



IOWA DEPARTMENT OF
NATURAL RESOURCES

IOWA SUSTAINABLE MATERIALS MANAGEMENT STRATEGIC VISION FOR IOWA REPORT

October 2019

Iowa Department of Natural Resources

IOWA SUSTAINABLE MATERIALS MANAGEMENT

STRATEGIC VISION FOR IOWA REPORT

The report has been developed by Future iQ and Burns & McDonnell as part of the development of a vision for the transition from an integrated solid waste management policy to a sustainable materials management policy for the State of Iowa and the Iowa Department of Natural Resources. The strategic vision is based on input from a benchmarking research report, the Iowa DNR Future Think-Tank Workshop, stakeholder surveys, Iowa DNR stakeholder Focus Group meetings and direct input from the (DNR) project steering team.

Report Prepared by:



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1.0 EXECUTIVE SUMMARY

The 1987 Iowa Groundwater Protection Act and 1989 Iowa Waste Reduction and Recycling Act were enacted to foster the protection of Iowa's human health and environment. Iowa's waste management hierarchy was enacted as part of this legislation and has been used to guide statewide policy making, setting program priorities, developing solid waste comprehensive plans, and providing financial assistance for the last 30 years. The Iowa Department of Natural Resources (DNR) serves as the primary state agency leading program implementation guided by this policy framework.

Iowa's existing solid waste management system focuses primarily on waste discards and how to manage a material at the end of its useful life. However, waste management systems and policies continue to evolve, and sustainable materials management (SMM) approaches are becoming more prevalent. SMM focuses on the best use and management of materials based on how they impact the environment throughout their life cycle.

As a result, the DNR has undertaken a statewide planning process to create a vision to guide Iowa solid waste management policy using SMM as its foundation. The process was initiated with the gathering of input from a broad set of stakeholders through a dynamic planning process. This visioning process used a unique scenario planning methodology to explore future directions and implications. The report that follows provides the outcomes from this process and reflects support from a range of stakeholder interests to develop a clear vision for moving towards a preferred future with SMM.

Other states making the transition from integrated solid waste management to sustainable materials management have been challenged to identify a preferred set of metrics for measuring impacts to public health and environment, as well as long-term sustainable funding mechanisms. Iowa's vision for sustainable materials management should address these two key program planning elements as a foundation for moving forward, including proposed policy changes to achieve the sustainable materials management vision.

This report represents the first step in creating a statewide SMM vision and we encourage you to join us in this process to define the solid waste management strategy to better protect Iowa's human health and environment for the future.

Information related to Iowa Sustainable Materials Management – Vision for the Future can be read and downloaded at www.iowadnr.gov/SMM.

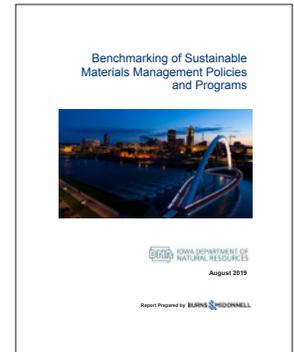


2.0 INTRODUCTION

Scope of Research

Benchmarking was conducted for a shortlist of state sustainable materials management (SMM) programs and policies. Per feedback from the Iowa Department of Natural Resources (Iowa DNR) project steering team, the following state programs were reviewed in detail to provide insight into their respective visioning processes and outcomes.

- Minnesota
- Vermont
- Maine
- Oregon
- Tennessee



The benchmarking research addressed the following SMM program elements:

- Planning process used by respective states to transition to SMM
- Key SMM principles and objectives
- Statewide SMM policies and programs identified for implementation
- Program funding
- Other relevant details

Based on this research, provided below is a summary matrix highlighting key program elements for each of the respective states, as well as the state of Iowa.

Program Elements Benchmarking Summary

State	Sustainable Materials Planning Document	Material Life Cycle Analysis	Recycling Market Development	Food Waste Management	Sustainable Materials Stakeholder (SMM) Education	Container Deposit Laws	Materials Stewardship
Minnesota	✓	✓	✓	✓	✓		✓
Vermont	✓	✓	✓	✓	✓	✓	✓
Maine	✓	✓		✓	✓	✓	✓
Oregon	✓	✓	✓	✓	✓	✓	✓
Tennessee	✓			✓	✓		
Iowa				✓		✓	✓



Findings and Conclusions

Upon review of the information gathered during the benchmarking research, provided below are the key finding and conclusions:

- **While the principles of SMM encourage a holistic approach to materials management, in many instances, statewide SMM programs are still presently linked to waste reduction and diversion goals.** For example, Minnesota and Oregon have identified the need to transition to goals that reflect SMM principles and measure specific environmental impacts. Minnesota has identified the goal to transition to recyclable material capture rates to more efficiently measure and improve upon material recycling rates – but has not yet implemented specific material capture rate goals, standards, or guidance. The state of Oregon has set greenhouse gas emissions goals (GHG), but has not clearly tied those goals to their SMM statewide policy goals and objectives. However, both states are taking steps to transition to SMM metrics by developing more detailed planning documents and commissioning Life Cycle Assessment (LCA) studies to quantify the life cycle impacts of specific products and materials.
- **Respective state funding mechanisms are not likely sustainable in the long-term.** Tipping fee surcharges are still the common revenue source for state waste management programs. This program funding approach is not sustainable over the long term given anticipated increased landfill diversion through SMM policies. Many states have recognized this issue through their planning processes and have begun to actively explore alternative methods of funding for SMM programs.
- **States transitioning to a SMM system prioritize the program strategies of increased organics diversion and fostering materials stewardship.** Organic wastes, specifically food wastes, make up a large percentage of the municipal solid waste stream based on numerous statewide waste characterization studies. By prioritizing organic waste reduction, composting, and energy recovery, states have identified significant SMM benefits including GHG reduction, resource savings, and materials diversion. Materials stewardship strategies are designed to manage the environmental impacts of materials and goods at different stages in their production, use and disposal. Materials stewardship is also based on a shared responsibility by those involved in production, use and disposal. Through shared responsibility, improvements in the protection of public health and the environment can be fairly and economically achieved.





In the face of accelerating speed of change, the key to resiliency is the ability to anticipate change and remain agile. Making the transition from integrated solid waste management to sustainable materials management will require the combined commitment of key Iowa stakeholders.

3.0 OVERVIEW OF FORCES SHAPING THE FUTURE

The Think-Tank Workshop and Focus Groups provided forums for Iowa DNR stakeholders to explore the forces of change shaping the future of Sustainable Materials Management in the State of Iowa. Participants at all three sessions explored four areas of emerging macro trends and forces of change. Perceptions around the nature of impact of these trends, both in terms of size and timing of impact, were explored to gauge how important participants consider the trends. Participants discussed the emerging trends on global, regional and local scales, and related them directly to sustainable materials management in terms of how well prepared they considered the State of Iowa. Specifically, the trend areas were:

- Demographics, population and mass urbanization
- Changing macro-economics and societal values
- Energy, food, water and changing climate
- Technology, and the next industrial revolution

Of particular relevance to the discussion on trends is the speed and scale of change occurring. Newly developed innovations are being implemented globally and locally at all scales, thereby changing the face of industries and society in a rapid and profound way. Manufacturing is at the forefront of this transformation, but other industries are also quickly developing such as agriculture, health care, biomedical research, infrastructure, energy, transportation and mobility, shipping and logistics, food services, hospitality, financial services, and retail.





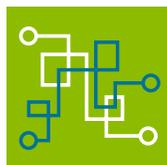
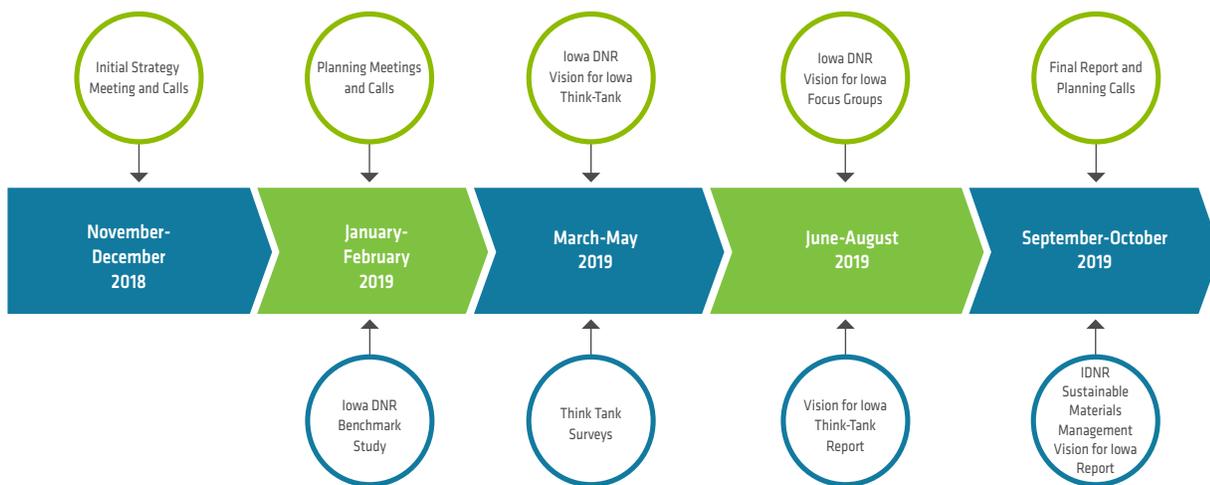
4.0 SUMMARY OF ENGAGEMENT PROCESS AND TIMELINE

The Iowa DNR's Phase 1 visioning process took place from November 2018 to September 2019. In order to build a comprehensive vision for sustainable materials management that is supported by Iowa stakeholders and Iowa DNR leadership, the Iowa DNR embarked on a participatory engagement planning process involving planning meetings, an online Think-Tank survey, a Think-Tank workshop, a Focus Group survey, two state-wide stakeholder focus group meetings, a state-wide public vision survey and meetings with the Iowa DNR steering team. This engagement was intended to create a vision that would establish the foundation of support upon which more targeted planning could be developed to guide the Iowa DNR into Phase 2 of this project.

Three reports have been prepared as part of the Sustainable Materials Management - Vision for Iowa visioning process and may be downloaded at: <https://www.iowadnr.gov/SMM>

The engagement process involved many hours of Iowa DNR staff and stakeholder time and commitment to planning for the future of sustainable materials management in Iowa.

IDNR Sustainable Materials Management - Vision for Iowa Timeline (Phase 1)



FutureInsight

FUTURE INSIGHT:

- The success of the Iowa DNR's visioning will be dependent on continued strong Iowa DNR leadership with significant stakeholder and public policy support in its implementation.
- The aim of Iowa DNR's vision for sustainable materials management will serve as a guide for future sustainable materials management related actions.



The messaging surrounding the importance of making the transition from integrated solid waste management to sustainable materials management will be critical in gaining public support for necessary policy changes.

5.0 CREATING SHARED VISION AND DIRECTION

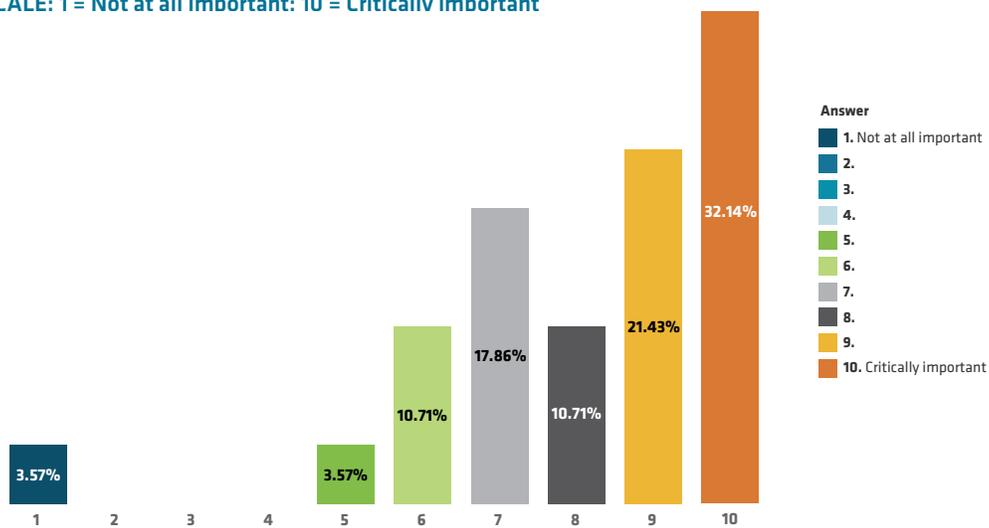
5.1 TRANSITIONING TO SUSTAINABLE MATERIALS MANAGEMENT

The 1987 Iowa Groundwater Protection Act and the 1989 Waste Volume Reduction and Recycling Act put into motion significant changes to policy directions concerning issues and opportunities in solid waste management in Iowa. Most significantly, these key pieces of legislation serve as a framework for integrated solid waste management which is the basis for Iowa solid waste management today. The primary purpose for these legislative actions was protecting human health and the environment.

5.1.1 IMPORTANCE OF THE TRANSITION

The initial survey sent to Think-Tank participants included a question about the importance of the transition from an integrated solid waste management policy to a sustainable materials management policy approach. The vast majority of Think-Tank participants considered the transition important to critically important.

How important do you think it is for Iowa to transition from an integrated solid waste management policy to a sustainable materials management policy? (Aiming for the highest and best use of discarded materials and improved environmental protection). SCALE: 1 = Not at all important; 10 = Critically important



DataInsight

DATA INSIGHTS:

- Consistent advocacy for policy change at the legislative level will be necessary to move from integrated solid waste management to sustainable materials management in the State of Iowa.
- The key to the transition from integrated solid waste management to sustainable materials management will be the long-term sustainability of the required changes.

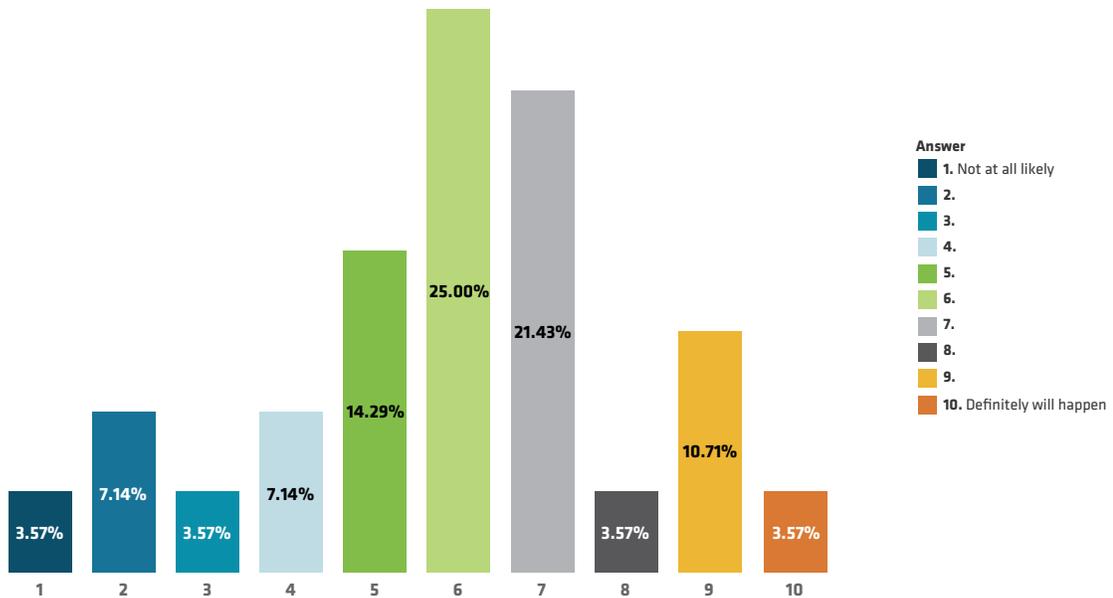


The timely transition from integrated solid waste management to sustainable materials management will be critical in the Iowa DNR's goal of the highest and best use of discarded materials and improved environmental protection.

5.1.2 PREFERRED TIMING OF THE TRANSITION

To determine when the transition from waste management to sustainable materials management should take place, Think-Tank survey participants were asked how likely the transition would occur in the near future. The majority of respondents leaned towards the definite possibility that it would happen, however a third of respondents questioned the speed of the transition.

How likely do you think there will be a transition from an integrated solid waste management policy approach to a sustainable materials management policy approach in the near future? (Move to aiming for the highest and best use of discarded materials and improved environmental protection) SCALE: 1 = Not at all likely; 10 = Definitely will happen



DataInsight

DATA INSIGHTS:

- The transition from integrated solid waste management to sustainable materials management will take time and require significant support and collaboration.
- Given participants' views about the anticipated timing of the transition, the Iowa DNR, private sector business and industry and the Iowa legislature will need to take a proactive leadership position with respect to the State's transition from integrated solid waste management to a sustainable materials management approach.

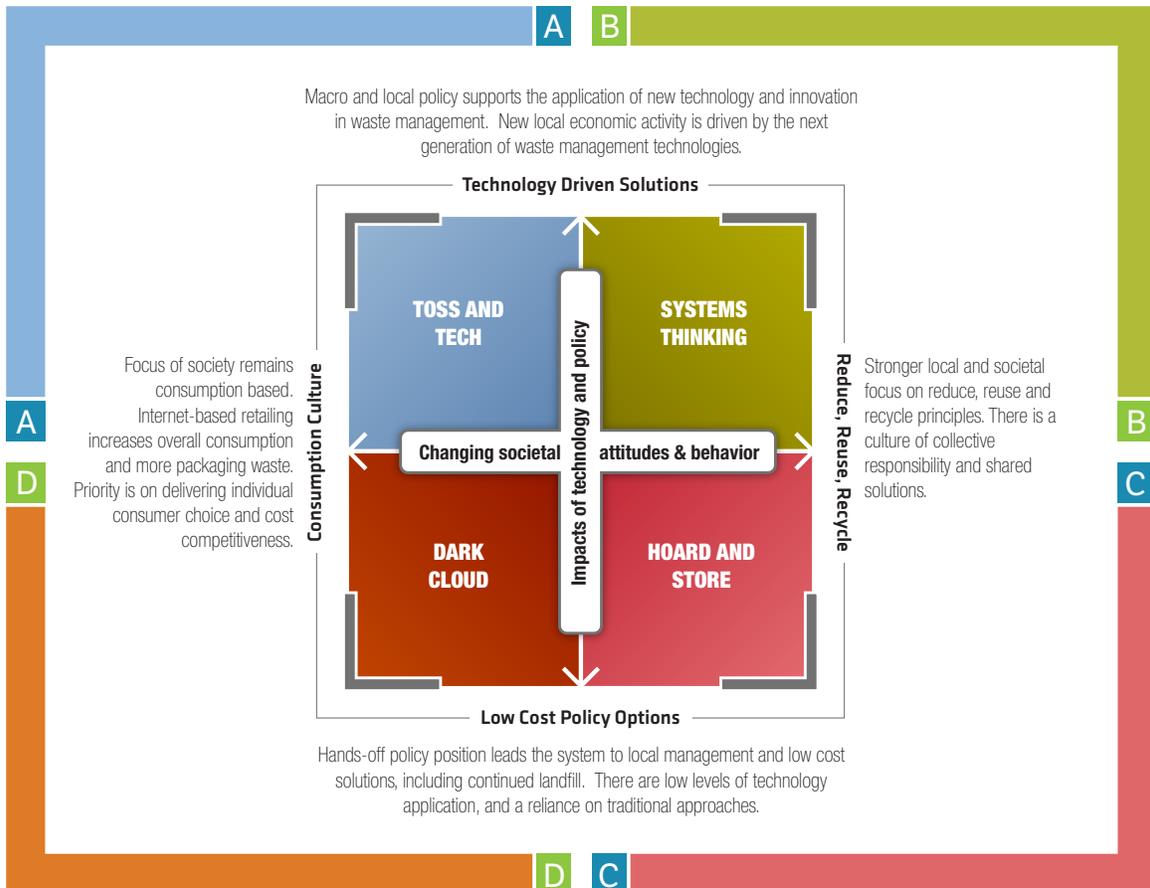


5.2 SCENARIO FRAMEWORK AND DATA VISUALIZATION



The visioning process used a unique scenario planning methodology to explore future directions and implications. This approach helps stakeholders understand the full range of impacts and consequences of various decisions as they seek a preferred future.

The following diagram was developed with Iowa DNR stakeholders at the May 2019 Think-Tank. The scenario planning process creates four plausible versions of the future, built around the main themes of 'Changing societal attitudes and behavior' and 'Impact of technology and policy'. The process allows stakeholders to think about the future in a multidimensional manner. More detail on the process is available in the Iowa Sustainable Materials Management Vision for Iowa Think-Tank Report, May 2019. For more information, visit: <https://www.iowadnr.gov/SMM>.



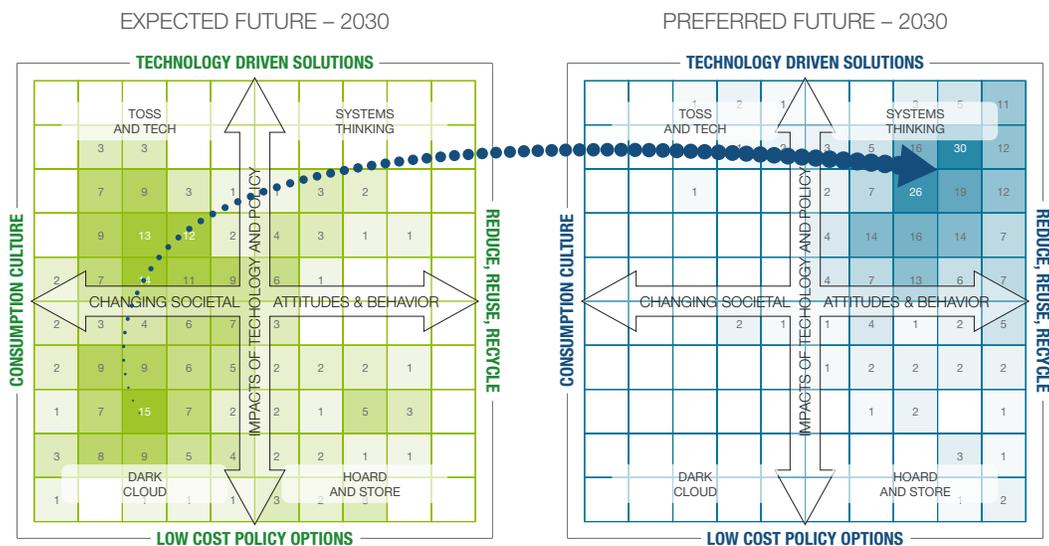


Focus Group participants validated the Think-Tank results with a high level of responses in the 'Systems Thinking' scenario future.

5.3.2 FOCUS GROUP ALIGNMENT

In early August 2019, participants from two Iowa DNR stakeholder Focus Groups also discussed expected and preferred futures for sustainable materials management in Iowa. Focus Group participants were relatively evenly split between Scenarios A (Toss and Tech) and D (Dark Cloud) as the expected future for Iowa. Among Focus Group participants, there was a more optimistic view that Iowa would inevitably adopt new technologies over time and that accounted for the variation in thinking about expected futures between the Think-Tank and Focus Group participants. Like the Think-Tank participants, there was strong alignment among Focus Group participants that Scenario B, “Systems Thinking” represented the preferred future for Iowa. The speed of change required to achieve the preferred future was deemed possible through rapid industry development of technological solutions for sustainable materials management.

IOWA SUSTAINABLE MATERIALS MANAGEMENT COMBINED FOCUS GROUP HEATMAPS



Below are samples of Focus Group participant survey comments and ideas on making the transition to sustainable materials management:

- “We are at a crossroads, the urgency is real and the clock is loudly ticking.”
- “Think importance of space program to sustainable technology.”
- “Priorities need to shift.”
- “Recycling has to be easier for the consumer.”
- “Thank you, DNR, for leading the change on this.”



Education to change attitudes will play a key role in gaining support for the transition from integrated solid waste management to sustainable materials management in the State of Iowa.

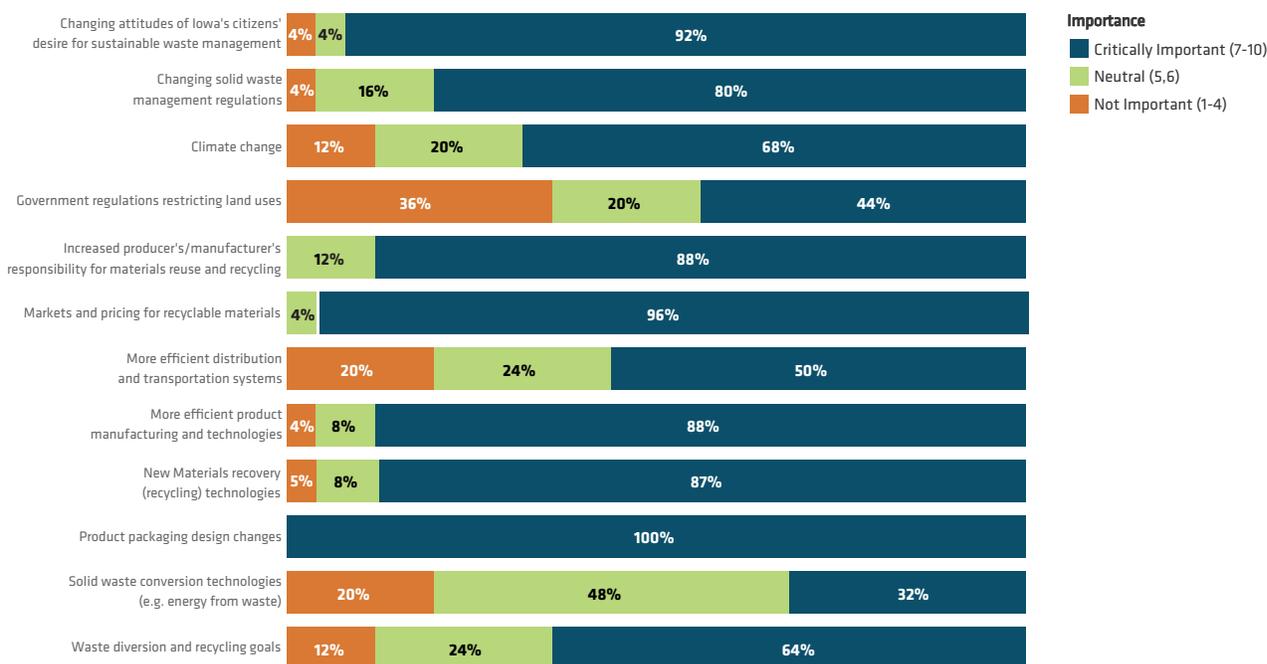
5.4 DRIVERS OF CHANGE ANALYSIS

To analyze perceived drivers and potential influences on waste management in Iowa, Think-Tank survey participants were asked about the importance of changes in some topic areas over time, as well as Iowa’s performance in addressing these drivers of change. Results from a combination of the two responses are also provided below.

5.4.1 IMPORTANCE OF DRIVERS OF CHANGE

To gauge the importance of the inevitable impact of changes over time, Think-Tank survey respondents were asked how important changes in the following issues and sectors will be to waste management in Iowa.

**For the following ‘drivers of change’, how important you think they are in shaping the future of waste management in Iowa?
SCALE: 1 = Not at all important; 10 = Critically important**



DataInsight

DATA INSIGHTS:

- Survey respondents considered markets and pricing for recyclable materials and product packaging design changes as the most important drivers of change in shaping the future of waste management in Iowa.
- Acknowledgement that implementing priority drivers of change will not diminish the valuable service landfills provide in protecting public health and the environment.

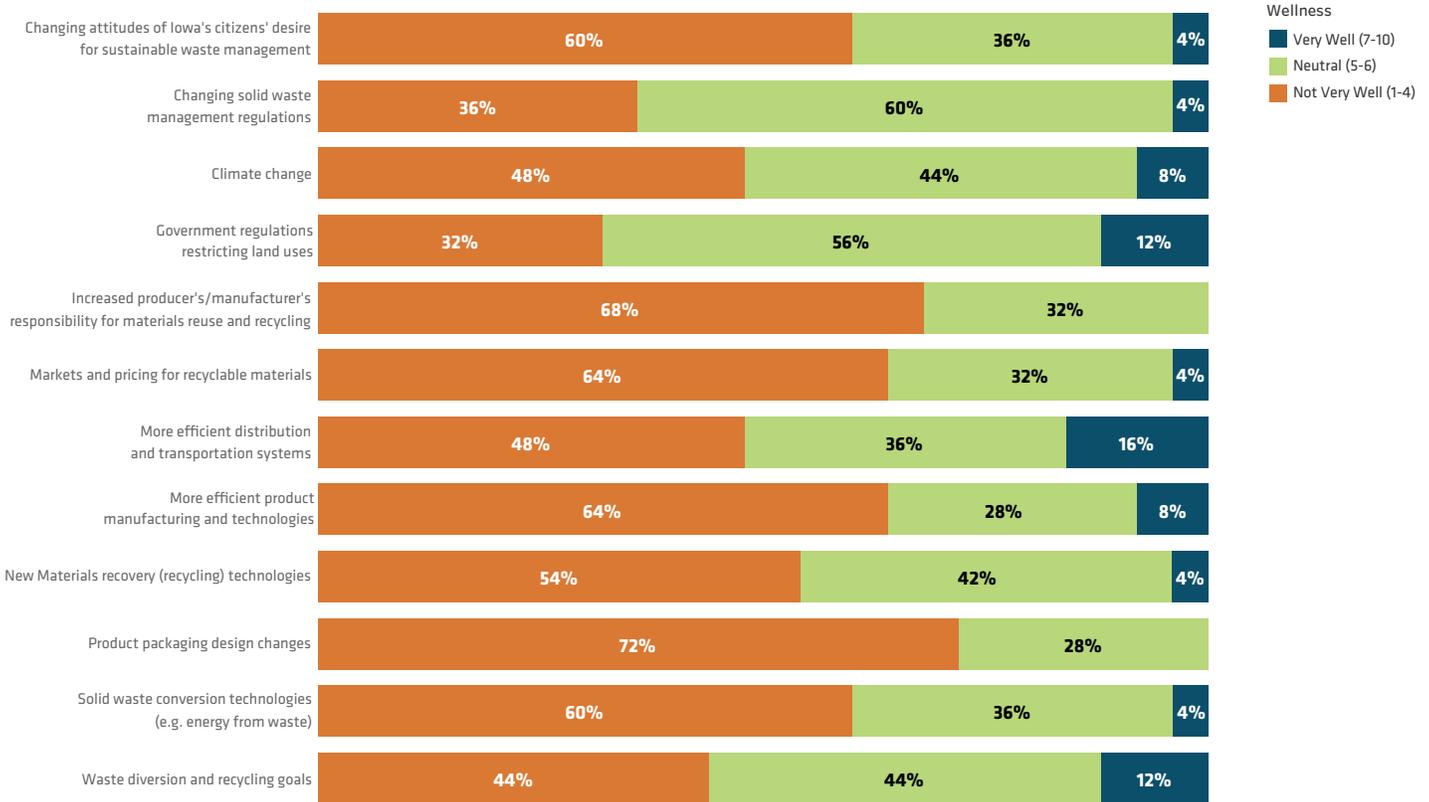


Think-Tank survey respondents did not rate Iowa's performance on the given drivers of change very well.

5.4.2 IOWA'S PERFORMANCE IN ADDRESSING DRIVERS OF CHANGE

To assess how well the State of Iowa is addressing drivers of change, Think-Tank survey respondents were asked to rate the State's performance. Below are the results.

How well is Iowa currently addressing the following 'drivers of change'? SCALE: 1 = Not very well; 10 = Very well



DataInsight

DATA INSIGHTS:

- Iowa was considered by survey respondents to not perform well in several areas with the poorest performance in the areas of product packaging design changes and increasing producers'/manufacturers' role for materials reuse and recycling.
- Consumer and producer education will play a key role in helping the State of Iowa make the transition from integrated solid waste management to sustainable materials management.
- Legislative support is critical to the transition toward sustainable materials management as the policy of the State of Iowa.



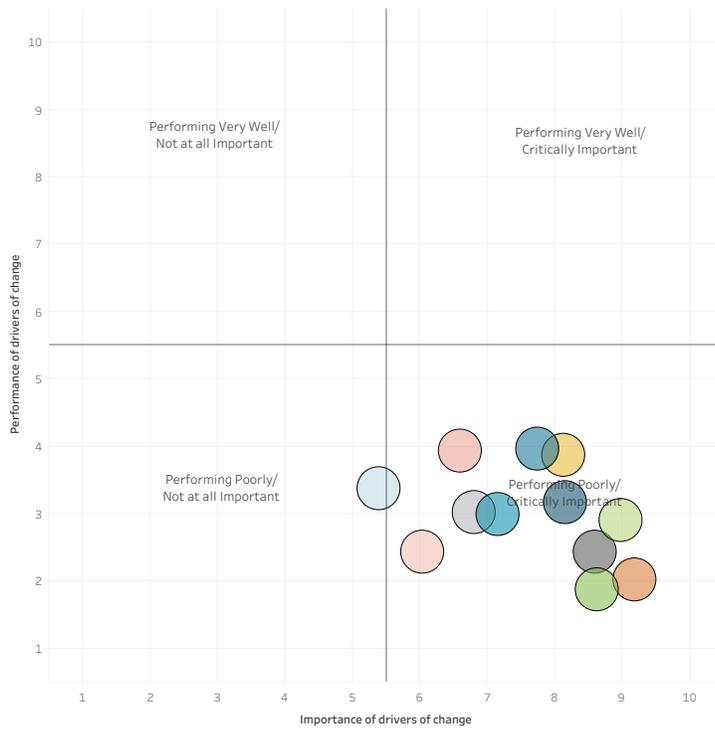
Iowa's poorly rated performance on the drivers of change by Think-Tank respondents gives DNR leadership and Iowa policy makers a mandate for change.

5.4.3 COMBINED IMPORTANCE OF DRIVERS OF CHANGE AND IOWA'S PERFORMANCE

In order to get a sense of how Think-Tank participants looked at both the importance of the given drivers of change and Iowa's performance on them, this analysis combines the two questions to create a scatter plot. The data visualization shows the response data as it relates to all 12 drivers. The chart presents the average results based on all responses.

The X-axis is the response to the question: 'For the following drivers of change, how important do you think they are in shaping the future of waste management in Iowa?'

The Y-axis is the response to the question 'How well is Iowa currently addressing the following drivers of change?' Scale 1=Not very well, 10=Very well



- Driver of Change**
- Changing attitudes of Iowa's citizens' desire for sustainable waste management
 - Changing solid waste management regulations
 - Climate change
 - Government regulations restricting land uses
 - Increased producer's/manufacture's responsibility for materials reuse and recycling
 - Markets and pricing for recyclable materials
 - More efficient distribution and transportation systems
 - More efficient product manufacturing and technologies
 - New Materials recovery (recycling) technologies
 - Product packaging design changes
 - Solid waste conversion technologies (e.g. energy from waste)
 - Waste diversion and recycling goals



DATA INSIGHTS:

- Almost all of the responses are grouped in the quadrant that is broadly defined as 'Important and Not Performing Well'. This outcome reflects key stakeholders' perspective that Iowa needs to better understand how drivers of change influence future policy.
- The drivers were all assessed as important, with some such as Product Design and Packaging considered as Critically Important. Thus, key stakeholders consider the transition to Sustainable Materials Management requiring the navigating of a complex pathway.

DataInsight



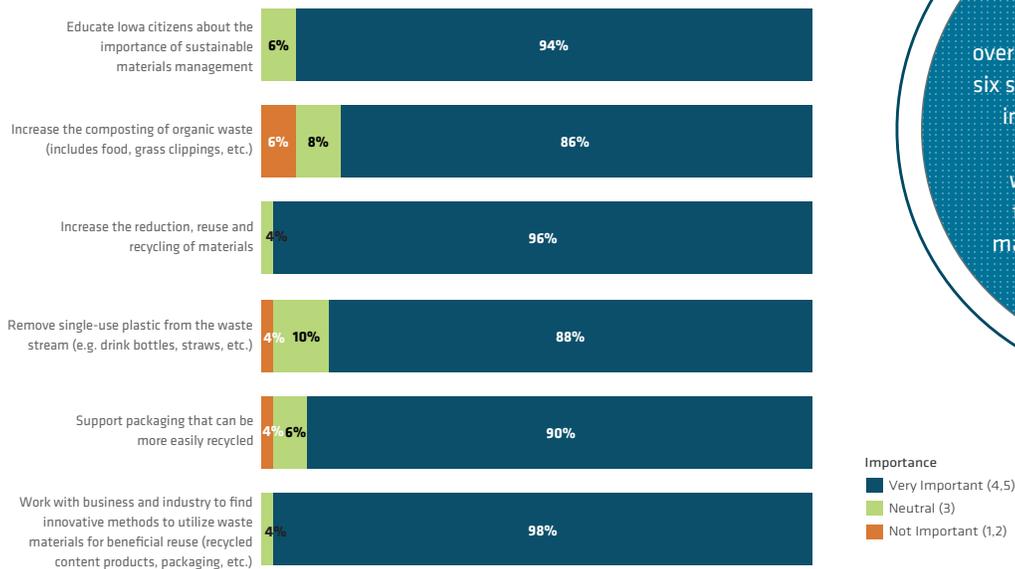
5.5 APPETITE FOR CHANGE TO SUSTAINABLE MATERIALS MANAGEMENT

Following the Think-Tank, information from the benchmark research, Think-Tank surveys, Think-Tank input and Iowa DNR staff input was compiled to create a new survey for the Focus Group participants. The purpose of the survey was to ascertain appetite for change and potential ideas and approaches that could be taken to make the transition from an integrated solid waste management policy to a sustainable materials management policy in Iowa. To explore the types of strategies that may be developed to achieve the transition, six sample approaches were used to test appetite for change and direction. Below are the results.

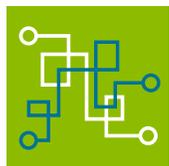
5.5.1 APPROACH

To gauge whether the six sample approaches were viable, Focus Group participants were asked to rate how important they thought each approach is to support the transition from an integrated solid waste management policy to a sustainable materials management policy in Iowa. All of the approaches were considered very important.

**How important do you think the following approaches are for Sustainable Materials Management in Iowa?
SCALE: 1 = Not at all important; 5 = Critically important**



Focus Group participants overwhelmingly considered all six sample approaches as very important to the transition from an integrated solid waste management policy to a sustainable materials management policy in Iowa.



FutureInsight

FUTURE INSIGHTS

- As noted in the benchmark report, States transitioning to sustainable materials management prioritize organics diversion and materials stewardship.
- The principles of sustainable materials management encourage a holistic approach, including the role of landfills, to goal setting in the development of strategies to achieve the transition from waste management.

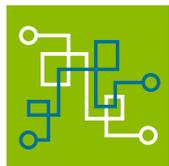
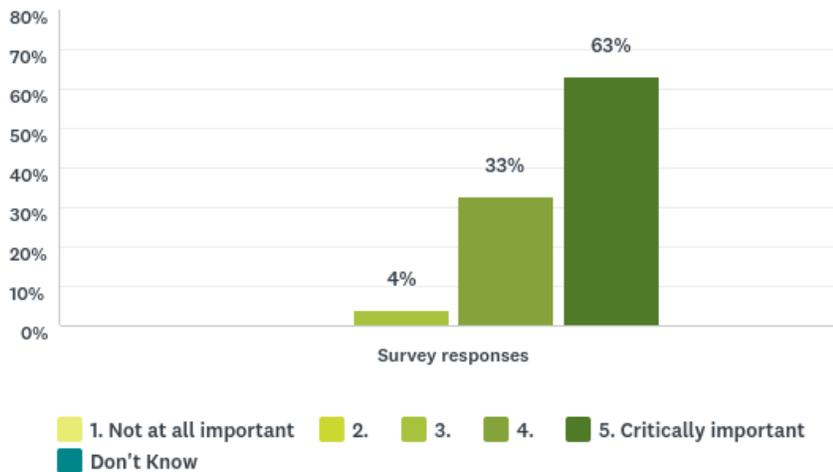


5.5.2 LONG-TERM VISION

Making the transition to a sustainable materials management will take time. Understanding that both Think-Tank and Focus Group participants consider Scenario B, 'Systems Thinking', as the preferred future for sustainable materials management in Iowa, Focus Group participants were also asked about the importance of having a long-term vision to achieve the preferred future. The vast majority of Focus Group respondents considered a long-term vision very important to critically important.

Both Think-Tank and Focus Group participants were emphatic about their support of transitioning to a 'Systems Thinking' scenario as the preferred future for Iowa.

How important do you think it is to have a long-term vision and commitment for Sustainable Materials Management in Iowa? SCALE: 1 = Not at all important; 5 = Critically Important



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FUTURE INSIGHTS

- A shared vision was identified as very important by over 95% of Focus Group participants. This points to a strong preference to collaborate on strategies to transition to sustainable materials management in Iowa.
- The high level of agreement on the importance of aligning perspectives and striving for a long-term vision for sustainable materials management will help design a new system through collaboration, understanding issues, conducting life cycle analysis on key materials and products to develop a clear picture of the most appropriate way to manage a waste protecting human health and the environment.

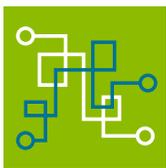
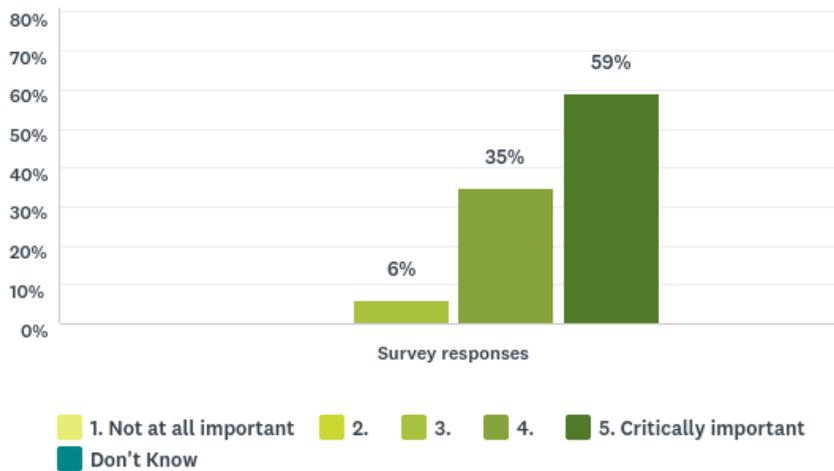


5.5.3 TRANSITION

Early in the visioning process, Think-Tank participants were asked about the importance of the transition from an integrated solid waste management policy to a sustainable materials management policy approach. The vast majority of Think-Tank participants considered the transition important to critically important. Focus Group participants were also asked how important they considered the transition. Again, the vast majority of Focus Group respondents considered the transition very important to critically important.

This visioning process has highlighted the importance of the need to transition from an integrated waste management policy to a sustainable materials management policy in the State of Iowa.

How important do you think it is for Iowa to transition from managing waste at the point of disposal to a sustainable materials management policy? (Using and reusing materials in the most productive and sustainable ways, to minimize materials use and related environmental impacts.) SCALE: 1 = Not at all important; 5 = Critically Important



FutureInsight

FUTURE INSIGHTS

- The importance of the transition from an integrated waste management policy to a sustainable materials management policy was considered very important to critically important by 94% of all Focus Group participants. This gives the Iowa DNR a clear directive to pursue this transition.
- Given the gap between expected and preferred futures, increasing awareness and understanding by consumers, producers and legislators of the importance and benefits of managing materials to better protect human health and the environment in order to achieve the transition.

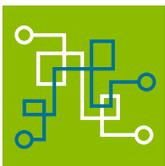
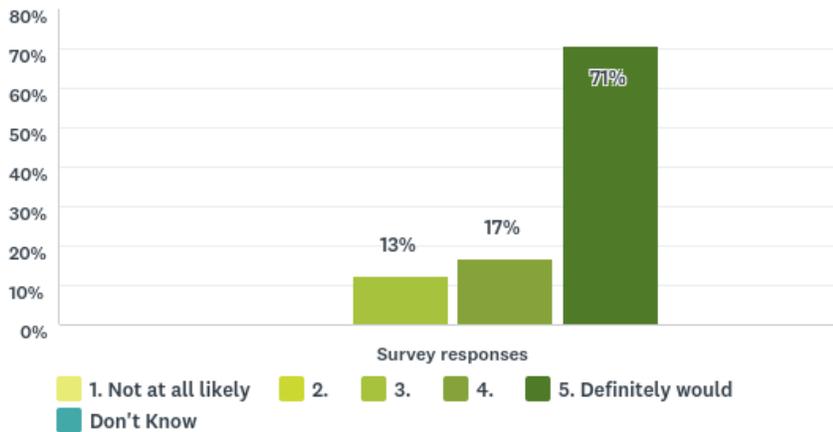


5.5.4 WILLINGNESS TO PAY

One measure of appetite for change is the willingness of consumers and taxpayers to pay for change. Focus Group participants were asked “how willing are the stakeholders to pay more to support a transition to sustainable materials management.” Focus Group participants overwhelmingly considered themselves more willing to pay for change. The state of Iowa may choose an approach that includes a redistribution of the current program funds to make the transition to sustainable materials management.

The transition from an integrated solid waste management to a sustainable materials management policy may require all generators of waste to help pay for the transition.

Iowa DNR Stakeholders: Would YOU be willing to pay more to support a sustainable and environmentally protective approach to waste management in Iowa? SCALE: 1 = Not at all likely; 5 = Definitely would



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FUTURE INSIGHTS

- Iowa DNR stakeholder willingness to pay for the transition to a sustainable materials management policy models the leadership that will be required to implement the transition.
- Funding mechanisms, including the potential redistribution of existing program funds, have been identified as a critical area for development to support a long-term sustainable materials management policy.



5.6 PRIORITIZING STRATEGIES

5.6.1 FOCUS GROUPS

As an exercise to explore how Focus Group participants would prioritize six potential strategies to sustainable materials management, participants were asked to apply ten dots of two colors to a chart listing the approaches over two timeframes. These strategies represented a mix of stakeholder education, collaboration with key stakeholders, and policy incentives/mandates. Participants were instructed to place one color in years 1-5 and the other in years 6-10, with the intent to show which approaches should be prioritized over the next 10 years. Below are the prioritized results.

The visioning process offers initial direction on setting priorities for developing strategies to get to the preferred future for sustainable materials management in Iowa.

Cedar Rapids Focus Group, 7 August 2019

Approach/Timeframe	1-5 Years	6-10 Years	Totals
Remove single-use plastic from the waste stream (e.g. drink bottles, straws, etc.)	14	9	23
Increase the composting of organic waste (Includes food, grass clippings, etc.)	12	10	22
Support packaging that can be more easily recycled	2	9	11
Increase the reduction, reuse and recycling of materials	12	13	25
Work with businesses and industry to find innovative methods to utilize waste materials for beneficial reuse	12	17	29
Educate Iowa citizens about the importance of sustainable materials management	13	6	19

Des Moines Focus Group, 8 August 2019

Approach/Timeframe	1-5 Years	6-10 Years	Totals
Remove single-use plastic from the waste stream (e.g. drink bottles, straws, etc.)	16	6	22
Increase the composting of organic waste (Includes food, grass clippings, etc.)	23	21	44
Support packaging that can be more easily recycled	2	19	21
Increase the reduction, reuse and recycling of materials	8	9	17
Work with businesses and industry to find innovative methods to utilize waste materials for beneficial reuse	18	17	33
Educate Iowa citizens about the importance of sustainable materials management	16	11	27

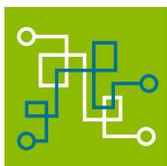
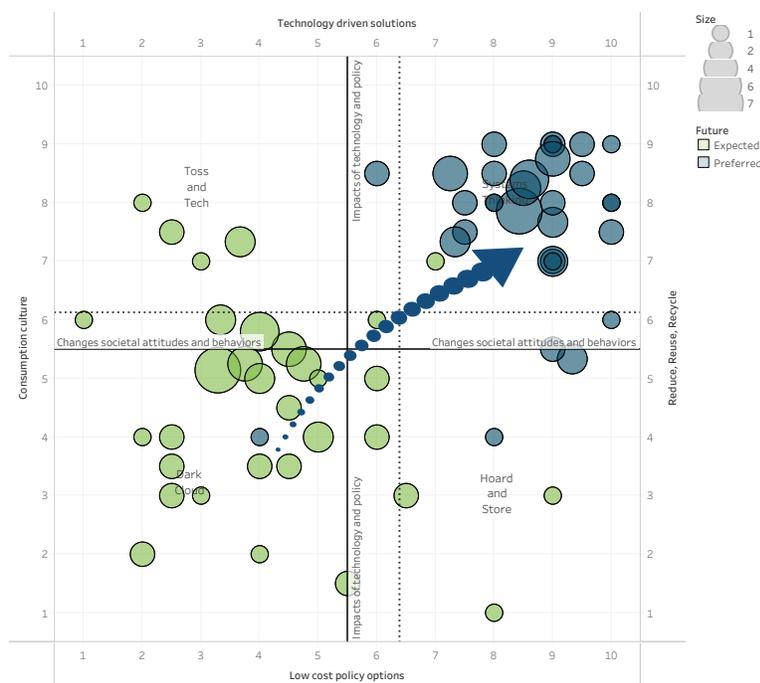


Closing the gap between the expected and preferred futures for Iowa materials management will require deliberate public policy action.

5.6.2 SUMMARY

The Iowa DNR Iowa Sustainable Materials Management Vision for Iowa visioning process has provided a clear mandate for a transition from integrated solid waste management to sustainable materials management in the State of Iowa. The gap between expected and preferred futures as illustrated in the stakeholder data visualization below indicate a definite need for change in strategy and public policy. It should be noted that the sample strategies explored to move in the direction of this change are not exclusive but may be used to form the basis for next steps in the transitioning process.

From Expected to Preferred Future



FUTURE INSIGHTS

FutureInsight

- Policy development to achieve the preferred future for Iowa sustainable materials management will require a shift in both societal attitudes and behaviors, as well as an increased use of technology driven solutions and recognition of the health and environmental impacts of the status quo.
- The long-term success of the transition from an integrated solid waste policy to a sustainable materials management policy will be dependent on building strong collaboration among all stakeholders, including consumers, producers, private industry, and all waste generators.
- Short and long-term success will be dependent on a sustainable funding source(s) to implement sustainable materials management programs, develop appropriate infrastructure and to provide incentives and financial assistance to manage materials in the most impactful and sustainable manner.



6.0 RECOMMENDATIONS

6.1 VISION FRAMEWORK

The Sustainable Materials Management planning process reflects support from a range of stakeholder interests to develop a clear vision for moving towards a preferred future. The preferred future should include both fostering a change in societal attitudes and behaviors related to waste and materials management accompanied by increased use of technology driven solutions.

Other states making the transition from integrated solid waste management to sustainable materials management have been challenged to identify a preferred set of metrics for measuring impacts to public health and the environment and long-term sustainable funding mechanisms. Iowa's vision for sustainable materials management should address these two key program planning elements as a foundation for moving forward including proposed policy changes to achieve the sustainable materials management vision.

It is recommended the strategies to support the sustainable materials management vision and respective program goals be based in a combination of education, collaboration, funding, innovation, and legislative policy initiatives. A number of tools are needed to effectively make this transition to sustainable materials management. The process will be an incremental one, but a clear understanding of the preferred future will enhance the likelihood of success.

A combination of education, collaboration, incentives, innovation, and legislative policy initiatives are recommended to support the transition to sustainable materials management in Iowa.





6.2 NEXT STEPS

Based on the outcomes of Sustainable Materials Management – Vision for Iowa, Phase 1 planning process, the following next steps are recommended:

1. Solicit input and feedback from the general public as part of the planning process.
2. Use the deliverables from Phase 1 to inform and educate key legislators and associated staff about the importance of Iowa's vision to transition to sustainable materials management.
3. Establish a roundtable with environmental agency representatives from select states making the transition to sustainable materials management as a forum to discuss critical transition issues (e.g. metrics, funding) and lessons learned.
4. Reconvene the Think-Tank to review the results from the stakeholder meetings and identify a shortlist of strategies for more detailed evaluation and strategy development.
5. Upon identifying the shortlist of preferred strategies, establish a set of working committees composed of applicable stakeholder representatives to develop a description of each strategy, applicable actions, timeline, and responsible parties to formulate a specific roadmap for Iowa to transition to sustainable materials management.

The visioning process for Iowa's sustainable materials management outlines the basis for policy direction; next steps will require collaborative strategic planning to make this vision a reality.





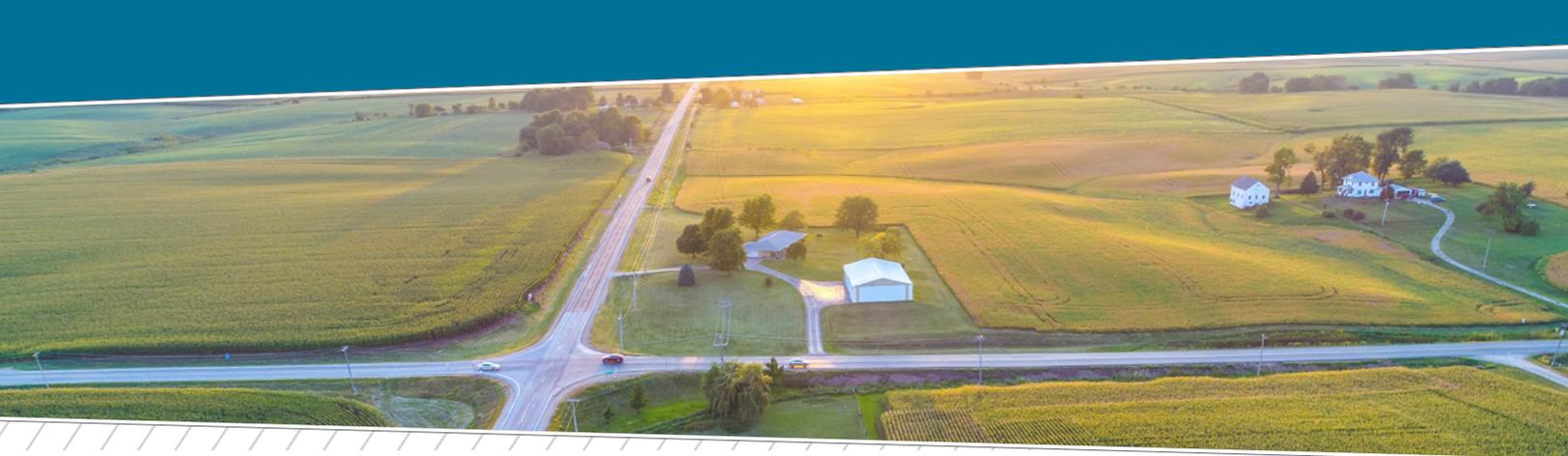
7.0 ACKNOWLEDGEMENTS

The IDNR stakeholders engaged in the Think-Tank workshop and focus group discussions with great enthusiasm. Their passion and interest ensured the discussions were thoughtful, and the outcomes reflective of the State’s perspectives. This dedication is reflective of the deep commitment all participants have to the future of their communities, local industries, and sustainable materials management in Iowa.

Future iQ and Burns & McDonnell would like to acknowledge the substantial support from IDNR staff. Their outstanding support throughout the project was greatly appreciated. Thank you also to the Iowa Society of Solid Waste Operations (ISOSWO) for providing food and refreshments for the Think-Tank and stakeholder meeting participants.

IDNR Think-Tank and Focus Group Participants

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Mark Armstrong, Container Recovery Inc. (CRINC)	Darin Haake, Shelby County Board of Supervisors	Hal Morton, Des Moines County Solid Waste Agency	Don Shonka, Buchanan Co. Board of Supervisors
Lucas Beenken, Iowa State Association of Counties	Joe Harms, Perishable Distributors of Iowa	Linda Muken, Story County Supervisor	Alicia Simmons, Frontier Co-Op
Joe Bolick, Iowa Waste Reduction Center	Brad Hartkopf, Association of Business and Industry	Dan Nickey, Iowa Waste Reduction Center	Lee Sorenson, Dickinson County CCB
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Harlan Buxbaum, Dee Zee, Inc.	Marty Jones, Iowa City Veterans Administration	Ayo Oluwalana, Iowa State University	Jane Wilch, City of Iowa City
Cory Carr, 3M - Knoxville	Jen Jordan, City of Iowa City	Mark Peebler, City of Ames, Resource Recovery Center	Troy Willard, The Can Shed
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Matt Cross, Midwest Sanitation and Recycling - Site Manager	Doug Luzbetak, HLW Engineering Group	Alicia Presto, Iowa Waste Exchange	Mike Zeigler, City of Ames, Electric Services Operations
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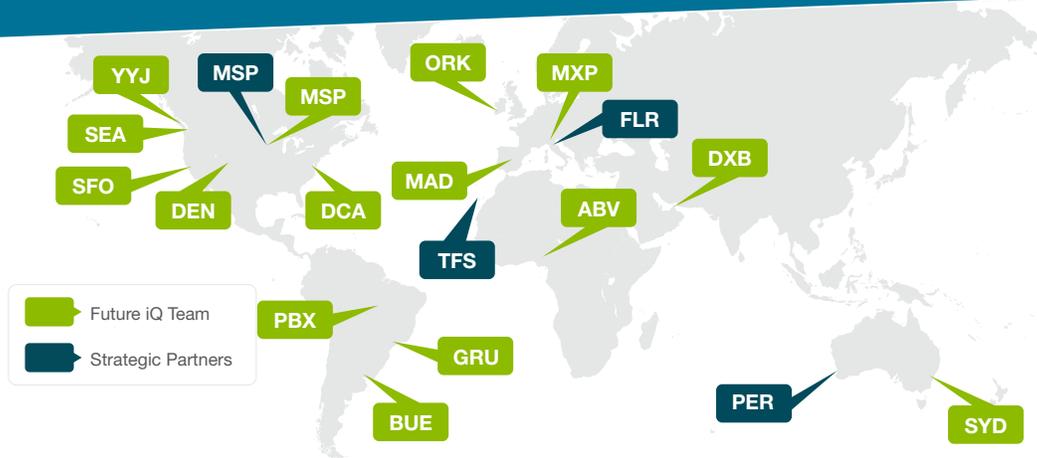
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9.0 ABOUT BURNS & MCDONNELL

Burns & McDonnell is a full-service engineering, architecture, construction, environmental and consulting solutions firm, based in Kansas City, Missouri. Our staff of 7,000 includes engineers, architects, construction professionals, planners, estimators, economists, technicians and scientists. Our Solid Waste and Resource Recovery group assists public and private clients throughout North America with one mission in mind: Make our clients successful.



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10.0 ABOUT FUTURE IQ

Future iQ specializes in applying innovative tools and approaches to assist municipalities, organizations, regions and industries shape their economic and community futures. With nearly two decades of experience, the company has a global clientele spanning three continents. To learn more about Future iQ, and our recent projects visit www.future-iq.com or by email at info@future-iq.com

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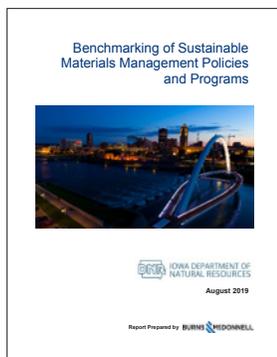
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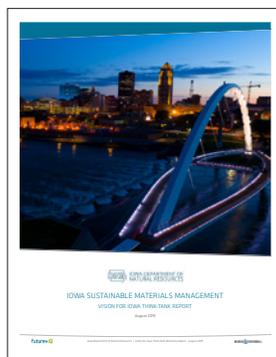
To access the Think-Tank and Strategic Vision reports, please visit:

<https://iowadnr.gov/SMM>



Benchmarking of Sustainable Materials Management Policies And Programs

April 2019



Vision for Iowa Think-Tank Report

August 2019



Iowa DNR Strategic Vision Report

October 2019

