sectors
- Source may be inferred indirectly from:
 - Type of reporting facility (e.g., MRF vs. district program)

5.5 DATA QUALITY & VERIFICATION

5.5.1 Validation Approach

- Certification: Reporters certify accuracy of submissions
- System QA/QC: Re-TRAC generates validation reports
- Staff Review:
 - Year-over-year comparisons
 - Follow-up on anomalies
 - Targeted outreach to large facilities

5.5.2 Inspection & Oversight

- Inspections of permitted facilities may:
 - Verify operations
 - Identify reporting gaps
- Larger facilities receive greater scrutiny, but smaller sites are also reviewed

5.5.3 Accuracy & Strengths

- Strong tracking of:
 - Material flows (by shipment)
 - Destination-based data
- High confidence in:
 - Large facility reporting
 - System-level trends

5.5.4 Limitations

- No reporting of:
 - Contamination rates
 - Residual (non-recycled) materials

- Limited verification beyond:
 - Certification
 - Targeted follow-up

5.6 MATERIAL FLOW & INVENTORY TRACKING

5.6.1 Inbound Materials

- Not tracked by sector (residential/commercial)
- Facilities identified by location and role in system

5.6.2 Outbound Materials / End Markets

- Strong tracking of shipment destinations, including:
 - In-state recyclers
 - Brokers
 - Out-of-state markets
- Includes:
 - Facility name
 - City/state of destination
 - Type and quantity of material

5.6.3 Key Limitation

- No tracking of:
 - What happens after materials reach end users
 - Final processing or manufacturing outcomes

5.6.4 Inventory & Storage

- Not reported through data system
- Managed through:
 - Inspections
 - Regulatory triggers
- Key Threshold: Materials stored >6 months may trigger classification as a processing facility

5.7 PUBLIC ACCESS & TRANSPARENCY

5.7.1 Transparency

- Data is publicly available through:
 - Recycling Index Report
 - Downloadable databases
- Additional local data available via:
 - Solid Waste Management Districts

5.7.2 Confidentiality

- No confidentiality allowed for reported recycling data
- Some flexibility provided:
 - Aggregation of destinations (e.g., multi-state reporting) to address sensitivity concerns

5.8 UNIQUE POLICY FEATURES

- Shipment-Based Reporting Model: Tracks movement of materials rather than collection or generation
- MSW-Focused Reporting: Mandatory reporting limited to MSW recyclables
- Integrated Data System: Re-TRAC used across multiple solid waste programs
- MRFs as Reporting Anchor: MRFs serve as the primary “end point” for required reporting
- SWMD Network: Local districts provide additional system insight and support

5.9 GAPS & CHALLENGES

- No reporting from:
 - Municipalities (directly)
 - Manufacturers/end users
- Limited visibility into:
 - Full material lifecycle
 - Final recycling outcomes
- No tracking of:
 - Contamination
 - Residual disposal
- Reporting limited to:
 - MSW stream (excludes some materials like textiles, certain C&D)
- Broad statutory definitions required:

- Significant effort to identify which facilities must report

5.10 RESOURCE REQUIREMENTS

- Staffing:
 - ~1 FTE dedicated to recycling reporting
 - ~10–12 FTE across all related programs (solid waste, compost, e-waste, etc.)
- System Costs:
 - Re-TRAC: ~\$30,000/year
- System Benefits:
 - Integrated reporting across programs
 - Enables cross-checking between datasets

5.11 LESSONS LEARNED / TRANSFERABLE INSIGHTS

- Define reporting universe early: Clearly identifying which facilities must report is critical to program success
- Online systems are essential: Transition from paper to Re-TRAC was a “game changer”
- Focus on material flow, not just collection: Shipment-based reporting improves data reliability and reduces double counting
- Leverage existing infrastructure: Using MRFs and key facilities simplifies reporting requirements
- Integration improves data quality: Combining recycling and solid waste reporting enables cross-validation
- Perfect data isn’t necessary: Certification + targeted follow-up provides sufficient accuracy
- Expanding beyond MSW is challenging: Capturing full diversion (e.g., C&D, textiles) requires additional systems and policy changes

5.12 KEY TAKEAWAY

Indiana’s system is a structured, shipment-based reporting model focused on MSW recyclables, offering strong material flow tracking and high data reliability within its scope. However, it provides a narrower view of the recycling system, with limited insight beyond MSW and no visibility into final end-use outcomes.

6.0 MICHIGAN

6.1 STATE SNAPSHOT

- Reporting Required: Yes (facility-based, with voluntary expansion)
- Primary Reporting Entities: Recycling establishments (processors, brokers)
- Reporting Frequency: Annual or quarterly
- System Type: Re-TRAC Connect
- Data Quality: Moderate (dependent on participation; limited verification detail)
- Key Strength: Statewide facility registration and standardized reporting
- Key Limitation: Limited visibility into material flow, sources, and end markets

6.2 STATUTORY AUTHORITY

- Relevant State Law(s): Michigan's Part 175 of Act 451 (Natural Resources and Environmental Protection Act, 1994) governs recycling data reporting.
- Key Statutory Excerpts:
 - Part 175, Section 17502: "Recycling establishments must report annually on the amount and type of materials recycled."
 - Part 175, Section 17503: Recycling establishments, recycling more than 100 tons per year, must report annually on the amount and type of materials recycled.
 - Part 175, Section 17504: Information; confidentiality, exemption from disclosure.
 - Part 175, Section 17503: "The Department of Environment, Great Lakes, and Energy (EGLE) shall compile reported data and make it publicly available."

6.3 REGULATORY IMPLEMENTATION

6.3.1 Implementation

- No regulations; statutory implementation

6.3.2 Key Requirements

- Recycling establishments must report:
 - Types of recyclable materials
 - Quantities received and shipped (in tons)
- Applies to:
 - Facilities handling ≥ 100 tons/year of recyclable materials

6.3.3 Policy Context

- Developed as a collaborative effort between the recycling industry and the state
- Primary goal:
 - Improve understanding of recycling volumes statewide
- Notably: No penalties were included to encourage participation and industry cooperation

6.3.4 Key Definitions

- Recycling Establishment: Includes facilities engaged in recycling or brokering of:
 - Paper, plastics, metals, glass, textiles, and single-stream materials
- Excludes:
 - Facilities handling <100 tons/year

6.3.5 Permitting / Registration

- Facilities must: Register annually (by July 1)
- Program functions as: Registration-based (not permitting)

6.4 PROGRAM IMPLEMENTATION

Regulating Agency: Michigan Department of Environment, Great Lakes, and Energy (EGLE)
(formerly DEQ)

6.4.1 Who Reports

- Mandatory Reporters: Recycling establishments meeting statutory definition
- Voluntary Reporters: Facilities not required to report but encouraged to participate

6.4.2 Reporting Structure

- Facility-based reporting system
- Focus is on:
 - Materials handled at the facility level
 - Not on collection or generation

6.4.3 Reporting Process

- Frequency: Annual or quarterly
- System: Re-TRAC Connect
- Units:
 - All data reported in tons
 - System automatically converts:
 - Cubic yards and pounds → tons

6.4.4 Data Collected

- Facilities report:
 - Types of recyclable materials
 - Quantities:

- Received
- Shipped

6.4.5 Material Categories

- Glass
- Paper and paper products
- Plastics
- Ferrous metals (including white goods)
- Nonferrous metals
- Textiles
- Single-stream recyclables

6.4.6 Source Reporting

- Not specified in available information
- No clear requirement to distinguish:
 - Residential vs. commercial sources

6.5 DATA QUALITY & VERIFICATION

6.5.1 Validation Approach

- Limited information available
- Known elements:
 - Standardized reporting through Re-TRAC
 - Encouragement of voluntary reporting to improve completeness

6.5.2 Accuracy & Limitations

- Data quality likely depends on:
 - Participation rates
 - Accuracy of facility-reported data
- Lack of:
 - Documented QA/QC procedures
 - Cross-system validation

6.5.3 Key Limitation

- No clear mechanisms for:
 - Systematic verification
 - Enforcement of reporting accuracy

6.6 MATERIAL FLOW & INVENTORY TRACKING

6.6.1 Inbound Materials

- Facilities report:
 - Quantities received
- No required breakdown by:
 - Source sector
 - Geographic origin

6.6.2 Outbound Materials / End Markets

- Facilities report:
 - Quantities shipped
- Limitation: No detailed tracking of:
 - End markets
 - Destination locations

6.6.3 Inventory Tracking

- Not specified in available information

6.6.4 Residuals & Disposal

- Not specified in available information
- No clear requirement to report:
 - Contamination
 - Residual disposal

6.7 PUBLIC ACCESS & CONFIDENTIALITY

6.7.1 Transparency

- Public reporting limited to: Aggregated statewide totals

6.7.2 Confidentiality

- Strong confidentiality protections:
 - Facility-level data is FOIA-exempt
 - Includes:
 - Customer information
 - Material quantities

- Public release:
 - Only aggregated data that cannot identify individual reporters

6.8 UNIQUE POLICY FEATURES

- Collaborative (Non-Punitive) Approach: Designed without penalties to encourage industry participation
- Mandatory + Voluntary Reporting Model: Allows expansion beyond required reporters
- Low Threshold for Inclusion: Facilities ≥ 100 tons/year required to report
- Standardized Reporting Platform: Use of Re-TRAC with built-in unit conversions

6.9 GAPS & CHALLENGES

- Limited system visibility:
 - No tracking of:
 - Material sources
 - End markets
 - Full material flows
- Unclear data validation processes
- Confidentiality limits transparency:
 - Restricts access to facility-level insights
- No enforcement mechanism:
 - May impact participation and completeness
- Facility-only reporting model:
 - Excludes:
 - Haulers
 - Municipal programs

6.10 RESOURCE REQUIREMENTS

- Not known from available information
- Likely includes:
 - Program administration
 - Re-TRAC system management

6.11 LESSONS LEARNED / TRANSFERABLE INSIGHTS

- Collaboration can improve participation: A non-punitive approach may encourage industry engagement
- Standardized systems are important: Re-TRAC provides consistency in reporting and unit conversion
- Voluntary reporting can expand coverage—but may reduce reliability: Without enforcement, completeness and consistency may vary

- Confidentiality tradeoffs impact usability: Protecting industry data limits transparency and analytical value
- Facility-only systems have inherent limitations: Without hauler or generator data, material flow visibility is incomplete

6.12 KEY TAKEAWAY

Michigan's system is a facility-based, collaborative reporting model that prioritizes participation and standardization, but provides limited visibility into broader material flows and system performance due to its scope and confidentiality constraints.

7.0 MINNESOTA

7.1 STATE SNAPSHOT

- Reporting Required: Yes (facilities, haulers, and counties)
- Primary Reporting Entities: Permitted facilities, waste haulers, counties (SCORE program)
- Reporting Frequency: Annual (March 1 for recycling)
- System Type: Re-TRAC Connect (multi-program use)
- Data Quality: Strong overall, but varies by reporting stream
- Key Strength: Comprehensive system capturing collection → processing (partial flow tracking)
- Key Limitation: Low hauler reporting participation; fragmented system design

7.2 STATUTORY AUTHORITY

- Relevant State Law(s): Minnesota Statutes Chapter 115A – Waste Management governs recycling data reporting.
- Key Statutory Excerpts:
 - § 115A.551: "Each county must develop and implement programs to meet recycling goals, reporting progress to the Minnesota Pollution Control Agency (MPCA)."
 - § 115A.411: "The commissioner shall monitor county progress toward recycling goals and report findings to the legislature."
 - § 115A.93 requires haulers to report to the MPCA—may also require facilities.

7.3 REGULATORY IMPLEMENTATION

- Implementation: Statutory Implementation

7.3.1 Key Requirements

- Reporting is required from:
 - Permitted waste facilities
 - Waste haulers
 - Recycling and composting facilities
- The state has authority to collect data on:
 - Waste generation
 - Recycling
 - Processing and disposal

7.3.2 Policy Context

- Minnesota's system is built on the Waste Management Act and SCORE program (since ~1991)
- Strong policy foundation based on:

- Waste hierarchy
- Statewide planning and grant programs
- Reporting has evolved over time:
 - Initially program-specific (SCORE)
 - Expanded into a broader waste flow system

7.3.3 Permitting Approach

- Recycling facilities operate under:
 - Permit-by-rule (PBR) requirements
- Must meet design and operational standards to:
 - Prevent releases
 - Properly manage materials

7.4 PROGRAM IMPLEMENTATION

Regulating Agency: Minnesota Pollution Control Agency (MPCA)

7.4.1 Who Reports

- Minnesota uses a multi-stream reporting system:
 - Counties (SCORE Reporting)
 - Report recycling and program data
 - Primary source for statewide recycling metrics
 - Waste Haulers
 - Report materials collected and transported
 - Includes MSW, recyclables, and organics
 - Facilities
 - Report materials received and processed

7.4.2 Reporting Structure

- Reporting is split across three primary programs:
 - SCORE (county-based)
 - Hauler reporting
 - Facility reporting
- All systems utilize Re-TRAC Connect, but operate somewhat independently

7.4.3 Reporting Process

- Frequency: Annual
- Deadline: March 1 (recycling reporting)
- System: Re-TRAC Connect
- Challenges with System:
 - Users report difficulty:
 - Multiple forms required
 - Limited backend usability
- State is exploring internal system improvements

7.4.4 Data Collected

- SCORE (County Reports)
 - Tons of materials recycled
 - Program activities and expenditures
 - Basis for statewide recycling performance
- Hauler Reports
 - Tons collected by:
 - Material type
 - City/county of origin
 - Destination (point of tip)
- Facility Reports
 - Materials received (by type and quantity)
 - General origin (limited resolution)
 - Some cost data (e.g., gate fees)

7.4.5 Material Categories

- Traditional recyclables (paper, plastic, metal, glass)
- Organics
- Electronics and HHW
- Tires and appliances
- Reuse/beneficial use materials:
 - Furniture
 - Concrete/asphalt
 - Other reusable goods

7.4.6 Source Reporting

- Strongest in hauler reporting:
 - Tracks by city/county
- Facility reporting:
 - More limited (aggregated origins)
- SCORE:
 - Aggregated at county level

7.5 DATA QUALITY & VERIFICATION

7.5.1 Validation Approach

- County (SCORE):
 - Dedicated staff (approx. 70 counties reviewed annually)
 - Follow-up on discrepancies
 - Trend analysis and visualization
- Hauler Reporting:
 - Focus on report completion
 - Limited QA/QC beyond basic checks
- Facility Reporting:
 - Basic cross-checking with permits and other reports

7.5.2 Accuracy & Limitations

- Strongest data source: SCORE (trusted for policy decisions)
- Weakest data source: Hauler reporting (low participation)

7.5.3 Key Challenge

- Hauler participation <40%, creating major data gaps
- Enforcement exists (fines), but:
 - Limited effectiveness
 - Haulers are not state-licensed (regulated at county level)

7.5.4 Resource Commitment

- ~1–2 FTE per reporting stream (~6 total FTE)
- Significant effort dedicated to:
 - QA/QC

- Data reconciliation across systems

7.6 MATERIAL FLOW & INVENTORY TRACKING

7.6.1 Inbound Materials

- Hauler reporting provides:
 - Strong visibility from point of collection to tip location

7.6.2 Outbound Materials / End Markets

- Limited tracking beyond:
 - Initial processing or tip location
- Some visibility into:
 - Out-of-state movement (from tip point)

7.6.3 System Strength

- Minnesota is actively working toward a full waste flow model:
 - Linking collection → processing → disposal

7.6.4 Inventory & Storage

- Not formally tracked through reporting
- Addressed through:
 - Permitting
 - Inspections

7.6.5 Non-Recycled Materials

- Limited tracking of:
 - Contamination
 - Residuals
- Some cross-checking between:
 - Disposal data
 - Recycling reports

7.7 PUBLIC ACCESS & CONFIDENTIALITY

7.7.1 Transparency

- SCORE reports are public and widely used
- Data is used for:
 - Policy development

- Program planning

7.7.2 Confidentiality

- Facilities may claim:
 - Destination data as proprietary
- Reporting requires:
 - Two submissions:
 - Full (non-public)
 - Redacted (public)

7.7.3 Data Access

- Most data is publicly available:
 - Aggregated reports
 - Available upon request (detailed data)

7.8 UNIQUE POLICY FEATURES

- Multi-Stream Reporting System: Combines county, hauler, and facility data
- SCORE Program Backbone: Long-standing, grant-based reporting system tied to performance
- Waste Flow Focus (Emerging): State is actively working toward full material flow tracking
- Broad Definition of Recycling: Includes reuse and beneficial use materials

7.9 GAPS & CHALLENGES

- Low hauler participation (<40%) significantly limits data completeness
- Fragmented system:
 - Multiple reporting streams not fully integrated
- Limited tracking of:
 - End markets
 - Contamination
 - Residual disposal
- Re-TRAC usability challenges:
 - Data entry burden
 - Difficulty extracting data
- County-level aggregation can obscure:
 - Local program detail

- Facility-level insights

7.10 RESOURCE REQUIREMENTS

- Staffing:
 - ~6 FTE across reporting programs
 - Heavy focus on hauler reporting support
- System:
 - Re-TRAC Connect (shared across programs)
- Additional Needs:
 - Internal data tools (e.g., Excel conversions, visualization tools)
 - Ongoing system integration efforts

7.11 LESSONS LEARNED / TRANSFERABLE INSIGHTS

- Start with a full system design: Building reporting incrementally led to fragmentation—better to design for full material flow upfront
- Hauler data is critical—but hardest to obtain: Without strong participation, major gaps remain in understanding material movement
- Local (county) reporting is highly valuable: SCORE provides a strong, trusted dataset for policy decisions
- Integration across programs is essential: Multiple disconnected systems increase workload and reduce clarity
- User experience matters: Reporting burden and system usability directly impact participation
- Data doesn't have to be perfect to be useful: SCORE demonstrates that consistent, long-term data supports effective decision-making

7.12 KEY TAKEAWAY

Minnesota's system is a multi-source, partially integrated reporting model (counties, haulers, and facilities) that provides a broad view of the recycling system and is actively evolving toward full material flow tracking. Its strength lies in comprehensive coverage and strong county-level data (SCORE), but effectiveness is limited by low hauler participation and fragmented system design.

8.0 OREGON

8.1 STATE SNAPSHOT

- Reporting Required: Yes (broad—collectors and private recyclers)
- Primary Reporting Entities: Collection service providers (haulers) and private recyclers/processors
- Reporting Frequency: Annual (Jan 31–Feb 28 deadlines)
- System Type: Excel-based survey system (transitioning under Recycling Modernization Act)
- Data Quality: High, but resource-intensive to validate
- Key Strength: Comprehensive material flow tracking including origin, destination, and inventory
- Key Limitation: Labor-intensive QA/QC and fragmented reporting across surveys

8.2 STATUTORY AUTHORITY

- Relevant State Law(s): Oregon Revised Statutes ORS 459A.050 establishes the framework for waste recovery and recycling reporting.
- Key Statutory Excerpts:
 - ORS 459A.050(6) & (8): “Requires all businesses that handle recyclable materials to complete an annual survey on types and weights of materials, including quantities of in-state materials collected (by material type and wasteshed), as well as any additional information needed to prevent double counting and verify recyclability; data must be reported on a state-provided form and is kept confidential at the entity level but may be disclosed in aggregated form.”

8.3 REGULATORY IMPLEMENTATION

8.3.1 Implementation

- Administrative Code or Regulations: OAR 340-090-0100 governs reporting requirements for recycling and waste recovery.
- Key Regulatory Excerpts:
 - OAR 340-090-0100(5): “Requires privately operated recycling, material recovery, and energy recovery facilities to annually report to DEQ the types and weights of materials handled, including breakdowns by wasteshed and source; use measured or inventory-adjusted weights; exclude certain wastes; track material flows to avoid double counting (including sources and downstream recipients); and report the final disposition of materials (recycled, composted, or used for energy recovery), with reasonable estimates allowed where direct measurement is not feasible.”

8.3.2 Key Requirements

- Reporting entities must provide:
 - Material types and quantities (in tons)
 - Origin of materials (including county/wasteshed)

- Destination of materials (domestic and international)
- Residuals disposed
- Beginning and ending inventory

8.3.3 Policy Context

- Oregon's reporting system was established in the early 1990s (law passed 1991; reporting began ~1993)
- Built to support:
 - Wasteshed-based recovery goals
 - Statewide recycling performance measurement
- The state is now implementing updates under the Recycling Modernization Act, including:
 - Expanded reporting requirements
 - Responsible end market standards
 - EPR (Extended Producer Responsibility) framework

8.3.4 Program Evolution

- Over 30 years of continuous reporting
- Recently shifting toward:
 - More standardized materials
 - Stronger accountability for end markets
 - System modernization

8.4 PROGRAM IMPLEMENTATION

Regulating Agency: Oregon Department of Environmental Quality (DEQ)

8.4.1 Who Reports: Oregon uses a dual reporting system:

- Collection Service Providers (Haulers)
 - Report materials collected from:
 - Residential
 - Commercial
 - Multifamily
 - Depots and special events
 - Construction & demolition
- Private Recyclers / Processors
 - Report materials:

- Received (including from haulers)
- Processed and marketed
- Sent to end markets

8.4.2 Reporting Process

- Deadlines:
 - Haulers: January 31
 - Processors/Recyclers: February 28
- System:
 - Excel-based survey forms
 - Distributed annually via DEQ website
- System Characteristics:
 - Multiple survey forms depending on entity type
 - Pre-populated forms based on prior year submissions

8.4.3 Data Collected

- Collection (Hauler) Data
 - Tons collected by:
 - Material type
 - Sector (residential, commercial, etc.)
 - Wasteshed
- Processing (Recycler) Data
 - Tons received (by source)
 - Tons marketed (by destination)
 - End market details:
 - U.S. companies
 - Export quantities
- Additional Required Data
 - Residuals disposed
 - Beginning and ending inventory
 - Source of materials:
 - Direct from generators
 - Indirect from other recyclers

8.4.4 Material Categories

- Paper and cardboard (combined categories)
- Plastics:
 - Rigid containers
 - Rigid plastics
 - Film
- Metals
- Glass
- Other materials (limited “other” category use encouraged)

8.4.5 Source Reporting

- Strong tracking of:
 - Wasteshed (regional) origin
 - Collection source (residential, commercial, etc.)
- Data focuses on Oregon-generated materials only

8.5 DATA QUALITY & VERIFICATION

8.5.1 Validation Approach

- Primary QA/QC conducted by:
 - ~1 dedicated staff (FTE)
- Methods include:
 - Cross-checking hauler and processor data
 - Year-over-year comparisons
 - Direct follow-up with reporters

8.5.2 Accuracy & Strengths

- High level of detail:
 - Origin → processing → destination
- Includes:
 - Inventory balancing (mass flow approach)
- One of the most comprehensive systems nationally

8.5.3 Key Limitations

- QA/QC is:
 - Extremely time-intensive
 - Can take an entire year to complete
- Limited staff capacity:
 - Constrains ability to fully reconcile datasets
- Data inconsistencies:
 - Hauler vs. processor reports do not always align

8.5.4 Notable Issue

- 2023 data processing delayed due to:
 - Cybersecurity incident
 - Resource limitations

8.6 MATERIAL FLOW & INVENTORY TRACKING

8.6.1 Inbound Materials

- Reported by:
 - Wasteshed
 - Source (direct vs. indirect)

8.6.2 Outbound Materials / End Markets

- Strong reporting requirements:
 - U.S. destination companies identified
 - Export quantities tracked separately
- Increasing focus on:
 - Responsible end markets (under modernization act)

8.6.3 Inventory Tracking

- Required:
 - Beginning inventory
 - Ending inventory
- Mass balance expectation:
 - Beginning inventory + incoming = outgoing + ending inventory

8.6.4 Residuals & Disposal

- Facilities report:
 - Quantity of material disposed
- Some limitations:
 - End markets may not report residuals

8.6.5 System Strength

- One of the few states requiring:
 - Inventory tracking + flow reconciliation

8.7 PUBLIC ACCESS & CONFIDENTIALITY

8.7.1 Transparency

- Data is published in:
 - Aggregated annual reports
- Used for:
 - Wasteshed recovery rate calculations
 - State policy development

8.7.2 Confidentiality

- Private recycler data is:
 - Confidential by statute
- Public reporting includes:
 - Aggregated data only
- Distinction:
 - Public entities: not confidential
 - Private recyclers: protected

8.8 UNIQUE POLICY FEATURES

- Wasteshed-Based System: Tracks materials geographically to support regional recovery goals
- Dual Survey Structure: Separate but linked reporting for collectors and processors
- Mass Balance Reporting: Requires inventory reconciliation (rare among states)
- End Market Accountability: Tracks domestic and export markets
- Recycling Modernization Act (EPR):
 - Introduces:
 - Contamination fees

- Transportation subsidies
- Market stabilization mechanisms

8.9 GAPS & CHALLENGES

- Resource-intensive QA/QC:
 - One staff person responsible for reconciliation
- Data inconsistencies between:
 - Hauler and processor reports
- Limited coverage of:
 - Industrial waste
 - Some compost feedstocks (e.g., agricultural inputs)
- Fragmented reporting structure:
 - Multiple surveys not fully integrated
- Limited tracking of:
 - Reuse (e.g., textiles)
- System usability challenges:
 - Excel-based reporting
 - Manual data handling

8.10 RESOURCE REQUIREMENTS

- Staffing:
 - ~1 FTE dedicated to material survey QA/QC
- Additional staff support for:
 - Data entry
 - Technical assistance
- System:
 - Excel-based reporting (current)
 - New system under development
- Program Investment:
 - EPR program has distributed:
 - ~\$8 million in subsidies

8.11 LESSONS LEARNED / TRANSFERABLE INSIGHTS

- Comprehensive systems require significant resources: High-quality data comes with substantial QA/QC effort
- Material flow tracking is achievable—but complex: Oregon demonstrates full-system tracking (collection → processing → markets)
- Inventory tracking improves data integrity: Mass balance approach helps identify inconsistencies
- Separate reporting streams create challenges: Integration is critical for efficiency and accuracy
- End market accountability is increasingly important: Especially in response to global market disruptions (e.g., China policy changes)
- Standardization improves data quality: Moving to consistent units (tons) and defined material categories improved reporting
- Policy drivers matter: Wasteshed goals and EPR requirements significantly shaped the reporting system

8.12 KEY TAKEAWAY

Oregon represents one of the most comprehensive and mature recycling data systems in the U.S., with strong material flow tracking and end-market visibility—but it comes with significant administrative complexity and resource demands.

9.0 TENNESSEE

9.1 STATE SNAPSHOT

- Reporting Required: Yes (facilities and regional entities)
- Primary Reporting Entities: Recovered Materials Processing Facilities (RMPFs) and solid waste regions
- Reporting Frequency: Annual (quarterly optional for facilities)
- System Type: Regional reporting + facility reporting (format not fully specified)
- Data Quality: Moderate (dependent on regional aggregation and facility input)
- Key Strength: Combines facility-level and regional system reporting
- Key Limitation: Limited detail on material flow, validation, and system integration

9.2 STATUTORY AUTHORITY

- Relevant State Law(s): Tennessee Solid Waste Management Act of 1991 (Tennessee Code Annotated § 68-211- Part 8) governs recycling data reporting.
- Key Statutory Excerpts:
 - § 68-211-803: "Each municipal solid waste region shall develop and maintain a solid waste plan that includes recycling and diversion reporting."
 - § 68-211-871: "Facilities processing recovered materials must submit annual reports detailing quantities processed and diversion rates."

9.3 REGULATORY IMPLEMENTATION

9.3.1 Implementation

- Administrative Code or Regulations: Tennessee Solid Waste Rules (Chapter 0400-11-01)
- Key Regulatory Excerpts:
 - 0400-11-01-.02: "Municipal solid waste regions must submit annual recycling and diversion reports to TDEC."
 - 0400-11-01-.10: "Facilities processing recovered materials must report quantities processed and end-use destinations."

9.3.2 Key Requirements

- Reporting is required from:
 - Recovered Materials Processing Facilities (RMPFs) managing >100 tons/year or publicly owned
 - Solid waste regions (regional planning entities)

9.3.3 Policy Context

- Tennessee's system is structured around:
 - Regional solid waste planning
 - State oversight of recycling and waste management activities

- Emphasis is placed on:
 - Regional accountability
 - Integration of recycling into broader MSW planning

9.3.4 Reporting Structure in Law

- Facilities report:
 - Recycling activity and material flows
- Regions report:
 - System-wide data including recycling, disposal, and program implementation

9.4 PROGRAM IMPLEMENTATION

Regulating Agency: Tennessee Department of Environment and Conservation (TDEC)

9.4.1 Who Reports

- Recovered Materials Processing Facilities (RMPFs)
 - Facilities managing:
 - 100 tons/year
 - Or publicly owned
 - Submit Material Origin Reports
- Solid Waste Regions
 - Required to submit:
 - Annual reports on system performance
 - Updates on regional MSW plans

9.4.2 Reporting Structure

- Dual reporting system:
 - Facility-level (RMPFs)
 - Regional-level (planning and system data)
- Regions:
 - Collect information from:
 - Local governments
 - Service providers

9.4.3 Reporting Process

- Frequency:
 - Annual (required)

- Quarterly (voluntary for facilities)
- System:
 - Not clearly defined (likely forms/templates coordinated by the state)

9.4.4 Data Collected

- Facility (RMPF) Reporting
 - Tons processed by:
 - Material type
 - County of origin
- Regional Reporting
 - Includes:
 - Collection data
 - Recycling data
 - Transportation
 - Disposal
 - Public costs
 - Implementation of regional MSW plans

9.4.5 Material Categories

- Glass, metals, paper, plastic, rubber, leather, textiles, electronics, batteries, mercury lamps, and scrap tires

9.4.6 Source Reporting

- Facility reporting includes:
 - County of origin
- Regional reporting:
 - Aggregates data across jurisdictions

9.5 DATA QUALITY & VERIFICATION

9.5.1 Validation Approach

- Not clearly specified
- Likely includes:
 - Regional review and compilation
 - State-level aggregation

9.5.2 Accuracy & Limitations

- Data quality depends on:
 - Regional data collection processes
 - Facility reporting consistency

9.6 MATERIAL FLOW & INVENTORY TRACKING

9.6.1 Inbound Materials

- Facilities report:
 - Tons by county of origin

9.6.2 Outbound Materials / End Markets

- No clear requirement to track:
 - End markets
 - Destination locations

9.6.3 Inventory Tracking

- Not specified

9.6.4 Residuals & Disposal

- Regional reports include:
 - Disposal data (system-wide)
- Facility-level residual tracking:
 - Not specified

9.6.5 System Characteristic

- Provides:
 - Partial system view (collection + processing)
- Lacks:
 - Full material flow tracking

9.7 PUBLIC ACCESS & CONFIDENTIALITY

9.7.1 Transparency

- Not clearly specified
- Likely includes:
 - Regional reports available to the state and potentially public

9.7.2 Confidentiality

- Not specified

9.8 UNIQUE POLICY FEATURES

- Regional Planning Framework: Recycling data is embedded within broader regional MSW planning
- Dual Reporting Model: Combines:
 - Facility-level processing data
 - Regional system-level data
- County-of-Origin Tracking: Facilities report geographic origin of materials

9.9 GAPS & CHALLENGES

- Limited system detail:
 - No clear tracking of:
 - End markets
 - Full material flows
 - Residuals at facility level
- Unclear data validation processes
- Fragmented structure:
 - Reliance on regions to compile data
- Lack of standardized reporting detail:
 - Material categories and metrics not clearly defined
- Limited transparency (based on available information)

9.10 RESOURCE REQUIREMENTS

- Unknown
- Likely distributed across:
 - State agency (TDEC)
 - Regional entities

9.11 LESSONS LEARNED / TRANSFERABLE INSIGHTS

- Regional systems can support broader planning: Integrating recycling into MSW planning provides a more complete system view
- Facility + regional reporting improves coverage: Captures both:
 - Processing data
 - System-level activity

- Clear standards are critical: Lack of defined QA/QC and reporting detail limits data usability
- Origin tracking is valuable: County-level data supports regional planning and policy decisions
- System clarity matters: Undefined processes (validation, formats, categories) reduce effectiveness

9.12 KEY TAKEAWAY

Tennessee's system is a regionally driven, dual-reporting model that provides a broad view of recycling within the overall waste system, but lacks the detail, standardization, and material flow tracking seen in more mature programs.

10.0 WISCONSIN

10.1 STATE SNAPSHOT

- Reporting Required: Yes (Responsible Units and MRFs)
- Primary Reporting Entities: Responsible Units (local governments) and Materials Recovery Facilities (MRFs)
- Reporting Frequency: Annual
- System Type: State-developed online reporting system (with paper option)
- Data Quality: Moderate–High (strong reconciliation using MRF data)
- Key Strength: Structured local accountability + MRF-based double-counting control
- Key Limitation: Fragmented reporting across many small jurisdictions (1,000+ RUs)

10.2 STATUTORY AUTHORITY

- Relevant State Law(s): Wisconsin Statutes Chapter 287 – Solid Waste Reduction, Recovery, and Recycling.
- Key Statutory Excerpts:
 - 287.09(2)(a): "Each responsible unit shall provide a recycling program that meets the requirements of this section and shall report annually to the department on program effectiveness."
 - 287.27(2): requires material recovery facilities to report tonnage of materials they receive and process.

10.3 REGULATORY IMPLEMENTATION

10.3.1 Implementation

- Administrative Code or Regulations: Wisconsin Administrative Code Chapters NR 542–549.
- Key Regulatory Excerpts:
 - NR 544.10: "Responsible units must submit annual recycling program reports, including tonnage collected, processing methods, and contamination rates."
 - NR 544.16(4): "Self-certified materials recovery facilities are required to submit an annual self-certification renewal and report on material types, quantities processed, where materials are stored, and other requested details. Private recycling facilities processing more than 5,000 tons annually must report material types, quantities processed, and end-use destinations."

10.3.2 Key Requirements

- Responsible Units (RUs) must:
 - Operate effective recycling programs
 - Submit annual reports documenting:
 - Recycling tonnage
 - Program activities

- Compliance and enforcement efforts
 - Financial information (if applicable)
- MRFs must:
 - Submit annual self-certification
 - Report processing and material flow data

10.3.3 Policy Context

- Law passed in 1990, implemented in 1995
- Every part of the state is assigned to a Responsible Unit (RU):
 - City, county, tribe, or other local government
- System is designed around:
 - Local program responsibility
 - State oversight and verification

10.4 PERMITTING APPROACH

- MRFs are not traditionally permitted for recycling reporting purposes but must:
 - Self-certify annually
 - Meet program criteria to serve RUs
- If discrepancies are found:
 - Certification may be invalidated

10.5 PROGRAM IMPLEMENTATION

Regulating Agency: Wisconsin Department of Natural Resources (DNR)

10.5.1 Who Reports

- Responsible Units (RUs)
 - Local governments responsible for recycling programs
 - ~1,000+ entities statewide
- Materials Recovery Facilities (MRFs)
 - ~45 facilities
 - Serve as key data verification points

10.5.2 Reporting Structure

- RU Reports:
 - Based on hauler-provided collection data

- Focus primarily on:
 - Residential recycling
 - Program operations
- MRF Reports:
 - Based on actual processed tonnage
 - Used to:
 - Validate system-wide recycling totals
 - Avoid double counting

10.5.3 Reporting Process

- Frequency: Annual
- System:
 - Online reporting platform (state-developed)
 - Paper submissions allowed
- Key Feature:
 - Built-in validation flags:
 - Significant changes (25–50%) require explanation

10.5.4 Data Collected

10.5.4.1 Responsible Units (RUs)

- Recycling tonnage (residential and non-residential)
- Program details:
 - Collection methods (single-stream, dual-stream)
 - Frequency of collection
 - Education and outreach efforts
- Compliance:
 - Recycling ordinances
 - Enforcement actions
- Financials:
 - Grant use
 - Commodity revenue (if applicable)

10.5.4.2 MRFs

- Incoming tonnage:
 - Residential
 - Commercial
 - Unknown
- Processing details:
 - Methods (sorting, baling, shredding, etc.)
- Material flows:
 - Tons processed
- Tons shipped to:
 - Other processors
 - End markets
 - Disposal
- Facility characteristics:
 - Capacity
 - Storage
 - Operations

10.5.5 Material Categories

- Core recyclables:
 - Newspaper
 - Corrugated cardboard
 - Mixed paper
 - Glass
 - Aluminum and steel containers
 - Plastics (#1–#7, foam PS)
- Additional regulated materials:
 - Tires
 - Used oil and filters

- Appliances
- Electronics
- Yard waste
- Batteries and lamps

10.5.6 Source Reporting

- RUs report:
 - Residential (single- and multi-family)
 - Non-residential (commercial/institutional)
- MRFs:
 - Report by source category (residential/commercial/unknown)

10.6 DATA QUALITY & VERIFICATION

10.6.1 Validation Approach

- MRF data is the primary basis for statewide totals
 - Used to avoid double counting
- RU data:
 - Used primarily for:
 - Residential recycling estimates
 - Program evaluation

10.6.2 QA/QC Methods

- Year-over-year comparisons:
 - Significant changes (25–50%) flagged
- Staff review:
 - All MRF reports reviewed
 - Selected RU reports reviewed

10.6.3 Accuracy & Strengths

- Strong control of:
 - Double counting (via MRF reconciliation)
- Good visibility into:
 - Residential program performance

10.6.4 Limitations

- RU data depends on:
 - Hauler reporting (indirect)
- Limited tracking of:
 - End markets (no detailed location reporting)
- QA/QC resources are limited:
 - ~0.25–0.5 FTE

10.7 MATERIAL FLOW & INVENTORY TRACKING

10.7.1 Inbound Materials

- RUs:
 - Based on hauler-reported collection
- MRFs:
 - Report actual received tonnage

10.7.2 Outbound Materials / End Markets

- MRFs report:
 - Tons sent to:
 - Other processors
 - End markets
 - Disposal
- Limitation:
 - No detailed tracking of:
 - Specific end markets
 - Geographic destinations

10.7.3 Inventory & Storage

- Facilities report:
 - Storage capacity
 - Operational practices
- No formal statewide:
 - Inventory balance requirement

10.7.4 Residuals & Disposal

- MRFs report:
 - Tons sent for disposal, including:

- Contamination
 - Residuals
 - Non-recyclables
- Facilities must also describe:
 - Efforts to minimize residuals
 - Practices to maintain material quality

10.8 PUBLIC ACCESS & CONFIDENTIALITY

10.8.1 Transparency

- Data is:
 - Reported publicly in aggregated form
- RU-level data:
 - Primarily used for program evaluation

10.8.2 Confidentiality

- Individual reports:
 - Generally not publicly released
- Aggregated data:
 - Used for public reporting
- In practice:
 - Few issues or requests related to confidentiality

10.8.3 Unique Policy Features

- Responsible Unit (RU) System: Every community is assigned responsibility for recycling performance
- MRF-Based Reconciliation: State relies on MRF data to:
 - Validate totals
 - Prevent double counting
- Program Compliance Focus: RU reporting includes:
 - Ordinances
 - Education
 - Enforcement
- Self-Certification Model: MRFs must certify compliance annually

10.9 GAPS & CHALLENGES

- Highly fragmented reporting structure:
 - 1,000+ RUs create administrative burden
- Reliance on hauler data:
 - Indirect and variable quality
- Limited end-market visibility:
 - No detailed tracking of final destinations
- Resource constraints:
 - Limited staff for QA/QC
- System design limitations:
 - RU-based reporting may be less efficient than county-level reporting

10.10 RESOURCE REQUIREMENTS

- Staffing:
 - ~0.25–0.5 FTE for reporting oversight
 - Previously a dedicated specialist role (currently vacant)
- System:
 - Developed internally by the state
 - Maintenance relatively low once established
- Scale Challenge:
 - Managing reporting from 1,000+ entities

10.11 LESSONS LEARNED / TRANSFERABLE INSIGHTS

- Local accountability drives program performance: Assigning responsibility to local governments ensures program implementation
- MRFs are critical for data validation: Using processor data helps resolve double counting and improve accuracy
- Too many reporting entities creates inefficiency: County-level reporting may be more effective than highly fragmented systems
- Program data matters as much as tonnage: Wisconsin captures valuable information on:
 - Education
 - Enforcement
 - Operations
- Simple systems can still be effective: Even with limited resources, structured reporting and validation can produce usable data

- Balance detail with manageability: Highly detailed systems require more resources than may be available

10.12 KEY TAKEAWAY

Wisconsin's system is built around local responsibility and MRF-based validation, creating a strong framework for program accountability and residential recycling tracking, but with challenges related to fragmentation and limited material flow visibility.



Appendix d

Potential Statutory Framework for Statewide Recycling Reporting

1.0 POTENTIAL STATUTORY FRAMEWORK FOR STATEWIDE RECYCLING REPORTING

If Iowa wishes to establish a more comprehensive statewide recycling reporting system, the clearest legislative approach would likely involve amendments to both Iowa Code Chapters 455D and 455B. Under this framework, Chapter 455D could establish reporting requirements for recycling facilities, while Chapter 455B could establish jurisdictional or planning-area reporting requirements for local governments or comprehensive planning areas.

This dual-framework approach would allow Iowa to collect both:

- Facility-level material flow and recycling data; and
- Jurisdiction-level programmatic and planning information.

Establishing explicit statutory authority may also provide a more durable and defensible framework under Iowa's ongoing administrative rule review requirements associated with Iowa Executive Order 10. Under this approach, statutes would establish the core reporting authority, while Iowa DNR could use administrative rules to address implementation details such as reporting forms, schedules, methodologies, and material categories.

2.0 RECYCLING FACILITY REPORTING – CHAPTER 455D

Chapter 455D provides the strongest statutory nexus for facility-based recycling reporting because it already addresses waste reduction, recycling, diversion, and solid waste reduction policy.

Amendments to Chapter 455D could establish annual reporting requirements for recycling facilities, materials recovery facilities (MRFs), composting facilities, anaerobic digestion facilities, transfer facilities with recycling operations, and other processors or handlers of recyclable materials.

The most logical placement would likely be creation of new sections within the existing recycling and waste reduction portions of Chapter 455D, such as:

- §455D.18A – Definitions
- §455D.18B – Annual Recycling Facility Reporting
- §455D.18C – Confidential Information
- §455D.18D – Enforcement

2.1 EXAMPLE STATUTORY LANGUAGE

2.1.1 Proposed §455D.18A — Definitions

“Recycling facility” means a publicly or privately owned facility, including a materials recovery facility, transfer facility with recycling operations, composting facility, anaerobic digestion facility, processing facility, or other operation that receives, separates, consolidates, processes, markets, brokers, composts, digests, or prepares recyclable or recovered materials for reuse, recycling, composting, beneficial use, or remanufacture.

“Recyclable material” means a material diverted from disposal for the purpose of recycling, composting, remanufacturing, reuse, anaerobic digestion, or other beneficial use approved by the department.

2.1.2 Proposed §455D.18B — Annual Reporting Requirement

1. A recycling facility operating within the state shall submit an annual report to the department on forms prescribed by the department.
2. Reports shall be submitted no later than March 1 of each year for activities occurring during the preceding calendar year.
3. The report shall include, at a minimum:
 - a. Facility name and location.
 - b. Facility type and ownership.
 - c. Tons of materials received.
 - d. Tons of materials recycled, composted, processed, marketed, disposed, or otherwise managed.
 - e. Material categories as specified by the department.
 - f. Origin of materials, including in-state and out-of-state sources if required by the department.
 - g. Destination of recovered materials or end markets if required by the department.
 - h. Contamination rates or residual disposal quantities if required by the department.
 - i. Additional information necessary to support statewide recycling measurement, planning, and reporting.
4. The department may adopt rules pursuant to chapter 17A (Iowa Administrative Procedure Act) establishing reporting forms, material categories, reporting thresholds, submission procedures, and additional reporting requirements necessary to implement this section.

2.1.3 Proposed §455D.18C — Confidential Information

Proprietary business information submitted pursuant to this section that is identified by the reporting entity as confidential shall be treated as confidential records to the extent permitted under chapter 22 (Examination of Public Records).

The department may publish aggregated statewide or regional recycling data that does not identify individual facility operations or proprietary business information.

2.1.4 567 – (455D, 455D) Reporting Noncompliance

1. Failure to submit reports: The owner or operator of a regulated entity shall submit all required reports and data by the deadlines established in this chapter. The failure to timely submit complete and accurate information, or the failure to correct information identified as deficient by the department within a specified timeframe, shall constitute a violation of this chapter.
2. Enforcement: Violations of the reporting requirements of this chapter shall be subject to administrative enforcement, compliance orders, and the assessment of administrative penalties by the director pursuant to 567—Chapter 10, Iowa Code section 455B, and Iowa Code section 455D.

3.0 JURISDICTIONAL REPORTING – CHAPTER 455B

If Iowa also wishes to establish standardized recycling and diversion reporting requirements for local governments or comprehensive planning areas, Chapter 455B may provide the more appropriate statutory framework because it already governs Iowa's broader solid waste management and planning structure, including comprehensive planning areas and local solid waste reduction responsibilities.

Locating jurisdictional reporting authority within Chapter 455B would align recycling reporting with Iowa's existing statewide planning and solid waste management programs administered by the DNR. This approach could support more consistent statewide reporting of local recycling program performance, diversion activities, contamination trends, infrastructure availability, and waste reduction progress.

Potential placement could include creation of new sections within the portions of Chapter 455B governing comprehensive planning and integrated solid waste management, such as:

- §455B.3XX – Definitions
- §455B.3XXA – Jurisdictional Recycling and Diversion Reporting
- §455B.3XXB – Rulemaking Authority
- §455B.3XXC – Compliance

3.1 EXAMPLE STATUTORY LANGUAGE

3.1.1 Proposed §455B.3XX — Definitions

“Reporting entity” means a comprehensive planning area, county, city, council of governments, or other local governmental entity designated by the department to submit recycling and diversion information pursuant to this section.

“Diversion” means the reduction, reuse, recycling, composting, anaerobic digestion, or other beneficial management of materials that would otherwise be disposed of as solid waste.

3.1.2 Proposed §455B.3XXA — Jurisdictional Reporting Requirement

1. A reporting entity shall submit periodic reports to the department summarizing recycling, diversion, and waste reduction activities occurring within the reporting entity's jurisdiction or planning area.
2. Reports shall be submitted in a format and schedule established by the department.
3. The department may require reporting of:
 - a. Residential and commercial recycling program information.
 - b. Tons of recyclable or diverted materials collected or managed.
 - c. Recycling participation estimates.
 - d. Collection methods and service availability.
 - e. Organics diversion activities.
 - f. Contamination estimates or related program challenges.
 - g. Education and outreach activities.
 - h. Recycling infrastructure availability and access.
 - i. Additional information necessary to support statewide planning, waste reduction measurement, and recycling program evaluation.
4. To the extent practicable, the department shall coordinate reporting requirements with facility reporting programs established under chapter 455D to minimize duplication and reduce reporting burdens on local governments.

3.1.3 Proposed §455B.3XXB — Rulemaking Authority

The department shall adopt rules pursuant to chapter 17A (Iowa Administrative Procedure Act) establishing reporting schedules, forms, methodologies, submission procedures, and other requirements necessary to implement this section.

3.1.4 Proposed §455B.3XXC — Reporting Compliance

To be eligible for grants, loans, financial assistance programs, or approval of planning documents administered pursuant to this chapter the facility must be in compliance with all reporting requirements (*or state the rule*).

1. If a reporting entity fails to submit a report required pursuant to this section, the department may issue a notice of deficiency and provide an opportunity to correct the deficiency.

2. Continued failure to submit required information may be considered by the department when evaluating eligibility for grants, loans, financial assistance programs, or approval of planning documents administered pursuant to this chapter.
3. The department may provide technical assistance to assist reporting entities in achieving compliance with reporting requirements established under this section.

Together, these statutory approaches could provide Iowa with a more comprehensive and consistent statewide recycling reporting framework while maintaining flexibility for implementation through administrative rules.