Iowa Comprehensive Recycling Planning Task Force Final Report

House File 826

Final Report

December 21, 2009

Table of Contents

Executive Summary

House File 826 created the Comprehensive Recycling Planning Task Force, which was charged with developing recommendations that create and enhance comprehensive sustainable recycling programs in the state that address wastes generated from the residential, commercial and industrial sectors. The report is to be submitted no later than January 1, 2010 to the Governor's Office and the Iowa General Assembly.

Recommendations may include:

- Methods of collecting & paying for the recycling of residential, industrial, and commercial waste.
- Mechanisms for increasing the recycling of construction and demolition waste & proper disposal of household-generated medical sharps.
- Incentives for increasing the recycling of yard waste, food or other organic waste, hazardous household waste, and electronic waste.

The Task Force was comprised of 29 voting members from a cross section of organizations and areas of the state. Non-voting members of the Task Force included two members of the Iowa Senate (one from each party) and two members of the Iowa House of Representatives (one from each party).

The Task Force met from August through December 2009. Members focused their attention on four key areas and were assigned to one of the following sectors for the duration of this initiative:

1. Commercial Sector (waste that originates in the wholesale, retail, and service establishments, including office buildings, stores, markets, theaters, hotels, and warehouses).
2. Industrial/Construction & Demolition (C&D) Sector (waste generated during manufacturing activities and processes).
3. Institutional Sector (waste generated in hospitals, schools, nursing homes, research institutions, and government entities including prisons, government and public buildings).
4. The Residential/Consumer Sector (waste generated in single- and multiple-family homes, including apartments, townhomes, and condos).

Each subcommittee submitted findings and recommendations for its sector group.

RECOMMENDATIONS: The Task Force identified five recommendations as the highest priorities across all of these sectors. Those recommendations are:

1. Develop and implement a statewide Green Certification Program
2. Create a Green Advisory Committee
3. Develop a Recycling Vendor and Resource Green List
4. Develop and implement an ongoing, statewide communication and outreach educational resource program
5. Utilize the organizations and members of this Task Force when moving forward with the recommendations

The Final Report presented by the Comprehensive Recycling Task Force provides a detailed summary of the subcommittee findings and recommendations, as well as a detailed explanation of its five overall recommendations.

Creation of the Task Force

House File 826 created the Comprehensive Recycling Planning Task Force, which was charged with developing a report by January 1, 2010 for the Governor's Office and the Iowa General Assembly. The report will present findings and recommendations related to creating and enhancing comprehensive sustainable recycling programs in the state that address wastes generated from the residential, commercial and industrial sectors. The legislation also describes specific waste streams that must be considered in this initiative.

Recommendations may include:

- Methods of collecting & paying for the recycling of residential, industrial, and commercial waste.
- Mechanisms for increasing the recycling of construction and demolition waste & proper disposal of household-generated medical sharps.
- Incentives for increasing the recycling of yard waste, food or other organic waste, hazardous household waste, and electronic waste.

Task Force Membership

Co-chairs of the Task Force were Teresa Kurtz, Executive Director of the Iowa Recycling Association and Tom Hadden III, Executive Director of Metro Waste Authority.

Voting membership on the Task Force included 29 members from a cross section of organizations and areas of the state. Non-voting members of the Task Force included: two members of the Iowa Senate (one from each party) and two members of the Iowa House of Representatives (one from each party). See Appendix A for member names and contact information.

Task Force Strategy

The Task Force identified four key areas (sectors) on which to focus their attention. Members were assigned to one of the following four sectors for the duration of this initiative:

1. Commercial Sector includes the waste that originates in the wholesale, retail, and service establishments. This includes office buildings, stores, markets, theaters, hotels, and warehouses.

2. Industrial/Construction & Demolition (C&D) Sector refers to waste generated during manufacturing activities and processes. This does not include waste generated from offices, cafeteria waste, or other types that are not the direct result of production processes.

3. The Institutional Sector includes waste generated in hospitals, schools, nursing homes, research institutions, and government entities including prisons, government and public buildings.

4. The Residential/Consumer Sector covers the waste generated in single- and multiple-family homes. This includes apartments, townhomes, and condos.

During its subcommittee work, the group assigned to the Industrial/Construction & Demolition (C&D) sector concluded that because of the unique needs and attributes of these two groups, the final report should present the findings and recommendations as two

distinct sectors: Industrial Sector and C&D Sector. Therefore, this report will present its findings and recommendations as five distinct sectors.

Each subcommittee was asked to use a standard template to keep its discussions focused. The template identified the following key questions:

1. What are the current and emerging issues related to this sector?
2. What are the current programs for this sector? Are there opportunities for enhancements and continuous improvement within the programs already in place?
3. What new programs could address potential opportunities for recycling? Do any of these new programs offer opportunities for product stewardship?
4. What are the subcommittee's recommendations for consideration within this sector? Consider the following factors in evaluating and prioritizing those opportunities: environmental impact, economics (infrastructure, development & implementation costs, markets, economic impact); education and awareness; funding recommendations.
5. Are the recommendations sustainable?
6. Do the recommendations contribute to a comprehensive approach?
7. Are the intended outcomes measurable?

Meetings

The task force met from August through December, 2009 in full day, all-task-force meetings as well as numerous sub-committee meetings.

To build a common ground of understanding on this subject area among the task force members, experts were invited to give presentations at some of the early meetings, including:

- Integrated Solid Waste Management in Iowa – 1987-2009 (Brian Tormey, Iowa DNR)
- Solid Waste Comprehensive Planning in Iowa (Leslie Goldsmith, Iowa DNR)
- Governor's Task Force: An Introduction to Recycling Markets & Trends (Mick Barry, Mid America Recycling)
- Solid Waste Environmental Management Systems HF 2570 (Brian Tormey, Iowa DNR)
- Iowa Waste Exchange & Pollution Prevention Services (Jeff Fiagle, Iowa DNR)
- Recycling Challenges & Opportunities (Mark Lichtenstein, Syracuse Center of Excellence in Environmental & Energy Systems)
- Building Capacity for Product Stewardship in Iowa (Scott Cassel, Product Stewardship Institute)

Notes and copies of these presentations are available at
http://www.iowadnr.gov/waste/sw/taskforce.html

In addition, the subcommittees incorporated input from their respective stakeholders through interviews, facility tours, and surveys.

Presentation of Findings and Recommendations:

This report presents a high level summary of each subcommittee's findings, by sector, in the following order:

- Current and Emerging Issues by sector
- Existing Programs (opportunities for enhancements and continuous improvement) by sector

- Opportunities and Recommendations by sector

Additional supporting details collected by the subcommittees are available in the Appendix section of this report and will be cross-referenced in the appropriate section.

All of the recommendations submitted in this report are considered important by the respective subcommittee members. After reviewing these recommendations, the Task Force was asked to propose recommendations that would have the greatest impact upon most or all of the sectors and that have the most potential for making significant improvement in Iowa's state-wide recycling efforts. The recommendations that apply to most or all of the sectors that were identified by the Task Force as highest priority are summarized in this document beginning on page 18.

Current and Emerging Issues

Each subcommittee was asked to research and identify current and emerging issues facing their particular sector. Interviews with representative stakeholders, research, and surveys were some of the means used by the subcommittees to identify these issues.

Current and Emerging Issues: Commercial Sector

The Commercial Sector covers wholesale, retail and service establishments where waste originates. This includes office buildings, theatres, restaurants, hotels, warehouses, stores, and markets. This sector is ever-changing, expanding and diverse, leading the sub-committee to propose some basic methods to increase awareness, efforts and foster behavior/culture change. Enhancing current resource management programs to provide training and updated diversion opportunities by region is key to the success of recycling programs in the Commercial Sector. It is essential that the any programs created to provide value to the Commercial Sector be accessible, easy to implement, cost effective, and sustainable.

There is a need to identify Commercial tonnage by analyzing materials, the markets and/or value of those materials and available staging and collection options. Staging and collection options should be reviewed to remove barriers for food scrap and compostable material diversion. Markets for the residuals from the recycling streams will need to be established. Product stewardship and the management of E-scrap (electronics and computer components) will increase in importance.

Successful Commercial Sector resource management programs should include outreach and training and need to address accountability and behavior and cultural change.

Current and Emerging Issues: Industrial Sector

The Industrial Sector refers to waste generated during manufacturing activities and processes. This does not include waste generated from offices, cafeteria waste, or other types that are not the direct result of production processes.

The current and emerging issues facing industry in regards to recycling fall into five main categories:

- education and awareness of existing programs
- markets
- environmental management systems
- economics
- greenhouse gas

<u>Education and Awareness of Existing Programs:</u>
Multiple programs are already offered throughout the state to aid in the development and sustainability of recycling programs. The under utilization of these programs and the need for awareness among stakeholders is a current issue.

<u>Markets:</u>
Iowa has been able to secure extremely strong markets for traditional recyclables (paper, plastic, and metal containers, glass, and scrap metals). Iowa is also a leader in organic waste disposal, thanks to its agricultural background. However, good markets have not developed for commercial composting of food waste.

Our quality has been a great advantage for Iowa Recyclers as they have been sought out by end users from throughout the United States, Mexico, Canada and Far East, thus enabling Iowa to be one of the leaders in recycling in the United States. The newest concern for Iowa markets is logistics. Iowa has always had a difficult time due to its central location to supply the end user: mills that have begun to relocate out of the rust belt and into the sun belt. Its great distance from sea container yards has also added to difficulties in reaching the overseas markets. As the United States continues to lose manufacturing to overseas locations, Iowa will be faced with ever-increasing challenges to the sustainability of markets, as logistics and costs of transportation continue to rise.

Solid Waste Environmental Management Systems:

Iowa is divided into multiple planning areas for the handling of the waste hierarchy, which are 1) waste reduction, 2) recycling and reuse, including composting, and 3) other approved technologies, including landfilling. Each county and city within the state must either have its own comprehensive planning area or must be a part of another, even if waste is going out of state.

These planning areas are mandated to have a minimum 25% reduction of waste from a base year of 1988. Those that are not meeting at least a 25% reduction are subject to several ramifications, including paying an additional $1.10 per ton of waste they receive to the IDNR. Currently, there are 22 facilities in the State that fall under the 25% reduction goal. Another 11 facilities are above the 25% reduction goal but below the statewide average of 36%. There are 10 facilities that are above statewide average and one facility that is above 50%.

Because the calculation is complicated and nebulous and does not take many factors into account, legislation recently mandated an alternative evaluation of solid waste planning areas' success in waste reduction. A new pilot program will give opportunities to six solid waste planning areas to expand the scope of their programs. The pilot project is called the Environmental Management System Designation Program (EMS), established by the 2008 Legislature.

Economics:

The key to successful reduction of waste and recycling is finding sustainable end-use manufactures who use the recovered material as raw material to create a new product.

The true value of recycling for any generating manufacturer is the cost savings they will gain from recycling/reducing their waste. If there is no value, be it hard dollars or intrinsic value/soft dollars, there is no incentive for the generating manufacturer to recycle.

The true competitor of recycling is the landfill, as it is generally less expensive to throw away recyclables than to handle and prepare them for recycling. Going forward, higher costs of transportation, logistical loss of rail, and availability of sea containers will potentially make this a greater issue than it is today. Businesses like to say they are in business to make products not recycle, which is true in our country's economic model. Recycling must add value, be it lower disposal cost or a soft dollar return in consumer acceptance of a greener company/product vs. the lowest cost product.

Greenhouse Gas:

How solid waste is managed has direct and indirect impacts on the production or mitigation of greenhouse gases. The disposal of solid waste produces greenhouse gas emissions in a number of ways. In addition, the transportation of waste to disposal sites produces greenhouse gas emissions from the combustion of the fuel used in the equipment. Finally, the disposal of materials indicates that they are being replaced by new products. This

production often requires the use of fossil fuels to obtain raw materials and manufacture the items. Recycling materials reduces greenhouse gas emissions. As the state develops greenhouse gas mitigation strategies, the implications from solid waste management activities need to be considered and appropriately incorporated into the overall plan.

Current and Emerging Issues: Construction and Demolition (C&D) Sector

The Construction and Demolition (C&D) Sector refers to waste generated during construction and demolition activities and processes. C&D is a large and varied waste stream that includes concrete, asphalt, wood, gypsum, and asphalt shingles generated from the construction, renovation, and demolition of buildings, roads, bridges, and dams.

The current and emerging issues facing construction and demolition in regards to recycling falls into three main categories:

- new construction, renovation, and demolition
- the generation of C&D waste
- the processing of C&D waste.

According to the Nebraska Energy Office's Construction Waste Minimizations Methods factsheet, construction waste consists mainly of lumber and manufactured wood products (35%); drywall (15 %); masonry materials (12%); and cardboard (10%), with the remainder being composed of a mix of roofing materials, metals, plaster, plastics, foam, insulation, textiles, glass and packaging.

Renovation projects tend to generate appliances, masonry, doors, windows, shelving, cabinets, drywall, and porcelain. These materials are also typically found in deconstruction projects. Deconstruction is a method of harvesting what is commonly considered "waste" and reclaiming it into useful building material.

<u>Generation of C&D waste:</u>
Construction and demolition recycling and reuse in Iowa do not appear to be a well developed market with readily available programs and contractors. However, programs do exist. The programs available and advantages to recycling should be promoted to the builders and contractors throughout the State to further educate the stakeholders on the benefits of recycling and reuse.

Single Stream vs. Sorting is a focus of much discussion today. News was recently made in Des Moines when they changed from a curbside sorting system to single stream where household recycling is now collected in a single cart, which is collected in to a single haul vehicle, and then sorted at a facility. A similar debate exists for recycling at construction sites. Is it more economical to collect all the recyclable/reusable material in one container and then to sort it at a processing facility or is it better to provide multiple containers at a site to have materials separated as they are generated? Interviews with the Homebuilders Association have pointed out several reasons why they emphasize the need for single stream recycling. Among them are the cost of multiple containers and hauls, the limited space often found on jobsites, and the challenge in educating the workers at the job site to use and comply with the source separated bins.

The success of any program heavily relies on the buy-in of the stakeholders. In the realm of C&D recycling and reuse, builders and contractors are large stakeholders. Increasing the recycling and reuse numbers within Iowa is a positive step, but it must be done in a way that encourages and promotes builder/contractor buy-in and does not make it more difficult for them to do their jobs and earn a living.

Processing of C&D waste:
The start up costs and operation of a C&D processing facility are significant. Typical facilities require plenty of space for sorting, processing, and storage of the materials as they are sorted, processed, and held for transport. Processing lines are mechanical or hand picked, and often a combination of both. Facilities also need to have flexibility to handle new or changing markets. It may be difficult to find investors and operators given the troubled history of these facilities in Des Moines over the last ten years and the status of the markets.

As with any recycling program, a material can not be designated as recycled unless there is another viable end-use for the product. Materials generated in construction, renovation, and demolitions are different from those generated in the industrial, commercial, and residential areas. These materials include lumber, manufactured wood products, drywall, masonry, cardboard, packaging, plastic, foam, insulation, concrete, shingles, and porcelain, just to name a few. Several of these materials have known markets within Iowa. However, a number of the markets are yet to be developed. There is still much work to be done on markets for shingles and other materials to create viable sustainable markets within Iowa.

Many owners, architects, and builders are looking to obtain LEED ratings for projects in which they are involved. When projects are obtaining points for LEED ratings, it is essential for the integrity of the LEED system that programs are actually meeting the intent of the certification. For example, multiple C&D processing facilities have been in place in the Des Moines area. Local builders have brought their waste to these facilities in order to achieve LEED points. In some instances, the material has not been recycled or reused in a correct manner even though LEED points are being awarded.

It is essential when facilities are stating recycling and reuse for materials that this is happening and the materials are not ending up in a stock pile or buried for citizens to have to take care of once these unsuccessful businesses fold. It is vital that the correct processing methods are in place and that there is a valid end-use for their recycled material.

Fines are a byproduct that is generated when C&D waste is processed. There is generally not a strong end market for this material. Within the State, several facilities have attempted to use the fines as alternative daily cover (ADC) for landfills, which are required to place a six inch layer or another approved material on a daily basis over the exposed waste placed that day. Facilities need to find viable end markets for fines or plan for the disposal cost when deciding to operate.

Current and Emerging Issues: Institutional Sector

The Institutional Sector includes Local, state, and federal government buildings; K-12 schools; community colleges; public & private four-year colleges and universities; hospitals; nursing homes; and prisons.

The Institutional subcommittee reviewed and researched recycling programs in the aforementioned institutions. The need for statewide continuing education programs for Institutional Resource Managers was identified as a current issue. Resource Managers are interested in waste reduction, reuse, and recycling best practices; food waste composting and new technologies; programs and resources available to create and enhance sustainable recycling programs.

Current and Emerging Issues: Residential Sector

The residential/consumer sector is defined as waste generated in single and multiple-family homes, including apartments, townhomes, and condos.

The residential sector subcommittee discussed the current state of existing residential and multi-family recycling programs to identify problems associated with consumer awareness, access to recycling, types of waste, and a consumer attitudinal shift from waste management to resource management. Rather than focus on why to recycle, the subcommittee believes we need to make recycling more personal. It's not about adding complications to daily living. Rather, it's about showing people how easily recycling can become a habit.

Existing Programs

The subcommittees were asked to examine current programs that exist within their assigned sector, with the assumption that these could be examined in greater detail and viewed as opportunities for enhancements and continuous improvement.

Existing Programs: Commercial Sector

The subcommittee recognizes that a number of successful programs and efforts currently in place impact the Commercial Sector. These include Environmental Management Systems, The Iowa Waste Exchange, commercial food residuals, commercial recyclables collection, commercial recyclables processing, and take-back recycling, such as plastic bags and ink cartridges.

Existing Programs: Industrial Sector

The subcommittee interviewed several industries, including John Deere Des Moines Works in Ankeny, Cardinal IG in Greenfield, and Climax Molybdenum in Fort Madison, to identify some examples of existing recycling programs within Iowa. The details of these interviews, in addition to descriptions of several programs, are available in Appendix D.

In general, current efforts include segregation of waste; looking for ways to reduce green house gases; identification of recycling program champions; keeping waste out of landfills; vendor resource lists; technical conferences and workshops; intern programs; environmental assistance programs; and financial assistance programs.

Existing Programs: Construction and Demolition (C&D) Sector

The subcommittee met with several representatives from the Homebuilders Association. Based on this meeting, there are currently few, if any, recycling programs being successfully utilized in the C&D arena in Des Moines. Several of the current programs and barriers are discussed below. The details of these interviews and programs are available in Appendix E.

Programs have moved forward in such areas as shingle recycling; appliance storage and de-manufacture; programs that provide guidelines, procedures and worksheets for establishing reuse and recycling programs; deconstruction/demolition pilots; and pilot programs for material separation.

Existing Programs: Institutional Sector

The Institutional Sector subcommittee sent a Recycling Survey to 1,952 Iowa Institutions. 544 Institutions responded to the survey for a response rate of 27.9%. The results of their survey include the following findings:

1. 91% of these institutions have a recycling program; 9% of these institutions do not have a recycling program.
2. The highest percentage of materials collected and recycled at the institutions are: white paper 91%; cardboard 88%; other paper 77%; redeemable glass, plastic, and aluminum beverage containers 65%; tin food cans 56%.
3. The lowest percentage of materials collected and recycled at the institutions are: shrink wrap 4%; radios 7%; sharps 19%; computers/TVs 30%; non-redeemable glass beverage/food containers 41%; non-redeemable plastic beverage/food containers 48%.
4. Based upon the responses to the survey, institutions with recycling programs reported the greatest real or perceived challenge is awareness and education. Forty-four percent of responses indicated an interest in learning more about

recycling programs available for their facilities. These institutions provided contact information for follow-up. See Appendix F for complete survey results.

Existing Programs: Residential Sector

Over the last decade, Iowa and its respective planning areas have put significant effort into addressing residential recycling designed to make household recycling convenient and accessible. This includes curbside recycling in largely urban areas and recycling and redemption centers across the state. The subcommittee determined that existing programs in both urban and rural areas are adequate, accessible and have existing infrastructure to support increased recycling. However, more needs to be done to build consumer awareness of the plethora of programs, services and recycling opportunities available to them.

Recommendations for new initiatives

Each subcommittee was asked to identify their highest priority recommendations for new initiatives that would satisfy the requirements identified in House File 826.

Recommendations for new initiatives: Commercial Sector

The subcommittee identified four steps for creating a successful Commercial Sector resource management program:

1. Evaluate legislative / regulatory environmental controls
2. Capitalize on the marketplace "green trend"
3. Emphasize the beautification of Iowa
4. Reinforce a productive, efficient business model

Commercial Recommendation 1:
Develop a strong communication and outreach educational resource program for the commercial sector. This includes recognition of successful recycling efforts such as organics and food residuals for composting and refuse-derived fuel materials for energy.

Possible resources for ideas and content include:

1. Websites such as earth911.com
2. DNR (Solid Waste Alternative Program)
3. Community Colleges
4. ISOSWO
5. IRA

Commercial Recommendation 2:
Create a five-step operational assessment program that uses the following steps:

1. Conduct a discard assessment
2. Set diversion recycling goals and targets
3. Develop a resource management plan
4. Implement the plan
5. Monitor and evaluate progress

Commercial Recommendation 3:
Develop an Iowa "green certification" assessment and recognition program designed to reach the largest number of commercial sector businesses possible across the state of Iowa. This type of program would generate competition among businesses, provide marketing value, promote changes in behavior, and recognize and reward progress. The program could be promoted through channels such as community chambers of commerce, civic organizations, trade associations, and community colleges.

Commercial Recommendation 4:
Create a Green Advisory Committee of key stakeholders. This committee could design, implement and oversee a green certification program. They would serve as a resource for awareness and education programs.

Commercial Recommendation 5:
Create a shingles recycling priority from tear-off projects.

Commercial Recommendation 6:
Begin to explore ways to influence product stewardship among commercial sector suppliers, particularly in the areas of electronics, paint, carpet, and pharmaceuticals.

Commercial Recommendation 7:
Include organic and food residual materials in a resource management program. To increase the success of such programs, the removal of regulatory barriers should be examined. The use of compost in public projects should be expanded.

Recommendations for new initiatives: Industrial Sector

Several opportunities and recommendations for new programs within the industrial sector have been identified. These include economic incentives, redirection of a portion of environmental penalties from the AG office that currently go to the Household Hazardous Materials (HHM) program to the IDNR Business Assistance Programs, a marketing plan for education on current programs available, a recycling vendor green list, green certification for businesses, and a user fee for recovery and recycling of used materials.

Additional details related to the environmental impact, economics, education and awareness, and funding for each of the Industrial Sector recommendations can be found in Appendix D.

Industrial Recommendation 1:
Increase economic incentives. By increasing economic incentives, the recycling rate should increase in industrial facilities. In turn, this extends the life of current landfills through waste reduction. Promoting waste reduction at the source supports the principles of product stewardship. Legislative action would be required, since state tax receipts will be reduced through the creation of incentive dollars.

Industrial Recommendation 2:
Review existing financial incentive programs for potential redirection of funds. Programs funds can be redirected to the most critical waste management needs of the industrial sector. The targeted recycled materials will need to have existing sustainable markets.

Industrial Recommendation 3:
Redirect a portion of Environmental Penalties from the AG Office that currently go to the HHM program to the Iowa Department of Natural Resources (IDNR) Business Assistance Programs. The HHM program was established in 1987 and has developed into a network that covers 89 counties. This network serves Iowa households and businesses that are classified as Conditionally Exempt Small Quantity Generators of hazardous waste as a means for properly managing and disposing of hazardous materials. A portion of the money received by IDNR could be redirected from the mature and well established HHM program, without degradation of the current program, to address funding shortcomings in IDNR's waste reduction and minimization programs for Iowa Industries established in the solid waste account of the Groundwater Protection Fund.

Industrial Recommendation 4:
Develop and implement a marketing plan to increase education and awareness of current programs. Based on the subcommittee's research, awareness of current programs among the Industrial Sector is lacking.

Industrial Recommendation 5:
Develop a Recycling Vendor Green List that identifies reliable vendors, contacts, and resources who meet predetermined standards for recycling services. This list would minimize losses incurred by Industrial Sector users by ensuring the viability of vendors. The list could be developed through a partnership with Iowa Department of Natural

Resources for setting the standards. ISOSWO or IRA resources could be used for ongoing maintenance of the database, including qualifications criteria and ongoing verification of vendor certifications. Initial funding could occur through SWAP grants. Future development could be funded through sponsorships from certified vendors, vendor certification fees, annual renewal fees, and small user fees for industrial and commercial users.

Industrial Recommendation 6:
Develop a Green Certification Program for businesses. This program has the potential to increase business for existing Iowa companies by attracting customers who value and recognize the distinction of doing business with certified businesses. The Iowa Department of Economic Development could benefit through attracting new businesses to the state of Iowa, resulting in increased employment opportunities by drawing "Green" businesses to the state. Initial funding could occur through SWAP grants or sponsorships by businesses that champion the Green label. Ongoing development could be funded through sponsorships from certified vendors and vendor fees for initial certification and certification renewal.

Recommendations for new initiatives: Construction and Demolition (C&D) Sector

Several opportunities and recommendations for new programs within the C&D Sector have been identified. These include a task force with multiple stakeholders to evaluate expansion and creation of programs; establishment of an audit program to ensure LEED points are only given when material is truly recycled; ensuring adequate financial assurance for C&D processing facilities; local ordinances that provide economic incentives for C&D recycling; state agencies supporting/promoting/utilizing recovered materials; increased shingles recycling; construction site source separated collection of materials; and legitimate beneficial use of C&D recovered/recycled materials.

Details related to the environmental impact, economics, education and awareness, and funding for each of the C&D Sector recommendations can be found in Appendix E.

C&D Recommendation 1:
Form a Green Task Force comprised of a cross section of stakeholders to make recommendations that will positively impact future C&D environmental and recycling efforts in Iowa. Legislative action will be required to create this task force.

C&D Recommendation 2:
Ensure Adequate Financial Assurance for C&D Processing Facilities. Proper financial support is needed to fund closure costs of a facility that is no longer in operation. This avoids the use of public funding to clean up privately owned, improperly funded, and now defunct facilities.

C&D Recommendation 3:
Promote the development of local ordinances that provide economic incentives for C&D recycling. At the local level, environmental impact fees could be rebated at a predetermined percent if a project meets code criteria.

C&D Recommendation 4:
Encourage and incent state agencies for support, promoting, and utilizing recovered materials. Pilot an area where newly permitted material collection is tested at a construction project. The economic impacts include more cost effective

construction and demolition projects; the potential to reduce a solid waste stream; a longer life on landfill capacity and transfer station equipment; and decreased revenue to landfills and transfer stations.

C&D Recommendation 5:
Increase Shingles Recycling. Economic benefits include cost effective savings through recycling of old asphalt shingles into roadway materials and holds the potential for landfills and transfer stations to diversify their business plan and handle shingles recycling programs. Funding can occur through collaborative efforts of the Iowa Department of Natural Resources, IDOT, and Metro Waste Authority, targeted SWAP loans, and self-funding due to the end product having a value as a recyclable product.

C&D Recommendation 6:
Promote construction site source separated collection of materials. Conduct a pilot, funded through SWAP grants, where source separated recycling collection can be tested at a construction project. If this program is successful, develop a business model for private/government (landfills) partnerships.

C&D Recommendation 7:
Ensure the legitimate, beneficial use of C&D recovered/recycled materials to avoid negative environmental impacts from the improper disposal of C&D materials. Legislative action will be required to provide more clarity and stronger definitions of beneficial use of C&D and other solid waste.

Recommendations for new initiatives: Institutional Sector

Institutional Recommendation 1:
Develop a Resource Management Certification Continuing Education Program in partnership with the Iowa Society of Solid Waste Operators and Iowa Community Colleges for Institutional Resource Managers. Industrial and Commercial Resource Managers could be included in this program. For institutions that do not participate in a recycling program, an Iowa Green Certification Program could be developed with similar partners, including the Continuing Education Program and the Iowa Recycling Association.

Institutional Recommendation 2:
Direct all public institutions and governmental agencies to develop a “lead-by-example-Green” initiative that makes Iowa a national leader in waste reduction, reuse, and recycling programs. State institutions may refer to Iowa Executive Order #6, February 6, 2008, for guidance on how to implement the initiative and measure its success.

Recommendations for new initiatives: Residential Sector

Residential Recommendation 1:
Create a Statewide Recycling Public Education Campaign. A number of recycling programs and services are already available across the state of Iowa today. However, it is the consensus view of this subcommittee that many of these services remain largely unknown to the general population, even consumers with a strong conservation ethic. The subcommittee determined that improved residential recycling can be achieved through a statewide education/marketing campaign to:

- Tap the Iowa environmental ethic to generate a cultural shift from waste management to resource management: recycling is a personal responsibility.
- Educate consumers about the principles of product stewardship and the health and environmental impacts.

- Raise national awareness to Iowa's environmental ethic and "brand" Iowa has a sustainable state with a strong environmental ethic.
- Raise public awareness to the importance of recycling and waste reduction and the environmental, energy, natural resource and economic benefits to the public, the business community and legislative bodies.
- Educate consumers on the recycling programs and services available across the state.
- Educate consumers about the types of materials that can be recycled including yard, food or other organic waste, electronic, appliances, tires, batteries and household hazardous materials.
- Encourage the purchase of recycled, durable and less toxic goods
- Educate consumers in the benefits of and proper techniques for recycling.
- Educate K-12 children about the benefits of recycling.
  The Campaign should include, but is not limited to, the following elements:
    - Development of a tagline (Examples: "Recycle! It's not garbage anymore" or "Why waste a good thing?" and key messages:
        - Thank Iowans for recycling
        - Showcase what their recyclables are made into
    - Showcase product stewardship and lifecycle impacts.
        - Educate consumers about point of purchase
        - Educate on shared responsibilities (manufacturer, consumer, etc.)
    - Direct people to a statewide recycling website for recycling resources and consumer tips.
  - Conduct a publicity blitz that includes advertising on radio stations, in neighborhood newspapers and business publications, and newsletters to customers. Use direct mail targeted to apartment managers and business owners that offers resources to help their tenants start recycling. Information stations would be set up at major events across the state including, but not limited to, the Iowa State Fair, Des Moines Arts Festival, music festivals, cultural diversity events (special populations), home shows, sporting events, etc.

<u>Residential Recommendation 2:</u>
Develop a Statewide Recycling Website. The subcommittee supports the development of a statewide recycling website that would become the recycling resource for all Iowans. The website would be administered by the Iowa Recycling Association and should be used as a marketing and recruitment tool for the State of Iowa. This website will:

- Complement and reinforce the Statewide Public Education Campaign.
- Connect people with recycle services. (Outreach to local governments, nonprofits, Chambers of Commerce and others to link local websites to statewide website.
- Provide information and technical support to help consumers, business and governments to reduce waste, recycle and buy recycled products.
- Reduce waste through supporting consumer purchasing decisions (pre-cycling).
- Promote pollution prevention and the efficient use of resources.
- Offers incentives for recycling – an awards program or annual recognition program.

Overall Recommendations of the Task Force

All of the recommendations submitted in this report are considered important by the respective subcommittee members. After reviewing all of these recommendations, the Task Force was asked to propose recommendations which would have the greatest impact upon all most/all of the sectors. By focusing first on fewer, highest priorities, the state of Iowa can realize significant improvement in its state-wide recycling efforts.

Task Force Recommendation 1

Develop and implement a statewide Green Certification Program designed to reach the largest number of sectors possible.

Green certification means that an institution meets minimum requirements or standards in the waste reduction, reuse, and recycling program areas. Areas such as water and waste water management, energy management and conservation could be added to the Green certification requirements, as noted in Iowa's Executive Order #6.

The purpose of a Green program is to encourage institutions to develop sustainable waste reduction, reuse, and recycling programs and to provide a framework for continuous improvement and communicating program results, both internally and externally. These programs will help to reduce the amount of recyclable materials in landfills by increasing and enhancing waste reduction, reuse, and recycling programs throughout Iowa.

This type of program can be used to generate positive competition among businesses and organizations through recognition of achievements in the area of recycling. It can be used to increase awareness, education, and promotion of best practices, resulting in attitude and behavior changes among the stakeholders. A Green Certification Program should recognize and reward individuals, businesses, and organizations that exemplify best practice behaviors.

This program has the potential to increase business for existing Iowa companies by attracting customers who value and recognize the distinction of doing business with certified businesses. The Iowa Department of Economic Development could benefit through attracting new businesses to the state of Iowa, resulting in increased employment opportunities by drawing "Green" businesses to the state.

All public institutions and governmental agencies should be expected to "lead-by-example" by actively participating in this program, supporting the effort to make Iowa a national leader in reduction, recycling, and reuse programs.

The program can be implemented using existing partnerships with Iowa Department of Natural Resources, Iowa Society of Solid Waste Operations, Iowa Community Colleges, Iowa Recycling Association, and institutional associations. These groups will help determine how to develop and implement programs that include, but are not be limited to: Best Practices; Iowa Programs, Resources, and Funding; Food Waste Composting and New Recycling Technologies; and Product Stewardship. Existing markets would be utilized as much as possible. New markets would be identified as Best Practices and challenged further. The program could be promoted through channels such as community chambers of commerce, civic organizations, trade associations, and community colleges.

Initial funding could occur through SWAP grants or sponsorships by businesses that champion the Green label. Ongoing development could be funded through sponsorships from certified vendors and vendor fees for initial certification and certification renewal.

Task Force Recommendation 2

Create a Green Advisory Committee that represents a cross section of stakeholders from all five sectors represented in this report. This committee could design, implement and oversee the Green Certification Program described in Recommendation 1. They would also serve as a credible resource for awareness and education programs that need to be developed throughout the state.

Task Force Recommendation 3

Develop a Recycling Vendor and Resource Green List that identifies reliable vendors, contacts, and resources who meet predetermined standards for recycling services. By ensuring the viability of vendors, this list would minimize losses that can be incurred by consumers and end users. The list could be developed through a partnership with Iowa Department of Natural Resources for setting the standards. ISOSWO or IRA resources could be used for ongoing maintenance of the database, including qualifications criteria and ongoing verification of vendor certifications. Initial funding could occur through SWAP grants. Future development could be funded through sponsorships from certified vendors, vendor certification fees and annual renewal fees, as well as small user fees for industrial and commercial users.

Task Force Recommendation 4

Develop and implement an ongoing, statewide communication and outreach educational resource program for all sectors. Many recycling programs and services are already available across the state of Iowa today. However, it is the consensus view of this Task Force that many of these services remain largely unknown to the general population, including those consumers with a strong conservation ethic. This program needs to educate consumers on the programs already in place; encourage and promote usage of existing programs and initiatives; and educate and market new programs being developed.

This communication campaign can include a statewide recycling website that serves as the central recycling resource for all Iowans. The website would be administered by the Iowa Recycling Association and should be used as a marketing and recruitment tool for the State of Iowa. This website would serve as the source of information for this Task Force's other recommendations, including details about the Green Certification Program, the Green Advisory Committee, and the Recycling Vendor and Resource Green List. Information and technical support would be available to help consumers, businesses, and institutions reduce waste, recycle, and buy recycled products. The information provided on this site will promote positive recycling behaviors and can directly impact the reduction of waste across all sectors.

To ensure that our communication and education efforts are being focused appropriately, the Task Force recommends that a state-wide survey or study be conducted to obtain objective information that clearly identifies current attitudes, perceptions, needs, readiness, usage, etc. from a cross section of the five sectors used in this report.

Task Force Recommendation 5

Utilize the organizations and members from this task force when moving forward with our recommendations. The members of this Task Force have invested significant time and effort in increasing their knowledge and awareness of recycling and waste management issues, programs, and opportunities. This base of expertise will enable Iowa to move more quickly and effectively with new recycling programs and initiatives.

Factors to consider

During the Task Force meetings, members discussed several factors that must be taken into consideration when moving ahead with its recommendations. One key area is how to resource and fund the initiatives; another factor to consider is how to shift attitudes and behaviors to support a resource management mindset. Summaries of those discussions are presented in this section.

Resources and Funding:

Because funding and budgets in Iowa are of highest priority, the Task Force spent extra effort in examining their recommendations from a fiscal responsibility perspective. We believe many, if not all, Task Force recommendations can be pursued within existing budgets and funding. A Solid Waste Alternative Program (SWAP) may assist with the development and implementation of some of our recommendations. Once developed, the programs could be sustained through certification fees paid by the institutions receiving certification.

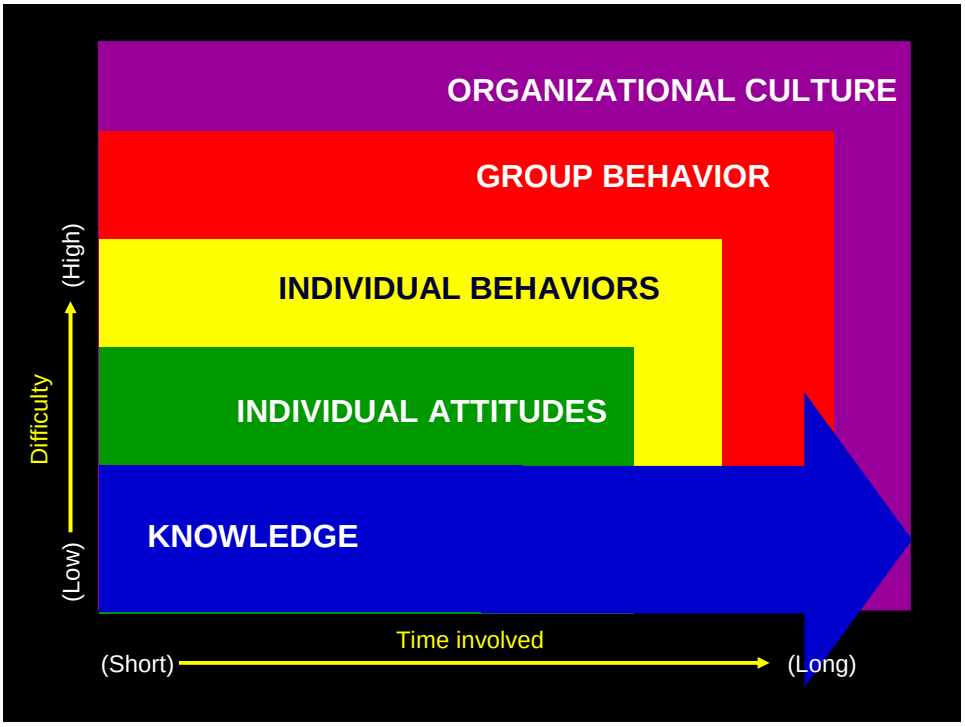
The state should also pursue opportunities to partner with businesses and educational institutions. Additional funding may be possible through sponsorships from certified vendors, vendor certification fees and annual renewal fees, as well as small user fees.

We believe the programs are sustainable with existing partner commitments. These recommendations contribute to a comprehensive approach to recycling due to the strategic planning component that these programs provide to Institutions. Implementing the programs enables an institution to create, enhance, and continuously improve its waste reduction, reuse, and recycling programs and reduce greenhouse gas emissions from these activities, as ordered by Governor Culver in February 2008.

Other potential funding partnerships could come from venture capital, solid waste agencies, private haulers and material processors, local economic development agencies, community foundations, climate change programs, federal stimulus programs, Resource Conservation Challenge (RCC is a US Environmental Protection Agency program), Iowa Department of Natural Resources (IDNR), Iowa Farm Bureau, United States Department of Agriculture (USDA), Department of Energy (DOE), solid waste tipping fees, gambling monies or grants, and other grant programs.

Achieving the necessary shift in attitudes and behaviors

To maximize the success of recycling initiatives, a culture shift from waste management to resource management is required. This involves a change in attitudes and behaviors of a majority of individuals and groups in Iowa. The Task Force reviewed and discussed the following model for achieving lasting cultural change in the area of recycling.



The two axis of this model are time involved and degree of difficult, both going from low to high. Achieving sustained, permanent cultural change in the way Iowans view and support recycling efforts (the purple box) will take significant time and will be difficult to achieve. Lasting cultural change is only achieved once individuals (yellow box) and groups--institutions, businesses, organizations (red box) understand and agree to change their behaviors. Permanent behavior change at the individual level (yellow box) only happens once an individual is willing to adjust his/her attitude (green box) toward the new ways.

The critical question then becomes: How do we influence individual attitudes in order to realize actual behavior change? The starting point is Knowledge (blue box). With the right information, communication, education, training, dialogues and discussions with individuals, it is possible to influence individual attitudes, which in turn, can result in adjustments to individual behaviors. When a significant number of individuals adjust their attitudes and behaviors, we will then see groups adopting new practices and behaviors—which ultimately impacts the cultural change needed. Communication should not be a one-time marketing blitz—but rather, needs to be frequent, relevant, timely, and continuous.

This model reinforces the belief of the Task Force members that much of the effort needed for Iowa to achieve success in recycling starts with education and awareness of Iowa's citizens. (see Task Force Recommendation 4). Programs and initiatives will only be successful if we target consumers through strong awareness, education, and training efforts.

Acknowledgments

The Task Force wishes to acknowledge the following people for their contributions to our efforts.

For meeting logistics, scheduling, minutes, communications and web site:

- Geri Crawford, Executive Administrative Assistant, Metro Waste Authority
- Angie Clark, Iowa Department of Natural Resources, Land Quality Bureau

For his sponsorship of this Task Force and his active involvement in our meetings:
Donovan Olson, Democratic State Representative House District 48

Appendix A: Comprehensive Recycling Task Force Contact List

Task Force Co-Chairs

Iowa Recycling Association
Teresa Kurtz
515.265.1596 – Cedar Rapids
tkurtz@iowarecycles.org

Iowa Environmental Council
Thomas Hadden III
515.323.6535 – Altoona
tha@mwatoday.com

Commercial Sector Subcommittee

Iowa Dairy Foods
Miriam Erickson Brown, Chairperson & Recorder
515.263.6357 – Urbandale
miriamb@aedairy.com

Iowa Grocery Industry Association
Scott Havens
515.981.0606 – Norwalk
shavens001@aol.com

Iowa Recycling Association
Andrew Ockenfels
319.351.2848 – Riverside
AndyOckenfels@citycarton.com

Iowa Retail Federation
Jim Henter
515.270.1729 – Clive
jhenter@iaretail.org

Iowa Society of Solid Waste Operations (ISOSWO)
Paul Schultz
563.589.4249 – Dubuque
pschultz@cityofdubuque.org

Iowa Wine Grower's Association
Diane Larson
515.795.3535 – Des Moines
DCLDCL@aol.com

Industrial / Construction & Demolition (C&D) Sector Subcommittee

Iowa Recycling Association
Michael Barry, Chairperson
515.778.6690
mbarry@dwx.com

Association of Business and Industry
Christine Richter, Recorder
515.256.8814 – Casey
crichter@barkerlemar.com

Homebuilders Association
Heather Perry
515.278.2868 – Prole
heather@allegrocustomhomes.com

American Chemistry Council
John Easter
515.471.1957 – West Des Moines
john_easter@americanchemistry.com

Department of Transportation
James Berger
515.239.1843 – Ankeny
james.berger@dot.iowa.gov

Iowa Society of Solid Waste Operations (ISOSWO)
Douglas Hughes
641.743.8343 –Atlantic
aclr@wildblue.net

Department of Natural Resources
Brian Tormey
515.281.8927 – West Des Moines
brian.tormey@dnr.iowa.gov

Institutional Sector Subcommittee

Iowa Society of Solid Waste Operations (ISOSWO)
Margo Underwood, Chairperson
641.420.3896 – Mason City
dwu@netins.net

Association of Counties
Sara Nielsen, Recorder
712.775.2166 – Templeton
ccemd@co.carroll.ia.us

Iowa Alcoholic Beverages Division
Lynn Walding
515.281.7402 – Des Moines
Walding@iowaabd.com

Iowa Beverages Association
Lorie Townsend
309.756.2935 – LeClaire
lotownsend@cokecce.com

Keep Iowa Beautiful
Inkyung Westfall
712.328.4601 – Council Bluffs
iwestfall@councilbluffs-ia.gov

Donovan Olson (non-voting member)
Democratic State Representative House
District 48
515.432.8163 – Boone
donovan.olson@legis.state.ia.us

Residential/Consumer Sector Subcommittee

League of Cities
Debra Dyar, Chairperson
515.965.6414 – Ankeny
ddyar@ankenyiowa.gov

Iowa Society of Solid Waste Operations (ISOSWO)
Wendy Wittrock, Recorder
712.243.1991 – Wiota
casscolf@dishmail.net

Petroleum Marketers/Convenience Stores Owners
Rose Kleyweg Mitchell
515.267.2863 – West Des Moines
rosemitchell@hy-vee.com

League of Women Voters
Jo Ann Finkenbinder
319.2667.756 – Cedar Falls
jo2@cfu.net

Wholesale Beer Distributors
Christine Riesenbeck
319.752.0870 – Burlington
criesenbeck@goldeneagleia.com

Iowa Bottle Bill Coalition
David Jones
712.243.3253 – Atlantic
djagency1001@qwestoffice.net

Iowa Farm Bureau
Rick Robinson
515.225.5432 – West Des Moines
rrobinson@ifbf.org

Iowa Society of Solid Waste Operations (ISOSWO)
Rodger Kaster
641.437.7279 – Moulton
raswc@iowatelecom.net

Iowa Brewer Industry
Jennifer Tyler
515-282-6803 – Des Moines
tyler@carneylawfirmiowa.com

Non-voting members

Donovan Olson
Democratic State Representative House District 48
515.432.8163 – Boone
donovan.olson@legis.state.ia.us

Dennis Black
Democratic State Senator District 21
515.975.8608 – Grinnell
dennis.black@legis.state.ia.us

Merlin Bartz
Republican State Senator District 6
641.903.9548 – Grafton
merlin.bartz@legis.state.ia.us

Chris Hagenow
Republican State Representative & House Minority Leader
515.281.3221 – Windsor Heights
chris.hagenow@legis.state.ia.us

Facilitator and Report Writer

Doug D. Whittle, President
Whittle Consulting Group
515.987.8989 – Urbandale
doug@WhittleConsultingGroup.com

Appendix B: Glossary of Terms

Beneficial use: a specific utilization of a solid industrial by-product as a resource that constitutes reuse rather than disposal, does not adversely affect human health or the environment, and is approved by the department.
Biodegradable: degradable through a process by which fungi or bacteria secrete enzymes to convert a complex molecular structure to simple gasses and organic compounds.
Commercial waste: waste materials originating in wholesale, retail, or service establishments, such as office buildings, stores, markets, theaters, hotels, and warehouses.
Commingled recyclables: two or more recyclable materials collected together.
Composting: a controlled biological decomposition process whereby organic wastes, such as food scraps and yard trimmings, are transformed into a compost product that can be used as a solid conditioner or soil amendment.
Comprehensive plan: a course of action developed and established cooperatively between cities, counties and municipal solid waste sanitary disposal projects regarding their chosen integrated solid waste management system, its participants, waste reduction strategies, and disposal methods.
Construction and demolition waste: waste building materials including wood, metals and rubble which result from construction or demolition of structures.
Curbside recycling: programs in which recyclable materials are collected at the curb, often from special containers, and then taken to processing facilities.
Degradable: capable of decomposing by biodegradation, photodegradation, or chemical process into harmless component parts after exposure to natural elements for not more than three hundred sixty-five days.
Drop-off recycling: a method of collecting recyclable materials in which the materials are taken by individuals to collection sites, where they deposit the materials into designated containers.
End-use market: a company that purchases recycled materials for use as feedstock in manufacturing new products.
Household hazardous waste: leftover household products that contain corrosive, toxic, ignitable, or reactive ingredients making them hazardous thereby requiring special handling when disposing of them. Examples of such products include paints, cleaners, oils, batteries, herbicides and pesticides. These materials are considered to be municipal solid waste although they are treated as regulated hazardous waste if not from a household.
Incineration: the processing and burning of waste for the purpose of volume and weight reduction in facilities designed for such use. Incineration does not include energy recovery.
Industrial wastes: *also known as* ***"Industrial by-products"***—refers to waste that is generated as a result of manufacturing activities and processes. It does not include office waste, cafeteria waste, or other types that are not the direct result of production processes.
Inorganic waste: waste composed of matter other than plant or animal (i.e., contains no carbon).
Institutional waste: waste materials originating in schools, hospitals, prisons, research institutions, government and other public buildings.
Integrated solid waste management: any solid waste management system using several alternative waste management techniques to manage and dispose of specific components of the municipal solid waste stream. Waste management alternatives include source reduction, recycling, composting, energy recovery, and landfilling.
Land application: a method through which an industrial sludge by-product is applied to the ground surface. Land application may include subsurface injection.
Municipal solid waste landfill (MSWLF): a discrete area of land or an excavation that receives household waste, commercial solid waste, nonhazardous industrial solid waste, and construction and demolition waste.
Organic material (organic waste): materials containing carbon. The organic fraction of municipal solid waste includes paper, wood, food scraps, and yard trimmings.
Photodegradable: degradable through a process in which ultraviolet radiation in sunlight causes a chemical change in a material.
Post-consumer recycling: the reuse of materials generated from residential and commercial waste, excluding recycling of material from industrial processes that has not reached the consumer, such as glass broken in the manufacturing process.
Pre-consumer recycling: recovered materials obtained from manufacturers.
Precycling: the decision-making process consumers use to judge a purchase based on its waste implications. Criteria include whether a product is reusable, durable, and repairable; made from renewable or nonrenewable resources; over-packaged; or in a reusable container.

Product stewardship: a product-centered “cradle-to-grave” approach to environmental protection. Also known as extended product responsibility (EPR), product stewardship calls on those in the product life cycle—manufacturers, retailers, users, and disposers—to share responsibility for reducing the environmental impacts of products.
Recycling: any process by which waste, or materials which would otherwise become waste, are collected, separated, or processed and revised or returned to use in the form of raw materials or products.
Residential waste: waste generated in single- and multiple-family homes.
Reuse: the use of a product more than once in its same form for the same purpose; e.g., a soft drink bottle is reused when it is returned to the bottling company for refilling.
Rubble: stone, brick or similar inorganic material.
Sanitary landfill: a method of disposing of solid waste on land by utilizing the principles of engineering to confine the solid waste to the smallest practical volume and to cover it with a layer of earth so that no nuisance or hazard to the public health is created.
Sludge: a semi-liquid residue remaining from the treatment of municipal and industrial water and wastewater.
Solid waste: garbage, refuse, rubbish, and other similar discarded solid or semisolid materials, including but not limited to such materials resulting from industrial, commercial, agricultural, and domestic activities
Source reduction: practices, including changes in the design, manufacture or use of products, which reduce, avoid, or eliminate both the generation of solid waste and the use of toxic materials. Also referred to as ***Waste Reduction***.
Source separation: the segregation of specific materials at the point of generation for separate collection. Residential generators source separate recyclables as part of curbside recycling programs.
Tipping fee: a fee for unloading or dumping waste at a landfill, transfer station, incinerator, or recycling facility.
Toxic wastes: materials containing poisons, biocides, acids, caustics, pathological wastes, and similar harmful wastes which may require special handling and disposal procedures to protect the environment and the persons involved in the storage, transport and disposal of the wastes.
Transfer station: a fixed facility where waste is unloaded from collection vehicles and consolidated into larger, long-distance transport vehicles for shipment to final disposal facilities, typically landfills.
Waste characterization study: an analysis of samples from a waste stream to determine its composition.
Waste-to-energy system (WTE): a method of converting MSW into a usable form of energy, usually though combustion but also includes the recovery of methane gas from landfills and anaerobic digestion of organic materials.
Waste stream: a term describing the total flow of solid waste from homes, businesses, institutions and manufacturing plants that must be properly managed to protect human health and the environment, or any segment thereof, such as the “residential waste stream” or the “recyclable waste stream.”
White goods: large household appliances such as refrigerators, stoves, air conditioners, and washing machines.
Yard waste: debris such as grass clippings, leaves, garden waste, brush and trees. Yard waste does not include tree stumps.

Appendix C: Commercial Sector Notes

Commercial Committee Working Session 12-3-2009

We have created an outline that helps us visualize our learning's and will serve as a resource for our final template:

1. We identified the top barriers and opportunities for resource management programs in the commercial sector.

2. We outlined four main areas of concern/influence that could be used as a guide to help create successful commercial sector programs.

3. We created a 5-step assessment program for each business to use to begin a successful resource management program.

4. We identified the need to include compostable materials (such as yard debris and food residuals) as well as electronics, computer components in our plan.

5. We identified the need to include a recommendation regarding refuse derived fuels.

6. We proposed a "green certification" program, including an evaluation and reward system as a component of the resource management programs.

7. We suggested a number of vehicles for implementing and managing the "green certification" program across Iowa.

8. We reviewed various existing programs and will include a recommendation to either expand, update, or educate the commercial sector about these resources.

9. We have explored the need for a larger, state-wide campaign to promote awareness of the need to reuse, recycle, and repurpose materials.

Commercial Sector Recycling

Iowa Comprehensive Recycling Task Force

House File 826

Commercial Sub Committee

- Responsible for creating a plan that would enhance and grow sustainable recycling programs in the Commercial Sector (CS).
- The Commercial Sector (CS) includes wholesale, retail and service establishments where waste originates (office buildings, theatres, restaurants, hotels, warehouses, stores and markets).

Current and Emerging Issues

- Updated CS resource management information by region is needed.
- Need to identify Commercial tonnage
  - Analysis of materials, markets and/or value; available staging and collection options.
- Must have resource management programs that are economically sustainable, foster behavior change and provide value for the CS while achieving recycling/environmental goals.
- Resource Management programs must include outreach, training, accountability, behavior and cultural change.

Current and Emerging Issues

- The CS waste management approach should also include:
  - Removing barriers for food scrap and compostable material diversion.
  - E-scrap product stewardship issues.
  - Establishing markets for residuals from recycling streams.

Existing Programs

- Opportunities for Enhancements:
  - Environmental Management Systems
  - Iowa Waste Exchange
  - Commercial Food Residuals
  - Commercial Recyclables Collection
  - Commercial Recyclables Processing
  - Take Back Recycling (i.e. plastic bags, ink cartridges)

New Program Recommendations

- Develop an effective CS communication and outreach educational resource program.
  - Cooperative educational efforts among stakeholders are needed for program success.
  - Recognize recycling/marketing opportunities such as:
    - Organics/Food residuals for composting
    - Refuse derived fuel materials for energy
  - Resources include:
    - Web sites (earth911.com)
    - DNR (Solid Waste Alternative Program)
    - Community Colleges, ISOSWO, IRA, etc.

New Program Recommendations

Four step assessment to create a successful resource management program for the CS:

- Evaluation of legislative/regulatory environmental controls.
- Capitalize on marketplace “green trend”.
- Beautification of Iowa.
- Productive, efficient business model.

New Program Recommendations

- Five Step Operational Assessment Program:
  - Conduct a discard assessment.
  - Set diversion recycling goals and targets.
  - Develop a resource management plan.
  - Implement the plan.
  - Monitor and evaluate progress.

New Program Recommendations

- An Iowa “green certification” assessment and recognition program for the CS.
- The green certification program would:
  - Generate competition among businesses.
  - Provide marketing value.
  - Promote changes in behavior.
  - Reward progress.
- An Advisory Committee of key stakeholders could implement and operate the green certification program.
- The goal of the program is to reach the largest number of businesses in the CS across the state of Iowa.
  - Through Community Chambers, Civic Orgs, Trade Associations, Community Colleges, etc.

New Program Recommendations

- Include organic and food residual materials in resource management programs.
  - Remove regulatory barriers.
  - Expand compost use in public projects.
- Recognize value
  - Job creation potential.
  - Climate/environmental protection.

New Program Recommendations

- A Shingles recycling priority from tear-off projects
- Product Stewardship
  - Electronics
  - Paint
  - Carpeting
  - Pharmaceuticals

Prioritized Funding Options

- Role of:
  - Venture Capital
  - Solid Waste Agencies
  - Private Haulers and Material Processors
  - Local Economic Development Agencies
  - Community Foundations/Green Jobs
  - Climate Change Programs
  - Federal Stimulus Programs
  - IDNR

Conclusions

Recommendations will provide a variety of methods to increase Commercial Sector recycling in Iowa.

- **The CS is ever-changing, expanding and diverse; leading our committee to propose some basic methods to increase awareness, efforts and foster behavior/culture change.**
- **Enhancing current resource management programs to provide training and updated diversion opportunities by region, is key to the success of recycling programs in the CS.**
- **Creating programs that provide value to the CS, are significant, accessible, easy to implement, cost effective and sustainable is essential.**
- **Establishing an Advisory Committee dedicated to increasing commercial recycling in Iowa, will provide guidance for a CS training and green certification program.**
- **Education, awareness, training and assessment/recognition programs must be ongoing, creative and visible in order to reach CS goals.**

Appendix D: Industrial Sector Notes

I. Current and Emerging Issues

The Industrial and Construction and Demolition (C&D) subgroup was tasked with determining the current status of recycling programs and efforts in industry and construction and demolition generation in the state of Iowa. The group was made up of a diverse professional population but there was not a strong presence of expertise in the group focus. Therefore, information was collected from several facilities in order to develop this section. Those interviewed were John Deere Des Moines Works in Ankeny, Iowa, Cardinal IG in Greenfield, Iowa, and Climax Molybdenum in Fort Madison, Iowa. In addition, an interview was also held with several representatives of the Homebuilders Association in Ankeny, Iowa. This information, in addition to knowledge of the subgroup members, is summarized in the appropriate sections below. In general, the industrial sector will be looked at separately from the C&D sector for this evaluation. It was also important in this evaluation to look at not just the populated sectors such as Des Moines and Cedar Rapids for feasibility but also the smaller communities throughout the state. The first priority is to cover the majority of the easy to target areas, regardless of population base.

Product stewardship is an area on which the subgroup was asked to comment. For the initial look at increasing recycling in the industrial and C&D areas, product stewardship was not strongly examined. However, there are groups currently working in this arena. It was presented at the Iowa Society of Solid Waste Operations (ISOSWO) monthly meeting in December 2009 to encourage solid waste agencies in the state to participate in the Product Stewardship Institute (PSI). The PSI, according to its website, is a national non-profit membership-based organization located in Boston, Massachusetts. PSI works with state and local government agencies to partner with manufacturers, retailers, environmental groups, federal agencies, and other key stakeholders to reduce the health and environmental impacts of consumer products. PSI takes a unique product stewardship approach to solving waste management problems by encouraging product design changes and mediating stakeholder dialogues. Currently, Metro Waste Authority in Des Moines and the Waste Commission of Scott County are members, as is the State of Iowa as a governmental entity. These entities are looking to form a partnership in the State to encourage additional agencies to participate and thereby increase recycling in the key areas noted. Please see the website (***http://www.productstewardship.us/index.cfm***) for more information.

The current and emerging issues facing industry in regards to recycling fell into five main categories. These categories include education and awareness of existing programs, markets, environmental management systems, economics, and greenhouse gas.

i. Education and Awareness of Existing Programs
There are multiple programs already offered throughout the state to aid in development and sustainability of recycling programs. These programs include various business assistance programs in the solid waste/recycling industry, such as the Iowa Waste Exchange, the Iowa Department of Natural Resources (IDNR) Pollution Prevention Services, the Iowa Waste Reduction Center through the IDNR, and the Solid Waste Alternatives Program (SWAP) through the IDNR. It is possible that other public and private programs exist, but are unknown. The under utilization of known programs and the need for awareness among stakeholders is a current issue.

ii. Markets
Iowa has been able to secure extremely strong markets for traditional recyclables (paper, plastic, and metal containers, glass, and scrap metals). Iowa is also a leader in organic waste disposal, thanks to its agricultural background. However, good markets have not developed for commercial composting of food waste.

The primary reason for Iowa's overall success in securing sustainable and reliable markets for our traditional recyclables is the quality of the recovered materials we have had processed by our "Iowa Recyclers". Iowa has always understood that the recovered recyclables are generally the new raw material for a remanufacturing facility. Which is the case with the IP-Cedar River Paper Company's use of old

corrugated boxes to make new liner board and medium paper rolls, which then are made into boxes. Another is the Mid-America Recycling facility in Des Moines taking container glass from Iowans and preparing it for reprocessing into new glass bottles at manufactures throughout the Midwest.

Our quality has been a great advantage for Iowa Recyclers as they have been sought out by end users from throughout the United States, Mexico, Canada and Far East, thus enabling Iowa to be one of the leaders in recycling in the United States. The newest concern for Iowa Markets is logistics. Iowa has always had a difficult time due to its central location to supply the end–user: mills that have begun to relocate out of the rust belt and into the sun belt. Its great distance from sea container yards has also added to difficulties in reaching the overseas markets.

As the United States continues to lose manufacturing to overseas locations, Iowa will be faced with ever increasing challenges to the sustainability of markets, as logistics and cost of transportation continue to rise. Iowa was successful in weathering the move of manufacturing to Mexico through the use of rail. However, with rail being abandoned in Iowa, relocation or start-up of recycling facilities is becoming increasingly difficult. Factor in that Mexico is losing manufacturing business to China, the new challenge will be to find sea containers and the logistics to supply raw material to the burgeoning Asia markets. The markets for traditional recyclables exist but the value may be the only issue as transportation continues to reduce the margins for recyclers and end-users. In reality, recycling anything and everything is possible if someone is willing to pay. If markets are not readily available and encouraged, recycling can be quite expensive, often more so than depositing waste in to the local landfill. Developing end-user markets needs to be encouraged throughout the state of Iowa as economic development activities are considered. Recycling creates jobs, is a net energy conserver (the recovered material reduces energy consumption by the manufacture from 50-90%, depending on the commodity and process) and protects the environment by using less virgin natural resources.

iii. Solid Waste Environmental Management Systems

Iowa is divided into multiple planning areas for the handling of the waste hierarchy, which are 1) waste reduction, 2) recycling and reuse, including composting, and 3) other approved technologies, including landfilling. Each county and city within the state must either have its own comprehensive planning area or must be a part of another, even if waste is going out of state. These planning areas are mandated to have a minimum 25% reduction of waste from a base year of 1988. Those that are not meeting at least a 25% reduction are subject to several ramifications, including paying an additional $1.10 per ton of waste they receive to the IDNR. Currently, there are 22 facilities in the State that fall under the 25% reduction goal. Another 11 facilities are above the 25% reduction goal but below the statewide average of 36%. There are 10 facilities that are above statewide average and one facility that is above 50%. However, the calculation is complicated and nebulous and does not take many factors into account. As a result of the complications with this calculation, legislation recently mandated an alternative evaluation of solid waste planning areas' success in waste reduction. A new pilot program will give opportunities to six solid waste planning areas to expand the scope of their programs. The pilot project is called the Environmental Management System Designation Program (EMS), established by the 2008 Legislature. The entities selected for this program are the Rathbun Area Solid Waste Commission, Cass County Environmental Control Agency, Metro Waste Authority, Cedar Rapids/Linn County Solid Waste Agency, Waste Commission of Scott County, and Dubuque Metropolitan Area Solid Waste Agency. With EMS, planning areas will be focused in order to improve the environment including: yard waste management, hazardous household waste collection, water quality improvement, greenhouse gas reduction, recycling services, and environmental education. Under the EMS Designation Program, a planning area will be evaluated by the progress of their services rather than exclusively by Iowa's other solid waste diversion goals. Initially, the areas of the six selected pilot projects will be challenged with increasing and improving programs offered in the six

noted areas. However, it is anticipated that after the pilot project additional planning areas within the state will follow suit.

iv. Economics

The key to successful reduction of waste and recycling is finding sustainable end-use manufactures who use the recovered material as raw material to create a new product. This was discussed above in section ii. Markets.

It is critical that recycling collectors, processors (traditional processors like Mid America or City Carton), secondary processors (who take a recyclable and add value to it such as glass enhancement or plastic flaking), have a strong long-term business plan. Great ideas without business plans beyond a grant period or initial loan period have difficulty sustaining business. With strong business plans the economics of the dynamics of recyclable markets vs. virgin markets will be seen. As in any business COST is the critical component to success. Recyclables are competing against virgin products to be used as raw materials in the manufacturing process. An example is container glass; it competes with the cost of SAND. With the energy savings recovered glass provides the bottle manufacture with (secondary processed glass containers) have a value. The value is significant enough to currently cover the collection and processing cost for recycling. With energy becoming an increasing cost to manufacturing, we will see the economics of recycling improve as manufacturers gain 50-90% in energy savings using recovered material and releasing the recoverable energy recyclables have stored from their original manufacturing process. Recyclables are an untapped source of energy and will be valued (paper, glass, and aluminum have already begun to show this value in pricing) for their energy savings vs. their greenness in disposal reduction.

The true value of recycling for any generating manufacturer is the cost savings they will gain from recycling/reducing their waste. If there is no value, be it hard dollars or intrinsic value/soft dollars, there is no incentive for the generating manufacturer to recycle. The business exists to make widgets so the cost of manufacturing vs. the sales price is what drives manufacturers' decisions. Recycling laws cannot give competitive advantages to out of state manufacturers by encumbering Iowa firms with special costs. An example of a law that did not interfere with competitiveness is the Iowa Deposit Law where all Distributors of carbonated beverages in Iowa and grocery stores were treated equally. (Both parties above feel they were placed at a competitive disadvantage but the reality is if you distribute or sell in Iowa you follow the same rules).Whereas a regulation relating to handling process water from manufacturing that is much stronger or costly than the national laws may discourage a manufacturer from locating in Iowa or remaining here so economic impacts need to be considered as rules and regulations are developed.

The true competitor of recycling is the landfill, as it is generally less expensive to throw away recyclables than to handle and prepare them for recycling. Going forward, higher costs of transportation, logistical loss of rail, and availability of sea containers will potentially make this a greater issue than it is today. Businesses like to say they are in business to make products not recycle; which is true in our country's economic model. Recycling must add value, be it lower disposal cost or a soft dollar return in consumer acceptance of a greener company/product vs. the lowest cost product.

v. Greenhouse Gas

How solid waste is managed has direct and indirect impacts on the production or mitigation of greenhouse gases. The disposal of solid waste produces greenhouse gas emissions in a number of ways. The anaerobic decomposition of waste in landfills produces methane, a greenhouse gas 21 times more potent than carbon dioxide. In addition, the transportation of waste to disposal sites produces greenhouse gas emissions from the combustion of the fuel used in the equipment. Finally, the disposal of materials indicates that they are being replaced by new products. This production often requires the use of fossil fuels to obtain raw materials and manufacture the items. Recycling materials reduces greenhouse gas

emissions. The US Environmental Protection Agency estimates that current national recycling efforts, 32 percent recycling in 2005, yield annual greenhouse gas emission reductions of 49.9 million metric tons of carbon equivalent (MTCE), compared to landfilling/combusting the same material. This is equivalent to removing over 39.6 million cars from the road. By recycling all of its office paper waste for one year, an office building of 7,000 workers could reduce greenhouse gas emissions by 546 MTCE, when compared to landfilling. This is the equivalent to taking nearly 400 cars off the road that year. If an average family of four were to recycle all of its mixed plastic waste, nearly 340 pounds of carbon equivalent emissions could be reduced each year. As the state develops greenhouse gas mitigation strategies the implications from solid waste management activities need to be considered and appropriately incorporated into the overall plan.

II. Existing programs (Enhancements and continuous improvement)

As previously noted, several industries were interviewed to determine the existing programs within the state. These industries include John Deere Des Moines Works in Ankeny, Iowa, Cardinal IG in Greenfield, Iowa, and Climax Molybdenum in Fort Madison, Iowa. In addition, an interview was also held with several representatives of the Homebuilders Association in Ankeny, Iowa. The results of those interviews in addition to several other programs are discussed below.

A. Industrial

Based on the interviews conducted, industry in the state is already active in the recycling arena. Several of the existing program case studies are noted below.

i. John Deere Des Moines Works

A tour was conducted of several of John Deere Des Moines Works buildings showing the manufacturing process. A John Deere representative provided the narrative during the tour explaining the activities as the tour progressed, what was being produced, and what the next step was. The main items generated at this plant are cotton pickers, when in demand, and high clearance sprayers.

Following the tour, discussion was led by a John Deere representative in regards to John Deere Des Moines Works recycling initiatives. The Des Moines Works formed a recycling team to look at operations and determine the high impact items that could be recycled or items that could be eliminated so less waste was generated. The initial effort impacted six waste streams and implementation of this program was very successful. Key points noted by the John Deere representative included:

-Segregating waste
-Ease of use on workers
-Provide audits and feedback to team leaders
-Results published
-Identifying champions of the recycling programs

The John Deere representative also indicated that John Deere Des Moines Works is in the process of looking for ways to reduce greenhouse gases. The task force committee asked if it was driven by economics or a desire for John Deere to be good citizens. The John Deere representative stated that John Deere does not want to just operate in compliance; they want to go to the right of green. The John Deere name has a lot of meaning in public and they want to promote a positive image, green, and in compliance. As such, John Deere conducts Category 4 audits of the vendors that deal with their waste and have asked suppliers to be partners in John Deere's initiatives. They have seen good results so far.

The current recycling programs seen throughout the facility were hitting the streams with a ready market that would make the biggest impact. There are, however, additional streams that could be targeted but they did not have known markets. The task force committee raised the question of what was hindering John Deere from doing more. The primary factor was economics. Besides economics, three other points were noted that affect recycling:

- Lack of information regarding available programs
- Status of Iowa's RCRA C approval.
- Lack of a vehicle to provide list of certified vendors.

Further information on each of these items is discussed below.

Lack of information has lead to one recycle stream in particular to not be processed. The knowledge of the task force committee determined that there was indeed potential for that stream. It was then discussed on how to best get that information out to industry in Iowa. The John Deere representative noted that his area of operations experienced frequent turnover, so all knowledge was not always passed on. The John Deere representative suggested an effort of letting industry know what is available for recycling programs on a three to four year cycle and not assuming that facilities know what programs are currently in operation.

The task force committee asked the John Deere representative if John Deere could quantify their waste reduction. The John Deere representative gave the example of the amount of hazardous waste that was reduced. However, he noted that due to regulations they were required to haul off hazardous waste that they could easily handle at their facility. He asked the task force committee if the state would consider becoming RCRA C approved. It was noted that Iowa is one of two states that are not approved to enforce hazardous waste rules. When stakeholders were asked, they stated they did not want Iowa to enforce those regulations. It was noted that Metro Waste Authority (the local planning authority) could send a representative to help John Deere with hazardous waste issues.

The task force committee asked the John Deere representative with the years of knowledge that he has what would he like to see the governor do to help. The John Deere representative noted that vendors with proven track records of reputable markets for less common items were a challenge. The task force committee suggested a vehicle to provide industry with a list of certified vendors. A certification by the IDNR was suggested with vendors being able to volunteer to participate. The task force committee noted that the Iowa Recycling Association (IRA) had discussed a program where companies could receive a green label. This could be done as a joint venture between IRA and the Iowa Society of Solid Waste Operations (ISOSWO) and be posted on the IDNR website.

The John Deere representative requested that the task force committee stay focused on economics to create sustainability. The task force committee asked that the John Deere representative discuss the recycling concept with the John Deere corporate and follow up with the task force committee on further ideas of how the committee can help to create sustainable recycling programs within industry.

ii. Cardinal IG

Cardinal Glass Industries is a management-owned S-Corporation leading the industry in the development of residential glass for windows and doors. They have grown to more than 5,500 employees located at 27 manufacturing locations around the United States.

Cardinal tries to maintain a clear vision: design and fabricate the most advanced residential glass products in the industry. The Greenfield, Iowa facility manufactures insulating glass.

Cardinal IG has done a great job of getting a superior waste reduction percentage but has currently hit the economic threshold. The cost of landfilling is cheaper than going to the next level of recovery. The capital involved to make improvements for the next step is significant enough to keep them looking to the landfill. Cardinal IG does recycle glass (windows go to their own company glass furnaces in Oklahoma or Wisconsin to re-melt). Metal scrap is recovered by a local business.

Waste generated at the Cardinal IG facility is approximately 200 tons per year, with the recycled material accounting for approximately 9,100 tons per year. Cardinal IG noted that of the 200 tons currently landfilled, 100 tons is a glass that is too large to safely handle in their glass recycling system as the system handles the standard window sizes. The oversize windows do not safely fit into the system. Cardinal IG would like to recover and recycle this glass and cut their current trash by another 50%, which would take additional capital and with current landfilling rates they do not feel it would be a good return on investment. Cardinal IG would also like to improve their efficiencies, potentially by adding one or two additional staff, in handling the recyclables better, as a significant percentage of the material is placed into the wrong collection container and thus goes to the landfill.

Cardinal IG felt a tax credit for hitting certain recycling goals would give them the incentive to spend capital on the next step of recycling versus using the landfill. The tax incentive would also help them update their truck fleet as they currently have to deliver the glass themselves to the Oklahoma and Wisconsin plants. If the market price stays low, freight prices climb and they would almost be forced to look at landfilling of glass as an economic alternative in the future if there is no incentive to invest in recycling.

Cardinal IG likes the idea of a state standard such as zero waste or something that can be measured easily and audited by the state. They also supported the green licensing of recycling vendors so they could easily see who is a viable vendor.

iii. Business Assistance Programs

a. **Iowa Waste Exchange**
The Iowa Waste Exchange (IWE), a program administered by IDNR, is one of the nation's premier materials exchange programs. There is a booming market for byproducts and wastes produced by Iowa institutions and businesses. Since 1990 the Iowa Waste Exchange has matched over 2.6 million tons, keeping waste out of landfills and into the economy, saving Iowans $59.6 million by diverting this waste into production and use. The IWE is designed to keep waste out of the landfills and in production. Many industry, business, and even local governments dispose of items others can use. The IWE representatives are available to help anyone who is looking for a specific item or has items they are willing to give away. The program is easily accessible through contacting the local IWE representative, utilizing the IWE database, and/or utilizing the “hot” list. The IWE maintains a database of available and wanted materials that is free to access. With over 13,000 materials listed in the IWE database, there is a chance they have what others need. The IWE also maintains a hot list where entities can look to find materials that are difficult to match, or are time sensitive. The list changes every month and currently has items such as labels, folding solid panel dividers, and porcelain sinks.

b. **IDNR Pollution Prevention Services**
The IDNR Pollution Prevention Services work with organizations to provide access to an assortment of waste reduction assistance, technology transfer opportunities, case studies, vendor lists, technical conferences and workshops, and waste exchange services. Clients include business and industry, institutions, government agencies with more than 100 employees, Resource Conservation & Recovery Act (RCRA) Large Quantity Generators, and Toxics Release Inventory (TRI) reporting facilities. Services provided include the following items:

- Initial consultation
- Plant-wide or focused assessments
- Project and program evaluation
- Pollution prevention program
- Environmental Management Systems development assistance
- Source reduction alternatives
- Educational workshops and training

- Pollution Prevention Intern Program

The Pollution Prevention (P2) Intern Program is an available program deserving particular note. Interns with the Iowa Pollution Prevention Program experience a unique partnership of academia, industry, and government all working together toward environmental and economic goals. The IDNR implemented the P2 Intern Program as a collaborative effort between government, business, and academia to develop cost-effective options for preventing or minimizing waste from industrial processes. Top Iowa students share their talent, hard work, and fresh perspectives with companies and institutions dedicated to environmental excellence. In return, the students gain valuable training from experts in their fields and hands-on professional experience. All Iowans benefit from the lasting environmental impacts this partnership creates.

Since 2001, the implementation of P2 Intern recommendations has saved over 1 billion gallons of water, 117,475 tons of solid waste, 1.17 million gallons of hazardous waste, 83,640 tons of special waste, and over 258.6 million kilowatt hours and 16.5 million therms of electricity. Companies have cumulatively saved over $58.6 million dollars by implementing these environmental improvements.

In 2009, 24 interns with the Pollution Prevention Intern Program implemented projects that improve the way Iowa businesses manufacture, consume, reuse, and recycle materials. Intern recommendations helped participating companies and facilities dramatically reduce solid and hazardous waste, conserve water, improve water quality, improve air quality, reduce energy usage, and reduce greenhouse gas emissions to the atmosphere. Projects implemented this year will save participating companies and institutions over $1.2 million dollars annually.

For 2009, the program offered two circuit rider projects; thermal imaging in industrial facilities and source reduction in hospitals. These projects offer the opportunity to assess energy conservation measures and targeted waste streams that are common to specific processes and industries.

Typically, after one week of training, interns spend 11 weeks at the host facility. In 2008, two interns with the program undertook 24-week projects, finishing in November. Twenty-four week projects allow an intern to collect data over time, and evaluate a system through varying conditions. These extended internships allow more opportunity for the intern to begin implementation of the projects they have recommended. The host company benefits by having continuous oversight of initial stages of the implementation, while the intern gains additional hands-on experience and is able to see the project through to fruition.

c. Iowa Waste Reduction Center

For over 20 years, the Iowa Waste Reduction Center (IWRC) has been providing expert environmental assistance to thousands of Iowa small businesses from all 99 counties. Services range from conducting an on-site review, assisting with environmental paperwork, or just answering questions. Specific services offered by the IWRC include on site review, Iowa Air Emissions Assistance Program, Spray Technique Analysis and Research for Defense, and IWRC Paint.

The core of the IWRC's free, confidential and non-regulatory service is the On Site Review (OSR) program. Through a tour of a facility, an IWRC specialist will be able to identify necessary information to obtain and maintain regulatory compliance, avoid penalties and fines, reduce material waste, and possibly save a business time and money.

The Iowa Air Emissions Assistance Program (IAEAP) assists Iowa small businesses with air emission regulations and permitting requirements. IAEAP experts are able to help throughout the entire process of determining the necessary paperwork to submitting the paperwork. The services provided are free, confidential and non-regulatory.

The Spray Technique Analysis and Research for Defense (STAR4D) training program meets the needs of military spray technicians and training instructors. The STAR4D painter training process is "hands on" training where spray technicians paint with new technologies and apply coatings that the painters use at their facilities.

IWRC Paint contains the products available for the painting and coatings industry including the LaserPaint and VirtualPaint. These are products have both proven to be beneficial in training by improving overall techniques and knowledge of spray application.

d. **Solid Waste Alternatives Program**

The Solid Waste Alternatives Program (SWAP) works to reduce the amount of solid waste generated and landfilled in Iowa. Through a competitive process, financial assistance is available for a variety of projects, including source reduction, recycling, and education.

The program provides financial assistance in the form of forgivable loans, zero interest loans, and 3 percent interest loans. A 50 percent cost share is required through cash match and in-kind match. Projects are selected through a quarterly competitive process. Emphasis for selected projects is placed on tonnage avoided or reduced, sustainability, and ability to replicate. Any unit of local government, public or private group or individual is eligible to apply for program funds. Funds can be used for such items as:

- Waste reduction equipment and installation
- Recycling, collection, processing, or hauling equipment (including installation)
- Development, printing and distribution of educational materials
- Planning and implementation of educational forums, workshops, etc.
- Purchase and installation of recycled content products
- Salaries directly related to implementation and operation of the project

Extra consideration is given to applications addressing large or hard-to-manage targeted waste streams. The current SWAP targeted waste streams include: Process or Supply Waste Reduction, Fiber Projects – New Diversion projects only, Plastics Projects – New Diversion projects only, Organic Waste – Industrial / Commercial / Institutional facility projects only, and Construction and Demolition (C&D) waste.

III. Opportunities and recommendations for new programs

Through the experience of the subgroup task force members and the information obtained in the site visits, several opportunities and recommendations for new programs within the industrial sector have been identified. These include economic incentives, redirection of a portion of environmental penalties from the AG office that currently go to the Household Hazardous Materials (HHM) program to the IDNR Business Assistance Programs, a marketing plan for education on current programs available, a recycling vendor green list, green certification for businesses, and a user fee for recovery and recycling of used materials.

IV. Recommendations (prioritize and narrow down)

A. Economic Incentives

i. Environmental impact
   a. Increase recycling rates in industrial facilities
   b. Extends life of current landfills by waste reduction
   c. Promotes waste reduction at the source
   d. Supports product stewardship principles

ii. Economics
   a. Infrastructure
      None
   b. Development and implementation costs

Legislative action required

c. Markets
The targeted recycled materials need to have existing sustainable markets.

d. Economic impact
Reducing of state tax receipts as it is being returned to industry as an incentive.

iii. Education and awareness
Legislative action will require publicizing incentive to industrial sector.

iv. Funding – how will we fund the program?
By redirecting tax receipts.

B. Existing Financial Incentive Programs

i. Environmental impact
Increase recycling rates in industrial facilities
Extends life of current landfills by waste reduction
Promotes waste reduction at the source
Supports product stewardship principles

ii. Economics

a. Infrastructure
None

b. Development and implementation costs
Programs need to be redirected to target industrial sectors waste management needs to promote waste reduction and recycling via infrastructure changes within industrial facilities.

c. Markets
The targeted recycled materials need to have existing sustainable markets.

d. Economic impact
Existing programs need to have sufficient funding to support initiative.

iii. Education and awareness
Program staff must in cooperation with industrial associations promote initiative to industrial customers. This may be done in a variety of ways including via industrial interaction, industrial newsletters, and conference attendance.

iv. Funding – how will we fund the program?
This effort would be funded through sustaining the existing programs resources.

C. Redirection of a Portion of Environmental Penalties from the AG Office that currently go to the HHM program to the IDNR Business Assistance Programs

i. Environmental impact
Increase recycling rates in industrial facilities
Extends life of current landfills by waste reduction
Promotes waste reduction at the source
Supports product stewardship principles
Multiple environmental benefits to air, water, soil, greenhouse gas, energy conservation, etc.

ii. Economics

a. Infrastructure
None

b. Development and implementation costs
Legislative action

c. Markets
Not applicable

d. Economic impact
The HHM program was established in 1987 and has developed into a network that covers 89 counties. This network serves Iowa households and businesses that are classified as Conditionally Exempt Small Quantity Generators of hazardous waste as a means for properly managing and disposing of hazardous materials. It is

recommended that a portion of the money received by IDNR pursuant to Code of Iowa Section 29C.8A be redirected from the mature and well established HHM program, without degradation of the current program, to address funding shortcomings in IDNR's waste reduction and minimization programs for Iowa Industries established in the solid waste account of the Groundwater Protection Fund. An example of what this legislation should look like can be provided by the IDNR upon request.

Cost savings obtained by successful implementation of the existing programs will help to sustain jobs, business viability, and resources. For example, since 2001, the implementation of Pollution Prevention Intern recommendations has saved over 1 billion gallons of water, 117,475 tons of solid waste, 1.17 million gallons of hazardous waste, 83,640 tons of special waste, and over 258.6 million kilowatt hours and 16.5 million therms of electricity. Companies have cumulatively saved over 58.6 million dollars by implementing these environmental improvements.

iii. Education and awareness
None

iv. Funding – how will we fund the program?
Redirection of current funds.

D. Marketing Plan for Education/Awareness of Current Programs through Trade Associations, etc.

i. Environmental impact
   a. Increase recycling rates in industrial facilities
   b. Extends life of current landfills by waste reduction
   c. Promotes waste reduction at the source
   d. Supports product stewardship principles
   e. Multiple environmental benefits to air, water, soil, greenhouse gas, energy conservation, etc.

ii. Economics
   a. Infrastructure
      None - existing
   b. Development and implementation costs
      Funding to secure additional resources (i.e. staff, publicity, travel) for increased outreach and delivery of programs to industrial sector within the State. This can be accomplished by shifting priorities and focus of existing programs and resources at IDNR.
   c. Markets
      The targeted recycled materials need to have existing sustainable markets.
   d. Economic impact
      Cost savings obtained by successful implementation of the existing programs will help to sustain jobs, business viability, and resources. For example, since 2001, the implementation of Pollution Prevention Intern recommendations has saved over 1 billion gallons of water, 117,475 tons of solid waste, 1.17 million gallons of hazardous waste, 83,640 tons of special waste, and over 258.6 million kilowatt hours and 16.5 million therms of electricity. Companies have cumulatively saved over 58.6 million dollars by implementing these environmental improvements.

iii. Education and awareness
Based on the subcommittee's research, awareness of education of industrial sector was lacking. Therefore, this is a very important area

iv. Funding – how will we fund the program?
By redirecting penalties. See recommendation. Or increasing current tonnage fees. Reassess current tonnage fee structure and its distribution.

E. Recycling Vendor Green List (partner between IDNR to set standards, and ISOSWO or IRA to maintain)

i. Environmental impact

a. Increase recycling rates in industrial facilities
b. Extends life of current landfills by waste reduction
c. Promotes waste reduction at the source
d. Electronic format therefore not creating additional paper waste

ii. Economics
a. Infrastructure
Electronic database

b. Development and implementation costs
Database development and ongoing maintenance, determination of qualifications criteria to achieve status on green list, ongoing verification of vendor certifications

c. Markets
The targeted recycled materials need to have existing sustainable markets. Vendors must have and utilize legitimate and viable markets.

d. Economic impact
Losses will not be incurred by industrial users of this list. Minimizes potential for losses to be incurred by industrial users because it ensures viability of vendors.

iii. Education and awareness
Publicity for initial roll out through various strategies to hit residential, commercial, institutional, and industrial sectors.

iv. Funding – how will we fund the program?
Initial development through SWAP grants. Ongoing development from sponsorships from certified vendors. Fee established for vendors to be certified and an annual renewal fee. Small user fee for industrial/commercial usage. Residential usage at no charge.

F. Green Certification for Businesses

i. Environmental impact
Increase recycling rates in industrial facilities
Extends life of current landfills by waste reduction
Promotes waste reduction at the source
Likely to meet and exceed compliance with environmental regulations
Multiple environmental benefits to air, water, soil, greenhouse gas, energy conservation, etc.

ii. Economics
a. Infrastructure
None
b. Development and implementation costs
Development of criteria for certification, ongoing verification of certification status, administration and maintenance of the list
c. Markets
The targeted recycled materials need to have existing sustainable markets.
d. Economic impact
Increased business for existing Iowa companies by customers who value/recognize distinction of the certification
Increase employment opportunities by drawing “Green” businesses to the State
An additional tool for the DED in attracting new businesses to the State of Iowa

iii. Education and awareness
DED promoting program
Publicity for initial roll out through various strategies targeting customers and Iowa businesses.

iv. Funding – how will we fund the program?

Initial development through SWAP grants or sponsorships by businesses that champion the Green label. Ongoing development from sponsorships from certified vendors. Fee established for vendors to be certified and an annual renewal fee.

Appendix E: Construction and Demolition Sector Notes

I. Current and Emerging Issues

The current and emerging issues facing construction and demolition in regards to recycling falls into three main categories. These categories include the division of new construction, renovation, and demolition, the generation of C&D waste, and the processing of C&D waste.

i. Division of New Construction, Renovation, Deconstruction, and Demolition

According to the United States Environmental Protection Agency (USEPA), C&D is a large and varied waste stream that includes concrete, asphalt, wood, gypsum, and asphalt shingles generated from the construction, renovation, and demolition of buildings, roads, bridges, and dams. (EPA-530-K-04-005). The reduction of C&D waste has several benefits, most of which involve saving resources, whether the resource is landfill capacity or natural resources in creating new materials.

It is important to recognize the differences of waste or potential recycling material from new construction, renovation, deconstruction, and demolition projects, as they hold different characteristics and require different handling procedures. Many of the items in these categories will overlap; however, they appear in the waste stream at different parts of the process. Understanding the differences allows for a successful management plan for jobsites where these materials can be collected.

Construction waste consists mainly of lumber and manufactured wood products, 35 percent; drywall, 15 percent; masonry materials, 12 percent; and cardboard 10 percent with the remainder being composed of a mix of roofing materials, metals, plaster, plastics, foam, insulation, textiles, glass and packaging according to the Nebraska Energy Office's Construction Waste Minimizations Methods factsheet.

Renovation projects will tend to generate appliances, masonry, doors, windows, shelving, cabinets, drywall, and porcelain. These materials are also typically found in deconstruction projects. Perhaps the most important distinction to make is that between deconstruction and demolition. According to Wikipedia, in the context of physical construction, deconstruction is the "selective dismantlement of building components, specifically for re-use, recycling, and waste management. It differs from demolition where a site is cleared of its building by the most expedient means and has also been defined as 'construction in reverse'". (Deconstruction (building)). Wikipedia goes on to state that buildings, like everything, have a life-cycle.

> "Deconstruction focuses on giving the materials within a building a new life once the building as a whole can no longer continue. When buildings reach the end of their useful life, they are typically demolished and hauled to landfills. Building implosions or 'wrecking-ball' style demolitions are relatively inexpensive and offer a quick method of clearing sites for new structures. On the other hand, these methods create substantial amounts of waste. Components within old buildings may still be valuable, sometimes more valuable than at the time the building was constructed. Deconstruction is a method of harvesting what is commonly considered "waste" and reclaiming it into useful building material (Deconstruction (building))."

ii. Generation

a. Education

Construction and demolition recycling and reuse in Iowa do not appear to be a well developed market with readily available programs and contractors. However, programs do exist. Trade associations such as Master Builders of Iowa are continually offering training and information on Green Building and certifications. Associated General Contractors of America provides information both on how to recycle materials generated at jobsites and how to use recycled materials for new construction. The IDNR has a portion of their website dedicated to C&D recycling information and a list of Iowa Construction and Demolition Management Resources. Included in the resources are a number of ReStores, where material from renovation and demolition projects can be taken

and resold – or purchased for other projects at lower costs. The programs available and advantages to recycling should be promoted to the builders and contractors throughout the State to further educate the stakeholders on the benefits of recycling and reuse.

b. Single Stream vs. Sorting

Curbside recycling is a common practice, both in metropolitan areas like Des Moines and rural areas throughout the State. News was recently made in Des Moines when they changed from a curbside sorting system to single stream where household recycling is now collected in a single cart, which is collected in to a single haul vehicle, and then sorted at a facility. A similar debate exists for recycling at construction sites. Is it more economical to collect all the recyclable/reusable material in one container and then to sort it at a processing facility or is it better to provide multiple containers at a site to have materials separated as they are generated? Interviews with the Homebuilders Association have pointed out several reasons they emphasize the need for single stream recycling. Among them are the cost of multiple containers and hauls, the limited space often found on jobsites, and the challenge in educating the workers at the job site to use and comply with the source separated bins.

c. Builder/Contractor Buy-In

The success of any program heavily relies on the buy-in of the stakeholders. In the realm of C&D recycling and reuse, builders and contractors are large stakeholders. From the interviews with the Homebuilders Association, these stakeholders have already experienced governmental mandates that have made their jobs difficult, if not impossible to perform. An example was given in terms of the National Pollutant Discharge Elimination System (NPDES) Stormwater Pollution Prevention Plans (SWPPPs). The Homebuilders Association stated that the IDNR mandated they follow these regulations and then left it to the cities to enforce them. The developer is required to provide the concrete washout. At one site, the developer did not comply, so each builder had to do a SWPPP, best management practices, etc. to meet the regulations. Due to space constraints at the site, room was not available for the areas required to meet the regulations. The contractors wee not sure what to do when city rules, in that case, made it impossible to pour concrete – with no place to put the waste. Increasing the recycling and reuse numbers within the State is a positive step but it must be done in a way that encourages and promotes builder/contractor buy-in and does not make it more difficult for them to do their jobs and earn a living.

d. Green Building/LEED Certifications

According to their website (*http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988*), LEED is an internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO_2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts. In this day and age, being “green” is a new way of life for many people who want to do their part in preserving and protecting the environment and natural resources. Review of the United States Green Building Council’s certified project list and registered project list shows a number of sites in the Des Moines area. Searches for other populated cities in Iowa also returned projects in Cedar Rapids, Dubuque, Ames, Council Bluffs, and Davenport. Smaller populations (Burlington, Greenfield, Carroll, and Ottumwa) did not have any returns under the registered project list. However, as the momentum gathers for the LEED certification, the presence of this program will increase throughout the State. The availability of valid programs to assist owners and contractors in the Materials and Resources division will be essential.

iii. Processing

a. Capital Costs

The start up costs and operation of a C&D processing facility are not insignificant. Typical facilities require plenty of space for sorting, processing, and storage of the materials as they are sorted, processed, and held for transport. Processing lines are mechanical or hand picked, and often a combination of both. Facilities also need to have some flexibility to handle new or changing markets. Investors and operators may be difficult to find with the troubled history of these facilities in Des Moines over the last ten years and the status of the markets, as discussed below.

b. Markets

As with any recycling program, a material can not be designated as recycled unless there is another viable end-use for the product. Markets were discussed above under the industrial sector. Materials generated in construction, renovation, and demolition are different from those generated in the industrial, commercial, and residential areas. These materials include lumber, manufactured wood products, drywall, masonry, cardboard, packaging, plastic, foam, insulation, concrete, shingles, and porcelain, just to name a few. Several of these materials have known markets within Iowa. However, a number of the markets are yet to be developed. The shingle recycling market will be discussed further in this paper. It is gradually becoming a success story in taking a material that was recently disposed of in the landfills and is now finding a beneficial recycling market. There is still much work to be done on markets for shingles and other materials to create viable sustainable markets within the State.

c. Leadership in Energy and Environmental Design (LEED) Points

Many owners, architects, and builders are looking to obtain LEED ratings for projects they are involved in. One of the areas that points are available in is Materials and Resources. Items such as building reuse, construction waste management, recycled content, and the use of regional materials add to the points available. When projects are obtaining points for these items, it is essential for the integrity of the LEED system that programs are actually meeting the intent of the certification. For example, multiple C&D processing facilities have been in place in the Des Moines area. Local builders have brought their waste to these facilities in order to achieve LEED points. However, due to several factors, the material has not been recycled or reused in a correct manner which has led projects to obtain LEED points when they should not have. It is essential when facilities are stating recycling and reuse for materials that this is happening and the materials are not ending up in a stock pile or buried for citizens to have to take care of once these unsuccessful businesses fold. It is vital that the correct processing methods are in place and that there is a valid end-use for their recycled material.

d. Fines

Fines are a byproduct that is generated when C&D waste is processed. There is generally not a strong end market for this material. Within the State, several facilities have attempted to use the fines as alternative daily cover (ADC) for landfills, which are required to place a six inch layer or another approved material on a daily basis over the exposed waste placed that day. Metro Waste Authority, in Des Moines, had set forth testing criteria for the fines to meet in order for them to be accepted as ADC. Otherwise, the material would be accepted as waste. The two C&D processing facilities in operation at that time were not able to meet the criteria to use the fines for ADC. Therefore, the material had to be disposed of, rather than used as ADC. This had a significant impact on the C&D processing facility's bottom line as disposal was a higher cost. In addition, an odor problem developed at the Metro Park East Landfill as a result of the ground gypsum board in the fines. When ground gypsum board is exposed to liquid, the chemical reaction releases hydrogen sulfide gas. Material being utilized as ADC is going to be stored outside and exposed to elements under most conditions. Therefore, the gypsum content in fines needs to be

taken into account when finding end uses. Facilities need to take in to account finding viable end markets for fines or plan for the disposal cost when deciding to operate.

II. Existing programs (Enhancements and continuous improvement)

i. Homebuilders Association

The task force subgroup met with several representatives from the Homebuilders Association. Based on the exchange, there are currently not many, if any, recycling programs being successfully utilized in the C&D arena in Des Moines. Several of the current programs and barriers are discussed below.

HBA representatives noted that if it costs extra, people will not do it. Add-ons to cost mean that things will not get done; for example, insulation on exterior garage walls only costs $20 but is not required so does not get done. Recycling and reuse at times may cost more than straight landfilling; therefore, through market development and creative ways (such as tax deductions for materials donated to ReStore shops), a profitable market must be developed to encourage stakeholder participation.

Another issue noted by HBA representatives was the space on job sites, previously noted. Often times there is not room for more than one dumpster, which does not allow room for source separating to occur. Expansion of current efforts would need to include a solution to where dumpsters can be placed in order to successfully collect single stream or source separated materials from job sites. Once the container issue is resolved, there is the issue of control of sorting on-site and the ongoing issue of weekend dumpster users.

HBA representatives noted that education is going to be key. There are no major players in the building industry so communicating information to many small entities is a necessity. This can be accomplished through industry trade organizations.

Task force representatives stated part of our recommendation is to create another task force to focus on C&D with more industry players in place.

ii. Iowa Department of Transportation Shingle Recycling Projects

Asphalt shingle recycling has made great strides in the last decade. Significant research has been done in multiple states and strong efforts are being put forth to share this information. The website shinglerecycling.org provides information on what each state is doing for these efforts, lists the states that allow a certain percentage of recycled asphalt shingles (RAS) to be used in hot mix asphalt (HMA) pavement, and provides information on the markets, economics, environmental regulations, worker health and safety, and current research that is being conducted. They recently held the 4th Annual Asphalt Shingle Recycling Forum which brought the technical updates to the stakeholders and allowed for networking among states that are already utilizing RAS and those that are progressing forward with doing so. The Iowa Department of Transportation (IDOT) was among those that attended this conference.

The IDOT is actively working on pilot projects, has drafted a Developmental Specification, and is working with the DNR on the environmental aspects of production and incorporation of shingles, as well as SWAP funding for industry development. The Developmental Specification will be available for select projects as early as January. For these select projects, 2-5% RAS will be required. RAS will come to the contractor as a certified product from an approved RAS supplier. The approval process will also be available within the next month. The IDOT currently has one demonstration project to date on an IDOT job. A total of 20,000 tons of HMA were placed on a shoulder with 5% RAS. The project was successful in terms of plant operations. They will continue to monitor the performance. They anticipate a project next summer with RAS and Warm Mix. The IDOT and the IDNR are also engaged in discussions with the Metro Waste Authority to ensure future directions are commensurate with the activities of waste

collection and reutilization of shingles as a viable and cost effective resource for incorporation in asphalt paving.

iii. Shingle Recycling at Solid Waste Agencies

The Waste Commission of Scott County and Metro Waste Authority in Des Moines are two solid waste agencies who have initiated shingles recycling programs in Iowa. The Waste Commission of Scott County has been recycling shingles since 2004. To date, a total of 7,100 tons of material have been diverted from the landfill and used in local hot mix asphalt projects, with 2,900 tons diverted in 2009. As noted by staff, the program to date has been done without a large amount of advertising. With the progress mentioned previously in regards to the IDOT using and promoting the use of shingles in HMA, the Waste Commission plans on increasing education efforts in order to divert a greater amount from the landfill. To date, the Waste Commission's RAS has been used in several demonstration projects including: sections of main roads in Davenport, the Davenport Compost facility, and the landfill's tire recycling pad.

Metro Waste Authority started a shingle recycling pilot project in October 2009 as a way to divert this C&D material from the Metro Park East Landfill, near Mitchellville, Iowa. Metro Waste Authority began collecting shingles on October 18 and collected over 300 tons before the grind in November. These 300 tons will make up 5% of the hot mix asphalt in roadways that Des Moines Asphalt and Paving pours for clients and communities throughout the metro area. Through the pilot project, MWA was able to evaluate the project's long-term feasibility. It proved workable, resulting in shingle recycling becoming a part of Metro Waste Authority's internal operations. MWA will continue to expand on this program in the future.

iv. Solid Waste Facility (Landfill and Transfer Station) C&D Recycling

Many solid waste facilities throughout the State partake in some form of C&D recycling. Many have an area for appliances to be stored so they can be demanufactured under the facility's permit or collected and taken to a facility permitted to perform demanufacturing prior to scraping the appliances for scrap metal. Concrete and scrap metal recycling areas are also common at facilities. Several planning areas go beyond those items. The Waste Commission of Scott County is one that does. They recycle low scale clean wood, non-ferrous and ferrous metal, corrugated cardboard, gently used building products, aggregate, and unders that are approved for alternative daily cover. Aggregates are typically handled by other facilities in the area due to the availability of an end-market on them. Staff noted that the work the IDOT was doing with the specifications for shingle recycling would increase the amount recycled. In order to further expand their program, they have noted that better market availability is necessary. For example, drywall must be dry, clean, and palletized and pays $8/ton. The material is not put as a waste product in a dry, clean, palletized manner and the return does not cover the cost of processing. Treated wood and carpet/textiles are other materials noted that required final markets.

v. Dubuque Metropolitan Area Solid Waste Agency's Green Vision Buildings Program

The Dubuque Metropolitan Area Solid Waste Agency's (DMASWA) Green Vision Buildings (GVB) Program is designed to assist construction and demolition professionals working in Dubuque and Delaware counties. The program offers building industry professionals guidelines, procedures, and worksheets for establishing reuse and recycling programs at project sites.

The GVB Enviro-Stars Honor Roll recognizes area individuals, businesses and organizations for their exceptional building project recycling, reuse, and diversion efforts. Award winning projects must divert at least 70% of the materials normally taken to the landfill.

Since 2003, 31 building and demolition projects have diverted more than 163,614 tons of material from the landfill, saving project participants more than $5,250,667 in avoided disposal fees. As a result, ten local businesses and organizations have been honored for their efforts to recycle materials and minimize waste at their building construction and demolition sites. These businesses and organizations have demonstrated a

commitment to protecting the environment by reducing, reusing, recycling, and otherwise diverting materials from the Dubuque Metro Landfill.

vi. Animal Rescue League Deconstruction/Demolition

Metro Waste Authority, in the beginning of 2009, identified the demolition of the Animal Recue League (ARL) as a potential deconstruction pilot project. Metro Waste Authority partnered with Metro Wrecking out of Des Moines, Iowa to develop a deconstruction plan to handle the materials that were in the facility and could be reused and/or recycled. The overall project lasted approximately three months and resulted in the recycling or salvaging of 807.6 tons of material. A total of 119.8 tons of material were landfilled, resulting in an 87.1% recycling/recovery rate. Materials recovered were reused in projects including Home Recycling Exchange, the Holistic Health LEED Project, Habitat for Humanity, and four residential building projects. This pilot project was performed in order to determine the recycling markets available and the cost associated with utilizing them.

vii. C&D Processing Facilities

Three C&D processing facilities have opened and operated for various times in the Des Moines market over the past ten years. To date two of the operations have failed, leaving behind hundreds of thousands of dollars of clean up costs. The third continues to operate, however, currently their operating permit has been rescinded which is being appealed by the operator. The operator is allowed to continue to operate until the appeal is completed. Lawsuits have arisen over the handling of C&D fines and questionable "beneficial use" for C&D fines. In addition, there have been permitting issues with large stockpiles of materials, materials that do not meet specifications and facilities that are challenged with finding end-markets and moving the material off-site within sufficient time frames. Research from other states demonstrates that there must be a market for the product produced from the C&D facilities in order to be successful and sustainable. The end-product can be achieved by source separating at the site which has been done for years by demolition contractors. The other option is to comingle the material on site and either separate at a recycling facility or blend some of the materials together by means of a grinding operation. Again success is determined by having a market place for the products produced, otherwise stockpiling and disposal off-site occurs, such as the case with 60,000 tons of material from one of the failed operators being stockpiled on a site in Bondurant which becomes problematic.

Material which has been successfully separated and marketed includes wood, metal, bricks, concrete, asphalt, cardboard and now shingles. All of the aforementioned have those willing to pay or take the material for free. Materials such as wall board can cause significant issues by producing hydrogen sulfide gas but if separated there is a future potential for a market. The most significant issue regarding source separation is the cost of labor involved with deconstructing for demolition and separating on-site for construction projects. Pilot programs for source separation have been implemented to see if there are ways to reduce the cost on-site. Construction and Demolition recycling can be successful with the level of recycling and reduction determined by end-markets and careful planning during design to reduce waste.

III. Opportunities and recommendations for new programs

Through the experience of the subgroup task force members and the information obtained in the site visits, several opportunities and recommendations for new programs within the C&D sector have been identified. These include a task force with multiple stakeholders to evaluate expansion/creation of programs, ensuring adequate financial assurance for C&D processing facilities, local ordinances that provide economic incentives for C&D recycling, state agencies supporting/promoting/utilizing recovered materials, increased shingles recycling, construction site source separated collection of materials, and legitimate beneficial use of C&D recovered/recycled materials.

A. Task Force with Multi-Stakeholders to Evaluate

i. Environmental impact

Developing and directing environmental impact of C&D for the future in the State

ii. Economics
   a. Infrastructure
      Legislative mandate to create a taskforce
      Development and implementation costs

   b. Markets
      Need to develop end markets for majority of recoverable materials in the State.
   c. Economic impact
      Potential to reduce a major solid waste stream
      Longer life on landfill capacity and transfer station equipment
      Decreased revenue to landfills and transfer stations

iii. Education and awareness
   Not applicable

iv. Funding – how will we fund the program?
   Similar to the recycling task force

B. Adequate Financial Assurance for C&D Processing Facilities

i. Environmental impact
   Proper financial support to fund closure costs of a no longer operating facility.
   Avoidance of a negative environmental impact from improperly or not fully closed facilities.

ii. Economics
   a. Infrastructure
      None needed
   b. Development and implementation costs
      Identifying the proper financial instrument and amount needed to adequately protect human health, safety, and environment.
   c. Markets
      Not applicable
   d. Economic impact
      Avoided use of public funding to clean up privately owned, improperly funded, and now defunct facilities.
      Additional burden on public and private entities required to fund closure of a facility that may not be needed for many years to come.

iii. Education and awareness
   Training of IDNR staff on sound technical evaluation methods of cost of proper closure of these facilities.

iv. Funding – how will we fund the program?
   Existing funding and staff.

C. Local Ordinances that Provide Economic Incentives for C&D Recycling

i. Environmental impact
   Increase recycling rates in renovation and demolition
   Extends life of current landfills by waste reduction
   Promotes waste reduction at the job site

ii. Economics
   a. Infrastructure
      At local level, environmental impact fees would be rebated at X% if project meets code criteria [Heather, fill in]
   b. Development and implementation costs
      Cost incurred by cities/county to develop ordinances
   c. Markets
      Not applicable
   d. Economic impact

More cost effective construction and demolition projects

iii. Education and awareness
Builders associations promoting to members

iv. Funding – how will we fund the program?
Builders association to develop model they would prefer to see

D. State Agencies Support/Promote/Utilize Recovered Materials

i. Environmental impact
Increase recycling rates in construction, renovation, and demolition
Extends life of current landfills by waste reduction
Promotes waste reduction
Reduced use of new materials

ii. Economics
a. Infrastructure
As new materials would be permitted for reuse, additional infrastructure may be needed
Pilot area where newly permitted material recycling collection would be tested at a construction project
b. Development and implementation costs
Unknown until materials are identified and background is known for what research has already been completed in or out of State.
c. Markets
The targeted recycled materials need to have existing sustainable markets.
d. Economic impact
More cost effective construction and demolition projects
Potential to reduce a solid waste stream
Longer life on landfill capacity and transfer station equipment
Decreased revenue to landfills and transfer stations

iii. Education and awareness
Builders associations promoting to members

iv. Funding – how will we fund the program?
To be determined with specific applications

E. Shingles Recycling

i. Environmental impact
Increase recycling rates in renovation and demolition
Extends life of current landfills by waste reduction
Promotes waste reduction at the job site
Reduced use of virgin aggregates and asphalt binder

ii. Economics
a. Infrastructure
Continued support of the program by State agencies
b. Development and implementation costs
Develop regional processing systems
Collection methodologies
Processing
Storage
c. Markets
Existing market for incorporation into recycled asphalt
d. Economic impact
Cost effective savings through recycling of old asphalt shingles into roadway
Potential to reduce a solid waste stream
Longer life on landfill capacity and transfer station equipment
Potential decreased revenue to landfills and transfer stations

Potential for landfills and transfer stations to diversify their business plan and handle shingles recycling programs

iii. Education and awareness
IDOT currently educates through industry conferences and specification updates

iv. Funding – how will we fund the program?
Collaborative efforts of the IDNR, IDOT, and Metro Waste Authority with available resources
Targeted SWAP loans
Self funding due to end product having a value as recyclable product

F. Construction Site Source Separated Collection of Materials

i. Environmental impact
Increase recycling rates in construction, renovation, and demolition
Extends life of current landfills by waste reduction
Promotes waste reduction at the job site

ii. Economics
a. Infrastructure
Pilot area where source separated recycling collection would be tested at a construction project
b. Development and implementation costs
Targeted SWAP grant
c. Markets
The targeted recycled materials need to have existing sustainable markets.
d. Economic impact
Potential for revenue source for contractors if feasible amounts generated
Potential for addition of privately or publicly operated collection/processing/distribution facilities.
Potential cost reduction in construction costs due to less waste generation.

iii. Education and awareness
Builders associations promoting to members

iv. Funding – how will we fund the program?
Pilot through SWAP, if successful develop in to business model for private/government (landfills) partnerships

G. Legitimate Beneficial Use of C&D Recovered/Recycled Materials

i. Environmental impact
Increase recycling rates in construction, renovation, and demolition
Extends life of current landfills by landfill diversion
Promotes waste reduction
Reduced use of new materials
Avoidance of negative environmental impacts from improper disposal of C&D materials under the guise of beneficial use.

ii. Economics
a. Infrastructure
Not applicable
b. Development and implementation costs
Legislative action that provides more clarity and stronger definitions of beneficial use of C&D and other solid waste.
c. Markets
Not applicable
d. Economic impact
Avoidance of cleanup costs associated with negative environmental impacts from improper disposal of C&D materials under the guise of beneficial use.

iii. Education and awareness

Clear authority for the IDNR to enforce and educate industry of the regulations.

iv. Funding – how will we fund the program?
Existing funding and staff.

IV. Are our recommendations sustainable? How?
See Section III above for details on sustainability.

Reference Websites

Deconstruction (building). (2009, October 14). In *Wikipedia, The Free Encyclopedia*. Retrieved 16:05, December 7, 2009, from ***http://en.wikipedia.org/w/index.php?title=Deconstruction_(building)&oldid=319907189***

"Construction Waste Minimization Methods" Nebraska Construction Waste Minimization Methods. Nebraska Energy Office. http://www.neo.ne.gov/home_const/factsheets/const_waste_min.htm

Wirsen, Gregory. (2005, May 1). A fines idea: C *The Free Library*. (2005). Retrieved December 06, 2009 from ***http://www.thefreelibrary.com/A fines idea: C&D fines prove to be a product with a learning...-a0132746453***

"RCRA In Focus Construction, Demolition, and Renovation." United States Environmental Protection Agency, Solid Waste and Emergency Response (5305W) EPA-530-K-04-005 September 2004 www.epa.gov/osw ***http://www.epa.gov/epawaste/inforesources/pubs/infocus/rif-c&d.pdf***

http://yosemite.epa.gov/r10/owcm.nsf/ea6b351e337b08a288256b5800612787/f46654a9195893d188256e9300604ba2!OpenDocument

Appendix F: Institutional Sector Notes

The Institutional Sub-Committee reviewed and researched recycling programs in the following institutions: Local, state, and federal government buildings; K-12 schools; Community colleges; Public & private four-year colleges and universities; Hospitals; Nursing homes; and Prisons.

Current and Emerging Issues: Awareness of waste reduction, reuse, and recycling programs. Information and Education were identified as primary challenges by the institutions that were interviewed and surveyed by the Sub-Committee members.

Straightforward Recycling Programs: The Institutional Sub-Committee sent a Recycling Survey to 1,952 Iowa Institutions. 544 Institutions responded to the survey for a response rate of 27.9%. The Institutional Sub-Committee analyzed the responses and reported these results:

5. 91% of these institutions have a recycling program, and 9% of these institutions do not have a recycling program.
6. The highest percentage of materials collected and recycled at the institutions are: white paper 91%; cardboard 88%; other paper 77%; redeemable glass, plastic, and aluminum beverage containers 65%; tin food cans 56%.
7. The lowest percentage of materials collected and recycled at the institutions are: shrink wrap 4%; radios 7%; sharps 19%; computers/TVs 30%; non-redeemable glass beverage/food containers 41%; non-redeemable plastic beverage/food containers 48%.
8. Based upon the responses to the survey, institutions with recycling programs reported the real or perceived challenge awareness and education. Forty-four percent of responses indicated an interest in learning more about recycling programs available for their facilities. These institutions provided contact information for follow-up.

Opportunities and Recommendations for New Programs:

Activities recognized that need to be enhanced.

1. It is recommended that a Resource Management Certification Continuing Education Program be developed in partnership with the Iowa Society of Solid Waste Operators and Iowa Community Colleges for Institutional Resource Managers. Industrial and Commercial Resource Managers may perhaps be included in this program. For institutions that do not participate in a Recycling program, it is recommended that an Iowa Green Certification Program be developed with similar partners as the Continuing Education Program as well as the Iowa Recycling Association.
2. It is recommended that all public institutions and governmental agencies develop a “lead by example” “Green” initiative that makes Iowa a national leader in waste reduction, reuse, and recycling. State institutions may refer to Iowa Executive Order #6, February 6, 2008, for guidance on how to implement the initiative and measure its success, whereas government agencies lead by example. By conserving resources and reducing greenhouse gas emissions and be green.

Priority Recommendation:

The purpose of the programs are to encourage institutions to develop sustainable waste reduction, reuse, and recycling programs and to provide a framework for continuous improvement and communicating program results, both internally and externally.

Environmental Impact: These programs will help to reduce the amount of recyclable materials landfilled by increasing and enhancing waste reduction, reuse, and recycling programs at Iowa’s institutions. Green certification means that an institution meets minimum requirements or standards in the waste reduction, reuse, and recycling program areas. Other areas such as water and waste water management, energy management and conservation could be added to the green certification requirements, as noted in Iowa’s Executive Order #6.

Economics: Infrastructure: The programs can be implemented using existing partnerships with Iowa Department of Natural Resources, Iowa Society of Solid Waste Operators, Iowa Community Colleges, Iowa Recycling Association, and institutional associations. These groups will determine the development and implementation of the programs what will include but not be limited to: Best Practices; Iowa Programs, Resources, and Funding; Food Waste Composting and New Recycling Technologies; Product Stewardship. Existing markets would be utilized as much as possible. New markets would be identified as Best Practices and challenged further. The economic impact is to be determined.

Education and Awareness: The programs will require extensive education, awareness, and outreach activities to ensure success. Cooperative educational efforts among the partners and web site information will be utilized and continuously updated.
Funding: Institutions working with the established infrastructure shall access all existing financial resources to finance the education and awareness. A Solid Waste Alternative Program (SWAP) may assist with the development and implementation of both programs. Once developed, the programs could be sustained by certification fees paid by the institutions receiving certification.

We believe that the programs are sustainable with existing partner commitments to the development and implementation of the programs. These recommendations contribute to a comprehensive approach to recycling due to the strategic planning component that these programs provide to Institutions. Implementing the programs enables an institution to create, enhance, and continuously improve its waste reduction, reuse, and recycling programs and reduce greenhouse gas emissions from these activities, as ordered by Governor Culver in February 2008.

Refer to State of Iowa Executive Order #6

The following emerging issues will be included in the Resource Management Certification Continuing Education Program:

1. Food Waste
2. Funding a recycling program
3. Connecting existing Institutions that recycle that wish to do more
4. Product Stewardship

Groups identified by the Institutional Report that may assist Institutions with establishing a comprehensive recycling program:

1. ***http://www.iowarecycles.org***
2. ***http://www.isoswo.org***
3. ***www.iowadnr.com/waste/iwe.html***
4. ***www.iowadnr.gov/waste/p2.html***
5. ***http://www.keepiowabeautiful.com***
6. ***http://www.KeepAmericaBeautiful.com***
7. ***http://www.crra.com/zerowaste/funding/composting.htm***
8. ***http://www.uiowa.edu/printmail/intoprint/08/IP08-1.pdf***
9. ***http://www.registrar.uiowa.edu/registrar/catalog/universitycollege/sustainability/***
10. ***http://www.uiowa.edu/~purchase/purchase/For%20Faculty_Staff/energysave.html***
11. ***http://www.uiowa.edu/hr/wellness/green/index.html***

Development and Implementation Costs:

Estimated cost of the development and implementation of the Iowa Green Certification Program for institutions is $7,500. Cost includes the development of minimum standards for certification, application, education and outreach.
Minimum Standards include: Baseline Assessment to measure current and continuous improvement; Program Goals and Action Plan; Communication Plan to provide progress report to your organization and to the Green Certification Administrative Organization; Employ a Certified or Trained Resource Manager to lead the program.

Estimated cost of the development of the 16-hour Resource Management Certification Continuing Education Program is $5800. Program Areas Include: Best Practices; Iowa Programs, Resources, and Funding; Food Waste Composting and New Recycling Technologies; Product Stewardship. Estimated cost of teaching the 16-hour class is $1200.

Recycling Survey Results Institutional Sub-Committee

November 12, 2009

Iowa Comprehensive Recycling Task Force

House File 826

Institutional Sub-Committee

- Sara Nielsen
- State Representative Donovan Olson
- Lorie Townsend
- Margo Underwood
- Lynn Walding
- Inky Westfall

Recycling Survey

- Seven Questions
- Sent to 1,952 institutions
- 544 Institutions Responded
- Survey Response Rate: 27.9%

Institutions Surveyed

- City, County, State, Federal Government
- K-12 School Districts
- Community Colleges
- Public 4-year Colleges/Universities
- Private 4-year Colleges/Universities
- Hospitals
- Nursing Homes
- Prisons

Survey Results Snapshot

- Do you have a recycling program?
  Yes – 91%
  No - 9%

Survey Results Snapshot

- If yes, what materials do you collect and recycle?
  white paper – 91%
  cardboard - 88%
  other paper - 77%
  redeemable glass, plastic, alum. – 65%
  tin food cans – 56%
  non-redeemable plastic food/beverage - 48%
  non-redeemable glass food/beverage – 41%

Survey Results Snapshot

- Materials Recycled - continued
  Computers, TVs – 30%
  Sharps – 19%
  Radios – 7%
  Shrink Wrap – 4%

Survey Results Snapshot

- What things do you do well in your current recycling program?
  Provide easy/convenient program- 80%
  Provide adequate recycle containers- 76%
  Employees realize positive impact – 40%
  Educate employees – 30%

Survey Results Snapshot

- Do you have any challenges with your current recycling program?
  - We do not have any challenges – 49%
  - Hauler does not accept all recycled materials - 25%
  - Lack of recycling markets – 21%
  - Lack of adequate recycling containers- 17%
  - Employees do not understand program – 13%

Survey Results Snapshot

- If you do not have a recycling program, what are the barriers to establish a program?
  - Cost to recycle – 55%
  - Recycling program not available – 34%
  - Lack of recycling information – 24%
  - Do not know who to contact – 17%

Survey Results Snapshot

- Are you interested in learning more about recycling programs available for your facilities?
  - Yes – 44 %
  - No – 56%
  - 213 institutions provided contact information to receive more information

Appendix G: Residential Sector Notes

I. Situation Analysis

The 2008 Iowa Legislative Session House File 826 called for the creation of a comprehensive recycling planning task force to make recommendations for creating and enhancing comprehensive sustainable recycling programs in the state of Iowa.

The **Residential/Consumer Category** is defined as waste generated in single and multiple-family homes; includes apartments and condos.

The Residential/Consumer Subcommittee was charged with creating a plan that would enhance and grow sustainable recycling programs in the residential/consumer sector using the following criteria:

a. Environmental Impact
b. Economics
    1. Infrastructure
    2. Development and implementation costs
    3. Markets
    4. Economic impact
c. Education and awareness
d. Funding recommendations

II. Current and Emerging Issues

The Subcommittee discussed the current state of existing residential and multi-family recycling programs to identify problems associated with consumer awareness, access to recycling, types of waste, and a consumer attitudinal shift from waste management to resource management. Rather than focus on why to recycle, the Subcommittee believes we need to make recycling more personal. It's not about adding complications to daily living; it's about showing people how easily recycling can become a habit.

The State and respective planning areas have made significant effort over the last decade to address residential recycling designed to make household recycling convenient and accessible including curbside recycling in largely urban areas and recycling and redemption centers across the state. The subcommittee determined that existing programs in both urban and rural areas are adequate, accessible and have existing infrastructure to support increased recycling. However, more needs to be done to build consumer awareness to the plethora of programs, services and recycling opportunities available to them.

Recommendations

1. **Create a Statewide Recycling Public Education Campaign**. There are a number of recycling programs and services available across the state of Iowa today. However, it is the consensus view of this Subcommittee that many of these services remain largely unknown to the general population including consumers with a strong conservation ethic. The Subcommittee determined that improved residential recycling can be achieved through a statewide education/marketing campaign to:

    - Tap the Iowa environmental ethic to generate a cultural shift from waste management to resource management: recycling is a personal responsibility.
    - Educate consumers about the principles of product stewardship and the health and environmental impacts.
    - Raise national awareness to Iowa's environmental ethic and "brand" Iowa has a sustainable state with a strong environmental ethic.

- Raise public awareness to the importance of recycling and waste reduction and the environmental, energy, natural resource and economic benefits to the public, the business community and legislative bodies.
- Educate consumers on the recycling programs and services available across the state.
- Educate consumers about the types of materials that can be recycled including yard, food or other organic waste, electronic, appliances, tires, batteries and household hazardous materials).
- Encourage the purchase of recycled, durable and less toxic goods
- Educate consumers in the benefits of, and proper techniques for recycling.
- Educate K-12 children about the benefits of recycling.

The Campaign should include, but is not limited to the following elements:

- Development of tagline (Examples: Recycle! It's not garbage anymore, "Why waste a good thing" Seattle, WA) and key messages:
    - Thank Iowans for recycling
    - Showcase what their recyclables are made into
- Showcase product stewardship and lifecycle impacts.
    - Educate consumers about point of purchase
    - Educate on shared responsibilities (manufacturer, consumer, etc.)
- Direct people to statewide recycling website for recycling resources and consumer tips.

- Publicity blitz that includes advertising on radio stations, in neighborhood newspapers and business publications, newsletters to planning area customers and direct mail targeted to apartment managers and business owners that offers resources to help their tenants start recycling. Information stations would be set up at major events across the state including, but not limited to the Iowa State Fair, Des Moines Arts Festival, music festivals, cultural diversity events (special populations), home shows, sporting events, etc.

The recommended budget for this campaign is $400,000 for development and implementation. Additional funds for long-term ongoing public outreach will be necessary.

Implementation will require approximately $400,000 with possible funding sources to include: SWAP, RCC, IDNR, Farm Bureau, USDA, federal stimulus monies, DOE, tipping fee, gambling monies or grants, private sector, community foundations, economic development agencies or other grant programs.

Measurement would be achieved by:

- Setting annual recycling goals and targets
- Monitor progress
- Audit recycling service requests and garbage disposal tonnage
- Annual reporting
- Continuous Improvement
- Statewide recycling website web analytics

2. **Develop a Statewide Recycling Website**. The Subcommittee supports the development of a statewide recycling website that would become the recycling resource for all Iowans. The website would be administered by the Iowa Recycling Association. And used as a marketing and recruitment tool for the State of Iowa. This website will:

- Complement and reinforce the Statewide Public Education Campaign.
- Connect people with recycle services. (Outreach to local governments, nonprofits, Chambers of Commerce and others to link local websites to statewide website.
- Provide information and technical support to help consumers, business and governments to reduce waste, recycle and buy recycled products.

- Reduce waste through consumer purchasing decisions – pre-cycling.
- Promote pollution prevention and the efficient use of resources.
- Offers incentives for recycling – an awards program or annual recognition program.

The recommended budget is $100,000 for development and implementation. Additional funds for long-term ongoing public outreach will be necessary. Implementation and funding could include: SWAP, RCC, private sector grants, USDA, federal stimulus monies, tipping fee, state economic development monies, gambling monies or grants, community development monies, private sector, city Curb-It! Revenues, or other grant programs.

Measurement would be achieved by:

- Web analytics
- Online surveys
- Annual reporting
- continuous Improvement

1. **Iowa Beverage Container Deposit Law** - The Subcommittee discussed at length the **existing bottle bill (IBCDL)**; the challenges for distributors, grocery stores and redemption centers and what if any recommendations could be developed to address them and achieve the desired recycling goals. Views on the bottle bill were diverse and no consensus was reached on any of the following issues and opinions that were presented by various subcommittee members and discussed:

    a. Focus resources holistically to reduce, reuse and recycle and not limit our efforts to a small portion of the waste stream.
    b. The penny handling fee is no longer sufficient to cover associated costs for redemption centers, forcing centers to close and subsequently reducing access for many customers wanting to recycle.
    c. The bottle bill works with a high percent success rate.
    d. Expand the bottle bill to include all ready to drink packaged beverages except dairy and raw cider.
    e. Direct unclaimed deposits to a State environmental fund to be used for statewide recycling programs.
    f. The bottle bill is onerous to grocery stores because they serve as redemption centers.
    g. Retail and distribution centers should be removed entirely from redemption. All recyclables and related recycling materials should be placed together, preferably in the existing curbside bin program available to a large percentage
    h. Return 4 cents of the nickel deposit to the consumer and give the remaining one cent to the redemption centers as a means to increase their funding.

The only point upon which there seemed to be some agreement was a suggestion to remove cans and bottles redemption from grocery stores, but only if there is a viable alternative that maintains or improves the current redemption rate of return.

2. Other recommendations that did not garner consensus support:

    a. Increase the handling fee to spur opening of additional redemption centers and entrepreneurship across the state. Conduct pilot program to determine effectiveness of the Iowa bottle bill. The legislature would exempt for a period of one year one Solid Waste Planning area in the state of Iowa from the bottle bill. Cans and bottles would be recycled through curbside recycling programs, redemption centers and other recycling processes currently in place. The purpose of the pilot would be to quantify the rate of recycling with and/or without the bottle bill.