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Components of a Successful System

The options and methods available to improve recycling programs can make for a very long list. Determining which initiatives are beneficial to a community can take a significant amount of time to look into. Understanding that many municipalities have a limited amount available, a series of white papers have been developed to summarize lessons learned, best practices, and steps to increase efficiency in recycling programs.

These papers are based on some of the most talked-about topics in solid waste programs today. The goal of these papers is to enable communities to take the next steps in evaluating and implementing proven solutions that provide results. These solutions are intended to be integrated with current programs to build off of the platforms that currently exist.

Each paper can be considered a separate building block required for a successful recycling infrastructure. As a result, the more practices that are integrated together, the stronger the overall infrastructure becomes; a stronger infrastructure provides a more significant return on investment, which has a positive effect on the economy, the community, and the environment.

The topics addressed in these papers highlight key components important in any municipal recycling infrastructure. The topics are provided in the list below under the main category they fall under. Since many of these papers overlap in categories, each paper is highlighted by icons indicating the sub-categories they address. This provides a convenient visual reference to identify how key components apply in different scenarios and options; it also highlights how integrated these components are in any successful system.

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$ Economics

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⚖ Policy

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Core steps can be taken to address emerging issues, implement successful programs, and communicate goals. The specific solution to address each community's recycling program will vary based on unique circumstances. However, regardless of the circumstances, these papers help inform the reader on pertinent background information and criteria to further discussions that will ultimately progress a municipality's recycling infrastructure. This toolkit keeps provides programs that run efficiently and maximize returns without the risk of implementing unfunded mandates or unproven practices. What is provided in these white papers are the tried and true solutions to make recycling systems successful on all levels.

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Essential Updates and Techniques for Successful Solid Waste Plans

Most government organizations require a solid waste plan at one level or another. Some plans are developed for an entire state, while others plans are developed for each community, as a state-mandate. Where there are no mandates, many communities have voluntarily developed and implemented their own plans. These plans can take the form of Solid Waste Plans, Integrated Waste Management Plans, or Zero Waste Plans. While the names may differ, the intent is the same. These plans provide an overall assessment of a solid waste system, and they detail how to achieve key goals such as waste reduction, increased efficiency, and minimized environmental impacts.

A solid waste plan is the main document local governments use in develop a strong recycling. Often times, plans are developed over the span of months and years, only to collect dust after adoption. These plans have the potential to be useful, living, breathing documents that continuously strengthen, realign, and reinforce a solid waste system. It only requires a few key steps to keep these documents relevant. These steps can help save a great deal of time and money when it comes time to update plans, which tends to range between 5-10 years.

goals
schedule
input
track
update
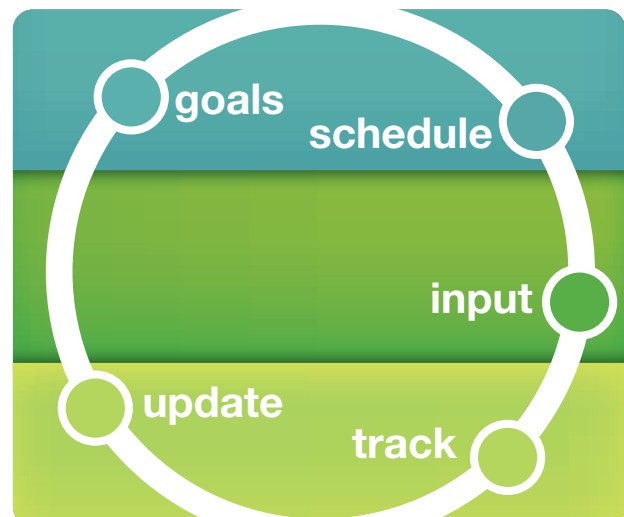
Solid waste plans also provide a public document for the community to understand the efforts that are taking place within a local jurisdiction. They are a means for goals and progress to be tracked and monitored. This can be critical when the need for data arises, saving a local government an incredible amount of time and effort and offering a way to document important information within a municipality.

These following tips, when used together, can create a dynamic and continuously relevant solid waste plan that helps optimize recycling programs.

1 ESTABLISH ACHIEVABLE GOALS

Goals guide the path of a successful recycling program. When developing goals, and the milestones to get to those goals, it's important to make sure they are attainable. A solid waste plan that makes goals too difficult to achieve can discourage the process and the progress. At the same time, a solid waste plan that sets goals too low, may not be taken seriously. Meeting achievable goals shows stakeholders (i.e. government officials, residents, businesses, etc.) that progress is being made to get to the goal, which helps strengthen support for funding recycling programs.

To establish realistic goals, it's essential to determine how effective a municipality's current programs are; what feasible programs or improvements can be made; and the necessary steps to get to the goal. It's important to constantly ask if the programs support the goal and if the path to get there is practical. Goals can consist of setting recycling rates that increase incrementally over the span of 10-20 years by adding more items in a recycling program, or they can include having an outreach program that reaches a certain percentage of the community. Some communities have set up zero waste goals, which typically aim to recycle 90-95% of the materials generated. These types of goals help drive the programs and actions of the community.

2 SET A SCHEDULE

It's hard to achieve a goal when the timeline is undefined. Developing a timeline gives the community a schedule to work towards, which creates more progress. These timelines communicate a great deal to the public. They let the community know what issues the local government is addressing and when the milestones or goals will be achieved, which helps engage the public more. The more specific the timeline, the easier it can be to determine what the next steps should be to meet the goals. They also set an expectation within a local government that helps hold the system and the people that support it accountable. Solid waste plans require buy-in at all levels; as a result, everyone should know their role and the expectations set forth for these goals to be achieved.

3 SEEK PUBLIC INPUT

Public feedback can build a solid waste plan's credibility. After all, the solid waste plan is designed to define a recycling system that serves the community as efficiently as possible, so it's important that the goals and the programs developed reflect their priorities. Public input can take the form of surveys, public meetings, local meetings with key business associations and neighborhood councils, and other forms of two-way communication, like social media. Meetings can take place multiple times throughout the year to engage the public on the progress made and the next steps.

Continuously seeking public input throughout the solid waste plan development phase and update period ensures people have multiple opportunities to provide input. It is also a good opportunity to remind the community about the goals and efforts surrounding the solid waste plan to clear up any misconceptions.

4 TRACK PROGRESS

Tracking the plan's performance compared to its goals and target milestones requires regular assessments of the programs after implementation. Helpful questions to ask include:

- How are the programs performing?

- What were the issues that came up?

- How can programs improve?

- Are modifications required?

These questions can help evaluate the performance of a program so areas of improvement can be identified. Another way to evaluate and track the progress of a plan is to provide regular metrics that help monitor the participation, recovery, and/or cost. Examples of metrics include the volume of materials collected in an expanded recycling program or the additional revenue generated by recycling more items. The results can be reported as a general update to the public (press release, articles, etc.) or as a report card that rates the plan by key categories (recycling, education and outreach, hazardous waste collection). These indicators of progress are an important tool for those working directly on the plan to understand what worked well and what can be improved. Tracking and publishing results provides a level of transparency that keeps stakeholders informed on how well the program is doing and what steps are being taken to maintain the programs they value.

As goals are met and as the environment changes, it's important to keep plans up to date. This makes a plan as a living document that is always up to date. This can save a great deal of time when it comes to update the plan in the future. Also, as programs are implemented, the details of it may change or shift; it's reasonable for plans to reflect these changes and then be modified accordingly. Even simply including notes in the plan as to what changed can be a good way to track the milestones made within each program. This is also an effective method of collecting best practices to help shape future other programs.

It's important to modify the programs and plan as necessary to meet the goals, but any changes to the goals themselves need to be vetted with the local government to obtain approval. Constantly updating goals is typically discouraged to avoid confusion and to maintain credibility with stakeholders. This is another reason setting achievable goals up front is important – it also reduces the likelihood that goals may change in the future.

CONCLUSION

Recycling programs are dynamic. Whether it's new materials being added to recycling programs, adjustments made to processing capabilities, or growth in population, it's important for a plan to be flexible and pertinent. It may seem, easier to develop a plan and forget about it for a period of time, updating it only when required (typically 5-10 years). However, that can end up taking more time as information, data, and results have to be compiled and updated over a longer period of time. The time spent developing a plan is an investment into strengthening a recycling program and this investement should be maximized by keeping the plan as relevant and accurate as possible.

Solid waste plans provide a comprehensive assessment and a guide to reach recycling goals. Programs can use their solid waste plans as a set of guiding principles to point back to when questions arise and when details are needed. They also offer a centralized source to review programs and determine the next steps needed in improving a recycling program. Incorporating these five easy steps when maintaining a plan can help save time and money in the future, while advancing progress towards reaching recycling goals and rewards.

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Updating Recycling Contracts for Maximum Benefits

What do you want in your ideal home? Ask anyone this question and they will quickly list their key features. Ask that same question in 5-10 years and the answer is likely change, as the needs have changed. What happens when the needs change? Typically, renovations are made to existing homes or a new home is invested in that meet the updated requirements.

Solid waste and recycling contracts are no different. It's reasonable that the needs of a program change as costs increase, technology advances, and as programs expand. In order to adapt to these variables, it's important to maintain waste and recycling contracts that are up to date and fulfill a community's needs. Regardless of the length of a contract (short term contracts are typically 2-5 years and long term contracts are 15-20 years), it's important to review the entire scope of services when a contract nears expiration instead of renewing it automatically. Note that most long-term municipal contracts, and contracts that exceed a specified cost, are required to be competitively bid through a request for proposal (RFP) process.

Contract Goals:

✓ Acquire services at competitive **rates**

✓ Create performance and service **standards**

✓ Document **legal agreements**

✓ Establish services with **local** experts and local resources

✓ Create an **opportunity** for new services

Recycling contract renewals are an advantageous time to re-assess the collection efficiencies, materials collected, and processing capabilities offered by private companies within a recycling program.

It's easy to simply rollover contracts as they expire, if renewal terms were included in the agreement. It's also convenient to use existing language to procure new or maintain the same service providers. However, contract renewals for private services are an advantageous time to re-assess current programs and services to ensure they still meet a community's needs.

It's essential to review the program requirements to verify the best service for the lowest price possible is procured, especially as requirements and programs may have changed over the years. Developing a thorough procurement document and draft contract takes time. However, the benefits it can offer and the risks it can potentially avoid are well worth the investment. Key steps to consider when renewing a contract are provided to ensure thorough contracts are established.

1 WHAT SERVICES ARE PROVIDED?
Baseline Evaluation of Current Programs

Receiving outstanding service is about a provider's ability to meet program goals. As a result, revisiting program goals during contract renewal is important to evaluate performance and to determine necessary updates. Evaluating the status of current programs, services, and infrastructure against the goals established will help highlight any areas that need improvement. This review will also help determine what changes would best to complement and expand a recycling program.

Questions to Consider:

• What services/programs are performing well?

• What are the current recovery rates?

• What services can help reach recycling goals?

Materials need to be collected efficiently and handled properly through the length of the contract. Many variables come into play, including method of collection, frequency of collection, materials included, recovery rates, revenue from the sale of those materials, and education outreach to the community. Evaluating a program's needs, goals, and capabilities on a regular basis makes contracts easier to update, when the time comes. Adding details to of what's required to fill that need, based on the goals, will create a strong contract to ensure program goals and expectations are met.

Once a program baseline has been established, it's time to identify what types of updates and/or services are needed in the short and long term. This is the opportunity to identify cost saving strategies, efficiency improvements in collection and processing infrastructures, equipment updates, and updated performance goals. Examples of collection and processing improvements include adding more materials to recycling programs, upgrading collection containers, or establishing incentives for high recovery rates. Municipalities with solid waste departments help drive this planning process, based on their knowledge and experience in the field.

Questions to Consider:

• What are the opportunities to expand recycling programs?

• What additional materials can be collected?

• What processes can be more efficient?

• What will encourage the community to recycle more?

It can be helpful to group the needs by type of materials (waste, recycling, compostables) and also by priority to aid in the planning process. Conducting a Strengths Weaknesses, Opportunities, and Threats (SWOT) analysis can be a helpful tool to evaluate recycling programs.

A key component in the planning phase is to engage stakeholders in the process. Department heads, office staff, field staff, as well as service providers can all have important feedback that can dramatically improve the efficiency of the services included in the contract. Officials from the municipality, as well as representatives from the legal department, should also be engaged in the planning process to ensure programs are aligned with the municipality's broader policies and that programs have support throughout all levels of the local government.

It can be helpful to group needs by type of materials (waste, recycling, compostables) and also by priority to aid in the planning process.

3 HOW DO YOU GET THERE?
Detail the Scope of Work

The details of how services under the updated contract are provided and evaluated are critical to establish a smooth contract execution for programs. The goals of the program help drive the programs required and the services needed; the details should include the following:

- A clear scope of services that includes detailed definitions of service types, frequencies, and requirements for material processing and disposal.

- Penalties if the contract terms are not met (ex. fines, payments, contract termination).

- Methods to track and evaluate the services provided (reports, data metrics, complaint resolution process).

Setting up regular service review meetings with the contractor throughout the year can help ensure expectations are clear and that they will be met. Regular communication also helps establish a healthy working relationship with the service provider and can avoid potential issues in the future.

Questions to Consider:

- What are all of the services required of the service provider?

- Would incentives provided to the contractor help to meet milestones (high material recovery rates, increase in recycling participation, etc.)?

- What metrics are required to ensure the services are effective? How often?

- What type of outreach is required? How often?

- How many meetings will be required with the contractor to address service improvements and complaints?

4 IS THE CONTRACT COMPLETE?
Review and Discuss

Once the details have been defined in the RFP and/or updated contract, it's important to gather feedback on the proposed documents by engaging in discussions with the service provider and other stakeholders. Service providers can propose additional services, identify potential issues or cost impacts, and provide insight on what other communities are doing to allow opportunities to standardize services across regions, which can benefit the community as well as the service provider. Discussing contracts with neighboring communities can also be helpful to obtain cost estimates, contract requirements, and additional service capabilities. Additional stakeholders include City staff, businesses, and residents. Businesses and residents don't need to review the documents, but their needs should reflect services that these stakeholders support, since they are paying for these services.

Questions to Consider:

- What stakeholders should review the contract?

- Have applicable needs and concerns been addressed?

- Has the contract addressed major impacts that may occur in the future?

- Have community education and outreach requirements been incorporated?

CONCLUSION

Contract renewals provide ideal opportunities to evaluate how the needs of a community have changed and they optimize the services paid for by a municipality. Periodic contract monitoring and reviews, as well as enforcement of contract requirements, help ensure program goals and contract requirements are met. The steps to begin improving a recycling contract can be tackled in phases, even years before a contract expires.

The general foundation to optimize contracts includes establishing a baseline for the current services and programs, planning for future needs, detailing the scope of work based on the goals, and reviewing details with stakeholders. Early investment in monitoring and maintaining contracts ensures services stay in line, or ahead, of program needs. This can go a long way to guarantee that service needs met and that a recycling program is running as efficiently as possible.
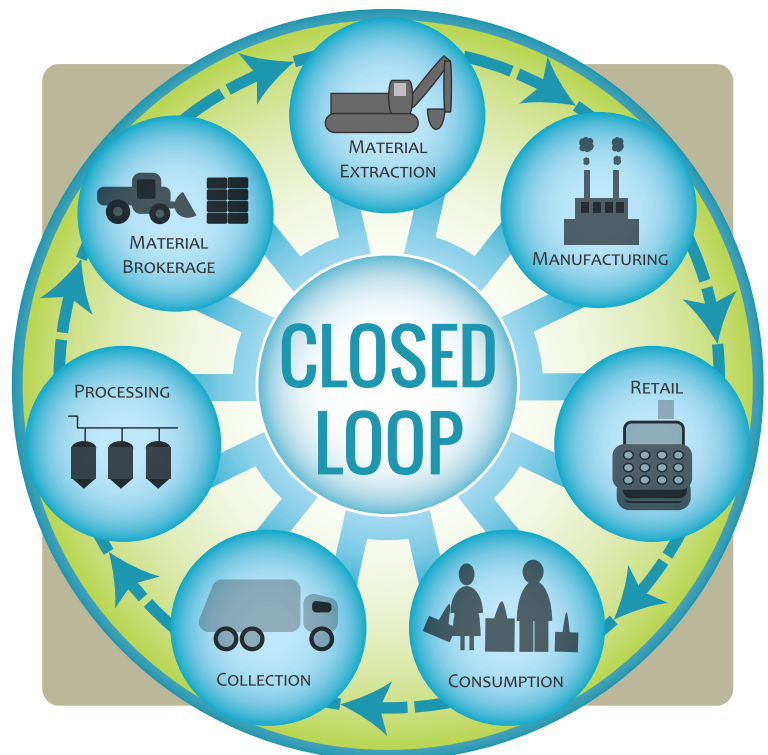
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Strengthening Recycling Markets to Benefit Local Communities

Recycling programs are optimized when recovered materials are more economical and efficient than using virgin materials to manufacture new products. The successful lifecycle of recycling requires key players to keep the flow of materials moving through the closed-loop system. In a closed-loop recycling system, discarded materials are recovered, processed, and manufactured into new products instead of being discarded in a landfill as a wasted resource.

The recycling process starts when an item is placed into a recycling bin. The process continues as recyclable materials are collected and sorted out. The recovered materials are processed into a condition to be used as feedstock in the manufacturing process (ex. plastic pellets, paper pulp, glass cullet); these materials take the place of the raw materials typically used. Once the new product is manufactured, it's packaged and shipped so it can be sold by retailers to consumers, where it gets used again – creating a closed loop system.

Assistance in any area of the closed-loop system can help create employment and material processing opportunities in the community, while reinforcing the supply of materials into the recycling markets.

CLOSED LOOP

Material Extraction

Manufacturing

Retail

Consumption

Collection

Processing

Material Brokerage

So where do local governments fit within this process? Well, in order for the closed-loop system to work, there has to be a demand for the materials. Local governments can play an active role in the growth and development of markets, by encouraging demand for more recovered materials. In turn, this helps the local government by strengthening programs, improving revenues from recyclables, ensuring stable markets, and creating local jobs. Local governments help strengthen recycling markets by implementing a few key strategies.

1 SUPPORT THE RECYCLING INFRASTRUCTURE

The recycling infrastructure in a local community can include haulers, processors/recyclers, manufacturers, and/or retailers. On top of strengthening the recycling markets, these industries create jobs, provide needed goods and services, and establish a more stable tax base. Local governments can support these industries by utilizing their services and products where possible; assisting this industry with business support (permits, grants, tax incentives); recognizing "green" businesses that promote recycling; and providing outreach to residents and businesses about the local reuse and recycling resources available. These efforts will help create a community that collectively support the recycling infrastructure.

Supporting industries at the local level also helps strengthen the recycling infrastructure on a regional, national, and global scale. In circumstances where local recycling resources are not available, regional facilities may be able to provide a solution. While supporting local recycling markets locally is favorable, selling to markets nationally and internationally may provide the greatest economic benefit, which still provides support to the recycling infrastructure.

FACT:

The United States federal government is the single largest consumer of goods in the nation. On average, the government spends approximately $350 billion for goods and services annually. As a result, the President enforced an executive order that required all federal agencies to abide by environmental practices and guidelines when purchasing goods and services, which are outlined in an environmentally preferable purchasing (EPP) policy, administered by the Environmental Protection Agency (EPA). The environmentally conscious purchasing standards of agencies, municipalities, organizations, and individuals has created a shift in products that are available and it's important to keep that momentum going at all levels.

2 PROMOTE RECYCLING PROGRAMS

Promoting, or implementing, programs in the community and in government facilities helps make recycling a commonplace practice. The benefits of promoting recycling programs include:

- Making recycling consistent and accessible, not only in homes and businesses, but in government facilities, community spaces, and public spaces.

- Increasing the volume of recyclables collected, which results in higher revenues for materials and higher recycling rates.

- Building community support by showing the local government's commitment to recycling.

- Reducing the amount of materials that are disposed in landfills, which extends the life of local and regional landfills, as well as natural resources.

How can municipalities encourage recycling programs? Efforts can include implementing recycling at all local government facilities, special events, community spaces (recreation centers, parks, etc.) and in public spaces (bus stops, main streets, etc.). Promoting local resources that recycle, reuse, or resell items helps remind the community how to reduce waste and support local businesses and the recycling infrastructure. Holding special collection events for electronic waste, used household goods, and paper shredding events ensures materials are appropriately collected and recycled, while providing a service to the community.

3 ENSURE CLEAN RECOVERY

Clean materials help strengthen recycling markets. It's important to recover recyclables with low levels of contamination, otherwise industries may have challenges marketing the materials; this results in a loss of resources and revenue, while generating more landfill waste. Lower contamination rates also help material recovery facilities operate more efficiently, which increases processing capabilities.

Given the wide range of products, materials, and packaging types currently available to consumers, it can be a challenge even for dedicated recyclers to determine what items are accepted for recycling in their local programs. Education and outreach are the two most effective tools available to reduce contamination in recycling programs. Since residents, businesses, and government facilities are where discarded materials are generated, it's important to educate these sectors about what items are or not accepted in recycling programs. Teaching the community the proper way to recycle reduces the amount of work required to sort materials on the back-end.

Education and outreach can take the form of reminders and updates to local businesses and residents via mailings, advertisements, social media campaigns, and events (Earth Day, America Recycles Day, etc.). Utilizing pictures and graphics to show what items are and are not recyclable is often easier for businesses and residents to understand, compared to providing a long list of materials in text-form. Graphics also address any language barriers in the community. Outreach frequencies can range from quarterly updates to annual updates, based on the resources available.

As recycling programs are implemented and grow, local infrastructures may have to undergo expansion or equipment upgrades to accommodate the increase of materials collected. Local governments can support this industry growth by providing technical assistance, guaranteeing material flows to the facility, identifying potential partnerships, or providing financial incentives. Assistance in these areas help create employment and material processing opportunities in the community, while reinforcing the supply of materials into the recycling markets.

Developing businesses that support the recycling industry is an investment into the long term growth of a community. Recycling industries make up 1.1 million jobs in the United States, generating over $236 billion in revenue per year. Attracting new recycling industries bolsters a community's self-reliance in its waste and recycling processes capabilities, which reduces reliance on external resources that may not be dependable.

MARKET PLAYERS

Overview of the key players that make up the recycling market.

Collectors

Collectors gather marketable materials. These are typically haulers, but they can also be residents and businesses that collect materials for recycling.

Processors

Processors sort the materials, removing any contamination, then bale, shred, or granulate them to create marketable intermediate materials. Material recovery facilities (MRF's) are processors, since they sort materials and sell the recyclables.

Brokers

Brokers buy and sell marketable materials. They buy recyclable materials from collectors and/or processors and sell the materials to manufacturers. Brokers are typically MRF's or private companies that specialize in the buying and selling of specific materials (examples include aluminum, paper, and glass).

Manufacturers

Manufacturers purchase the marketable materials to remanufacture into new products. This can be any business, company, or industry that needs materials to manufacture products to consumers.

Retailers

Retailers sell the product the recyclables were used to manufacture. Retailers can be any store, business, or person who takes the product from the manufacturer to the consumer.

Consumers

Consumers purchase the products from retailers and help feed the material back into the collection system. The consumers create the demand for the products.

Local governments can help create a demand for recycled-content products by adopting an environmentally preferable purchasing (EPP) policy to purchase supplies made from recycled, or environmentally-friendly, materials. An EPP policy establishes a process for purchasing environmentally preferred products in government facilities. Setting up a policy can begin simply by having a conversation about how to purchase more recycled content materials with the person in charge of ordering products. Eventually, a list of recommended EPP items can be developed as a way to conveniently order supplies and products. The effort to purchase recycled-content materials helps justify the collection of each material recovered from the waste stream, which in turn, supports the processors, brokers, manufacturers, and retailers of the products.

Examples of purchasing guidelines typically included in an EPP Policy are listed below.

Paper
- Minimum post-consumer content percentage
- Stewardship Council (FSC) certified paper

Office Supplies
- Reusable and/or refillable
- Minimal packaging
- Recyclable

Cleaning Products
- Green Seal certified
- Biodegradable
- Non-toxic

Appliances & Electronics
- Water efficient (WaterSense)
- Energy efficient (Energy Star, Electronic Products Environmental Assessment Tool (EPEAT), Federal Energy Management Program (FEMP))

Many local and state levels of government, along with the federal government, already have EPP policies in place. As a result, there are many resources available to help establish EPP policies. The level of detail in EPP policies varies from broad to detailed, based on a municipality's discretion. The Environmental Protection Agency (EPA) and the Sustainable Facilities Tool (SF Tool) websites offer information about green product specifications, federal purchasing guidelines, and tools to help build a policy. Example policies are also available for download on the Responsible Purchasing Network's website *(www.responsiblepurchasing.org)*.

Local efforts play a key role in strengthening the closed-loop recycling system. It takes a collective effort to support the whole process. In order for the closed-loop system to work, each stakeholder in the process has to contribute to the collective effort of using recovered materials. Supporting recycling infrastructures, promoting programs, and developing policies can help reinforce the recycling markets in local communities. These efforts to support recycling keeps the materials continuously flowing through the closed-loop recycling process.

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Easy Steps to Add Materials to a Recycling Program

Imagine finding a dollar on the ground. You wouldn't crumple it up and throw it in the trash. Instead, you'd recognize its value and use it to your advantage. The same goes for many items that are commonly taken to landfills – they carry a significant value.

Increasing the amount of materials collected in a recycling program can help avoid the unnecessary costs of landfill disposal, while earning revenue from the material's market value. In addition to the financial benefits, increasing the materials accepted in a recycling program makes participation for residents and businesses easier, enabling communities reach their sustainability goals. Improvements to programs also sends the message to the community that more services are being provided to them and that the local government is actively supporting recycling programs. Many communities have been including more and more materials into their recycling program, so it's important to standardize programs where possible, making it easier for the community, as well as visitors, to engage in the recycling wherever they go.

FACT:

Recycling 1000 tons of a material can create up to **21 jobs**.

VS.

Landfilling the same amount of materials would create only **1 job.**

Source: Tellus Institute with Sound Resource Management, "More Jobs, Less Pollution: Growing the Recycling Economy in the U.S." November 15, 2011.

INTRODUCTION

A few key steps are needed to expand the materials accepted in a recycling program.. Adding materials to a recycling program can be straightforward, based on 3 main steps: find out the market, determine the collection and processing capabilities, and provide education and outreach.

FACT:

Fact: Recycling 1,000 tons of a material can create up to 21 jobs. Landfilling the same amount of materials would create only 1 job.[1]

1: Tellus Institute with Sound Resource Management, "More Jobs, Less Pollution: Growing the Recycling Economy in the U.S." November 15, 2011.)

1 FIND OUT THE MARKET

It's important to Identify where the stable and reliable markets are located. Markets can be located locally, regionally, nationally, or abroad. Recycling is a global endeavor, and markets can exist in countries outside of the United States, in countries with a need for materials.

Ideally, items added to a recycling program should have high enough market values to justify the collection and processing of the materials. Determining the average market value of the material helps verify if costs can be offset in order to provide the highest return on investment. Finding reliable market data can be a daunting and time-consuming task if unaware of where to look. A few key dependable resources are provided below to help assess the markets.

- Local, Regional, and State Recycling Experts – These resources, if available, may be able to provide general feedback on material markets and what other communities are collecting.

- Recycling Industry Publications – General data is available on website and magazines by these types of publications. More specific material data, for current and historical prices, is typically available with paid subscriptions or for one-time costs.

- Local haulers – Haulers tend to be directly involved with material markets, therefore working with them can provide insight into the market.

- Neighboring Communities – If surrounding communities are already collecting the material being targeted, they may be willing to provide feedback on the revenue they receive. Working with these communities may also help collectively cut costs, maximize revenues, and obtain best practices.

- Product Manufacturers – Manufacturers that make the products may be able to offer input into the supply and demand of the market. They may also know companies who are interested in purchasing the materials.

Obtaining average market values over a span of at least 10 years helps provide an idea of how much the market may fluctuate. Once the average cost has been estimated, and the overall revenue has been calculated, it's time to review the current solid waste infrastructure in the community.

As each new material is added, it's important to consider how it fits into the existing collection and processing infrastructure and if changes are required. Current capabilities can be assessed in two stages: the collection stage and the processing stage. Standard questions to begin evaluating the collection and processing capabilities typically include the following:

Evaluating Collection Capabilities

- Do curbside or drop-off recycling containers have enough capacity to collect additional materials?

- Do the collection trucks have enough capacity to handle new materials?

- What collection equipment, and how many people, will be needed if new materials are added to the program?

Evaluating Processing Capabilities:

- Will the materials need to be sorted separately from other recyclables?

- Do the processing facilities have capacity to handle the new materials?

- What are the costs associated with moving and sorting the new materials?
    - New equipment
    - Equipment modifications
    - Additional employees

If infrastructure changes are required, a careful evaluation of the needs must be made since the cost of upgrading a system could be costly and time intensive. Associated contracts (with private haulers and processors) should also be reviewed to determine if changes are required and feasible. Once the costs have been estimated, and affected contracts have been reviewed, then it's time to assess whether adding materials to the program is financially feasible. If the decision is made to expand the program, then the next step is critical to implement the change.

Regardless of how much research and planning goes into a program, much of its success lies in how well-informed the community is, since they are the key participants. The more education and outreach that's used in a community, the higher the recycling rates. The saying, "save early, save often," also applies for education and outreach. Educate early, Outreach often. A community needs to be frequently informed of the changes in the program using different types of media outlets until it becomes a common practice.

Traditional media includes posters, flyers, websites, and news articles. Social media has expanded that toolbox to include more methods of engaging the community almost instantaneously. Most municipalities already use these tools, so it's just a matter of strategically plugging into them.

TIP:

Most of social media tools above don't require significant cost and time investment. However, a program does require a robust and sustainable strategy to create an effective communication campaign. The strategy will depend on the target audience; the demographics of the community and what they respond to. One key to any and all methods is to keep the messaging simple and consistent. Giving people an avenue to ask questions and provide input is also important to ensure stakeholders are engaged and that program success can be gauged.

CONCLUSION

Expanding recycling programs to include new materials can be effective in generating revenue, creating jobs, and strengthening a community around recycling goals. The three steps highlighted will help identify major risks and lay the groundwork for a successful program. It's easy to make the commitment to expand a recycling program and deciding to execute the program can be straightforward. Just remember to find dependable markets, determine associated infrastructure costs if changes are required, and provide effective education and outreach to the community.

CASE STUDY:

Many programs have started collecting cartons – which are the milk, juice, soup, and wine containers sold at the grocery store. Also known as aseptic and/or gable top packaging, these containers have become one of the commonly targeted materials in communities. Cartons are primarily made up of longer, higher quality fibers, which make them desirable to a number of domestic and international markets.

In 2011, the City of Los Angeles began a residential pilot program to collect cartons in its recycling carts. The pilot program was so successful that carton collection has been made available to the City's 1.3 million residents. On top of expanding services provided to residents, the City now earns revenue per ton of cartons collected, as opposed to paying tip fees at the landfill. Another benefit is the City is seeing higher recycling rates, which helps meet its sustainability goals.

Revenue from the material collected, coupled with the cost savings from avoided landfill fees, can be an effective way of creating jobs and offsetting costs of other programs. The benefits of adding materials to a recycling program have the potential to positively impact the community, the environment, as well as provide an economic incentive; as demonstrated in the City of Los Angeles.

For more information on putting material recovery to work, visit cartonopportunities.org

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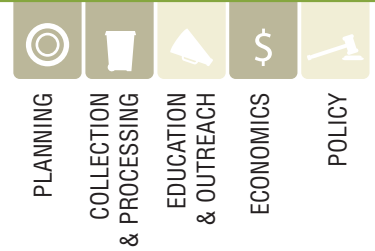
Top Solutions to Improve Recycling in Rural Communities

The menu of options to improve a recycling program can be extensive and confusing to review. It can also be a waste of time to analyze each and every option in order to find the right one, especially when there are unique challenges. In the case of small and rural communities, these challenges take the form of lower populations, smaller budgets, and limited recycling infrastructure. As a result, programs that work well in a large city may not be ideal in a small and rural community, and vice versa.

Six of the most effective and proven solutions for rural communities are described in a shortened menu in this paper. These solutions have been used across the country to improve efficiency and lower costs for rural recycling programs. The options are grouped into the following components of a recycling program: planning, financing, and collection and processing.

PLANNING

Local Partnerships

Regional Recycling Agency

FINANCING

Variable Rate System
(Pay-As-You-Throw)

COLLECTION & PROCESSING

Automated Curbside Collection

Single-Stream Collection
(Mixed/Commingled)

Regionalized Collection &
Processing (Hub and Spoke System)

OVERVIEW

To determine the best solution, it's important to clearly identify the program goals while also recognizing the main obstacles that stand in the way of obtaining those goals. Obstacles can include:

- Distance to processors or markets

- Low quantities of materials

- Lack of facilities to process recyclables

Identifying these challenges makes it easier to find an optimum solution and it helps narrow down the menu of options even further. This allows programs to maximize time and money, while seeing results sooner.

1 PLANNING - REGIONAL RECYCLING AGENCY

Forming a regional recycling agency can aid in the development and management a comprehensive recycling program. This agency can be formed with members from participating communities to ensure critical needs are addressed and all options are considered from various stakeholders. Regional agencies can also help standardize processes among communities to optimize staffing, contract negotiations, purchasing of equipment, and education and outreach materials. Establishing a regional agency ensures stakeholders in surrounding communities have a role in developing a program that is thorough, well-staffed, and effective. This organization is also an effective way to ensure the benefits of recycling within a region are maximized as much as possible (increase revenue, reduced transportation costs, shared education and outreach materials).

Setting up a regional recycling agency starts with one community and one person. With the goal in mind, it's helpful to discuss the idea with local resources to help define the mission and role of the agency. Once the goal is established, discussions with local governments in key communities can further promote the benefits of an agency and identify member candidates. Developing guidelines on how the agency will operate will ensure that rules and responsibilities are clear. It's important to ensure each community is well represented and supported by their municipal government. When developing an agency, it's not the size of the team that's important, it's the commitment from members to work collectively to enhance the recycling programs.

On a smaller scale, another way to improve local recycling systems is to establish partnerships with 1-2 neighboring communities or private companies. This shared approach to addressing issues can help local communities and businesses work together to solve common issues. Private partnerships may also provide capital investments to build or upgraded facilities, since the infrastructure could be a large benefit to them as well. This approach also provides more negotiating leverage when developing contracts with local haulers and material revenue markets, since more volumes of materials would be available. Neighboring communities often use the same resources, so there can be transportation and cost efficiencies realized by working together.

Creating opportunities to discuss issues with neighboring communities and businesses can form organic partnerships. Meetings can be set up once a month in the beginning so there's consistent interaction, which allows room to develop solutions that benefit all members. It's important to establish the goals of each member of the partnership, as well as the issues they face, and the resources they can offer. It's much easier to identify the best solution when all of the issues and resources are out on the table.

MRF

Work together with local communities to find common solutions.
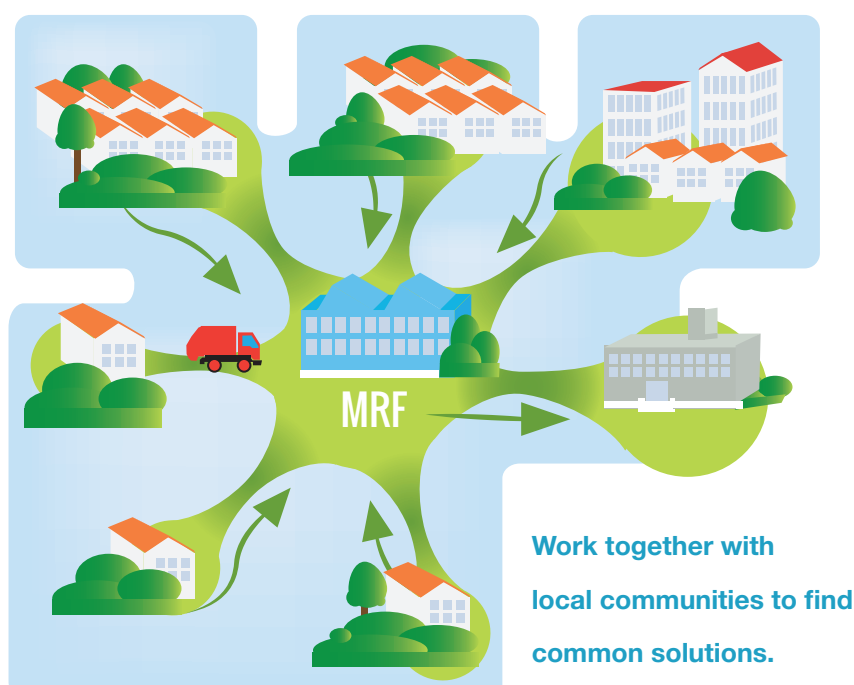
The variable rate, also known as a Pay-As-You-Throw (PAYT), program works the same way as utility bills; residents pay for what they use. This is the most transparent and straight-forward method of charging for service costs. PAYT helps residents understand that they are charged for waste and recycling services, rather than hiding waste and recycling-related service fees under other taxes and charges. This transparency encourages residents to include more materials in their recycling carts or bins. In PAYT systems, pricing can vary based on size of containers, number of bags, frequency of service, or a combination of these. The most common program is set up using 3 differently sized carts (compared to using bags) for residents to choose from, where the smallest cart is available at the lowest rate. The wheeled recycling carts (35, 65, or 95 gallons) are the most common type of collection container, since they hold more materials than standard recycling bins and provide more durability and ease of use.

Implementing a PAYT system starts by assessing the cost of services compared to how much residents pays under the current and proposed new rate structures. The rates should cover the services provided. The local government's Public Works department, or a similar department, typically has this data available. The next step is to define the cost structure of a PAYT system. It's important to model a scenario where all community members subscribe to the least expensive price-point. This ensures the program budget will be financially stable even if community members generate minimal volumes of waste.

Changes in how solid waste and recycling programs are financed should be vetted with the community throughout the decision-making process. Providing thorough, clear, and concise details about the benefits of the financing structure helps avoid confusion and frustration, to effectively build support. A well-informed community, that understands the benefits of the program, will be more supportive of changes regarding how they pay for their waste and recycling services.

The PAYT system rewards residents who generate less waste, which gives households more control over their waste disposal costs. With a PAYT system in place, households will begin to recycle more materials, which helps generate more revenue, increases recycling rates, increases the self-sufficiency of the recycling system.

PAY-AS-YOU-THROW

PAYT programs have been shown to increase recycling

While drop-off centers are used in many communities, these programs are not ideal for increasing participation, as recycling rates tends to plateau after reaching a certain point. Also, the effort required for residents to transport recyclables to a drop-off center and sort the materials, becomes a large deterrent for households with limited time and resources. As a result, fewer materials are collected, which makes these programs less efficient and more costly.

An automated curbside collection program makes participating in recycling programs tremendously easier for residents. Curbside programs also ensure all residents are offered the same services, especially for residents who may have difficulties transporting recyclables to drop-off centers (limited transportation, elderly, etc.).

Automated curbside collection provides additional benefits compared to manual curbside collection services:

- Improves the efficiencies of collecting materials

- Reduces work-related injuries, compared to manual collection

- Allows residents to move carts to the curb more safely and efficiently

- Enhances the aesthetics of a community by providing standard collection carts

Automated collection can service up to 300% more homes, as compared to manual rear-loading collection programs.[1] The ability to service more homes results in fewer vehicles, lower transportation costs, and fewer roadway repairs for communities. These benefits help offset the costs of purchasing new vehicles and trucks, offering a return on investment within 3-5 years.[2]

The option to implement automatic curbside collection begins with reviewing solid waste and recycling service contracts and agreements, if applicable. Where the option is available, haulers may offer a curbside collection program or an opportunity to renew a contract with this added feature. Next, it's important to understand the cost of the program. Costs to consider include vehicles, equipment, staff, and education and outreach. Many equipment needs are one-time costs, whereas the revenue generated from recyclables is recurring; this should be factored into overall cost assessments. Estimating the amount of revenue generated from the increase in materials collected can be conducted via recycling experts, industry publications, local haulers, neighboring communities, or product manufacturers. These resources can provide insight into the market and ultimately determine a total program cost per ton.

1 http://www.republicservices.com/corporate/governmentmunicipalities/wasterecycling/automated-collection.aspx
2 http://www.republicservices.com/corporate/governmentmunicipalities/wasterecycling/automated-collection.aspx

A single-stream collection program allows all recyclable materials to be placed in one common cart. Compared to dual-stream collection, which requires sorting fibers and containers (plastic, metal, glass) separately at the curb, single-stream collection is a more effective solution to increase recycling rates and revenue. Single-stream collection also makes it easier for residents to participate in recycling programs, due to convenience and simplicity. Many communities have seen an increase in recycling rates by a minimum of 30% after implementing single-stream collection programs.[1]

Curbside collection is also more efficient with a single-stream system. All materials can be collected in one collection cart, making collection routes more efficient, which can reduce the amount of vehicles and gas required. Education and outreach can also be simplified since residents no longer need to worry about separating recyclables into multiple containers. Providing standard carts for single-stream programs allows larger quantities of materials to be collected in households and encourages more recycling.

When compared to drop-off centers, curbside-sort programs, and dual-stream programs, single-stream collection offers the potential to collect the most recyclables while minimizing contamination. Setting up a single-stream system requires an understanding of the terms in the solid waste and recycling services contract. If the program has the ability to be modified to a single-stream collection system, then it's important to identify the resources and infrastructure available in a community that support the program.

Increasing the amount of materials allowed in recycling programs increases revenue, recycling rates, and participation.

Identifying a facility that can process single-stream materials is critical to the program's success. If facilities aren't available locally, then the search should be expanded to identify resources regionally. Typically communities with recycling facilities have the capability of handling single-stream recyclables, though they may require equipment upgrades. Otherwise, communities can partner with facilities (via grants or public private partnerships) to help upgrade the sorting process to process single-stream recyclables.

1 http://www.wm.com/enterprise/food-and-retail/Retail-Solutions/single-stream-recycling.jsp

The general idea of an automated curbside, single-stream program makes sense in theory, but some communities can't provide the vehicles, equipment, and facilities necessary to implement this type of program. As a result, many communities have partnered with neighboring communities to develop a collaborative, regional solution, referred to as a Hub and Spoke system. This is where a centralized location within a region (the hub) accepts materials from surrounding communities (the spokes). Typically these centralized locations are population centers within a state or region.

The Hub and Spoke system increases the volume of materials collected by a central processing facility. As a result, this increases the efficiency of the program and makes it easier to market recyclable materials. In contrast, communities operating independently may not be able to meet minimum volume standards or may have to travel a longer distance with less materials. Transportation routes and costs can also be more efficient using this system, as materials are taken to a centralized location, combined, and transported as a whole to an end market more locally.

Setting up a Hub and Spoke system can even be as easy as contacting regional facilities, or local communities, to use their services. Assuming there is capacity and that costs are manageable, recyclables may be able to be accepted relatively easily. It's important to address contractual agreements and the hauler's capability to support a move to a Hub and Spoke process to ensure all terms and conditions are met. The Hub and Spoke system is designed to benefit all players involved, since communities can offer enhanced recycling services, haulers can provide additional transportation services, and facilities generate more materials as revenue.

CONCLUSION

Six primary options to improve a recycling program in smaller rural communities have been introduced in this paper. These serve as some of the most successful models for making a recycling program even more efficient. The ideal solution can be a combination of these options or a variation on any one of them. The idea is to begin to assess how these options can address the challenges and the goals that smaller communities face. There are opportunities in the planning, financing, and collection and processing components of a recycling program, which can help municipalities target appropriate areas. At a minimum, these options can offer added revenue, cost savings, process efficiencies, higher recycling rates, and a more engaged and supportive community.

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HUB AND SPOKE RECYCLING FOR RURAL COMMUNITIES
Implementing a Recycling Program with Limited Resources

Just because a community is small or rural does not mean it is unable to set up a recycling program. Compared to large cities, rural communities face different challenges and different opportunities. These challenges require resourceful solutions that maximize the availability of money, staff, and time.

A key challenge rural communities face is lower populations, which make it difficult to generate significant revenue to fund recycling programs and/or generate large enough volumes of materials to earn substantial revenue from recycling markets.

One effective solution used in many rural communities is regionalization, otherwise known as the Hub and Spoke system. This solution has proven so effective that some states provide grants and technical assistance to develop this system in rural communities.

The Hub and Spoke system entails working together with local or regional communities, as a shared economy, to reach a common goal. In this case, that goal is setting up a cost-effective and efficient recycling system. The "hub" is a centralized processing center for recyclables located in larger communities with existing infrastructure. The "spokes" are the smaller communities located near the hub that provide materials to the facility. As a result, the hubs provide access to recycling capabilities that rural communities would otherwise not have access to. As a benefit to the community, more materials are collected, which results in higher revenues. The centralized recycling processing centers help sort, bail, and sell marketable materials for revenue.

## Benefits of a Hub and Spoke system include:

- Local access to recycling facilities/opportunities

- Cost reduction

- Transportation efficiencies

- Job creation

- Revenue from marketable materials

- Strengthening recycling markets

Hub and Spoke models are often used in air transportation. Since airlines were losing money on direct flights that were flying half empty, they decided to use a regionalized approach to make their flights more efficient. Now, most airlines route passengers from their departure city to a central hub before they reach their final destination. This has helped airlines make more efficient use of their resources, which keeps the cost of flights down. Similar to air transportation models, the Hub and Spoke system makes the transportation of recyclables more economically beneficial.

Increasing the amount of recyclables collected at the Hub increases revenues generated and reduces fees associated with landfill disposal. Implementing a Hub and Spoke system can also create collection and processing jobs within the region. Communities participating in this system share the costs for equipment, personnel, capital, operations, processing, and transportation.

The size of a Hub and Spoke system is scalable; it can consist of 2 communities or a dozen communities working together. The main goals is to partner with local resources to develop a robust and resourceful recycling program. There are a few straightforward options to assess what opportunities are available to develop a Hub and Spoke system.

HUB and SPOKE COLLECTION

HOUSE

MRF

MARKET

from CURB to MARKET
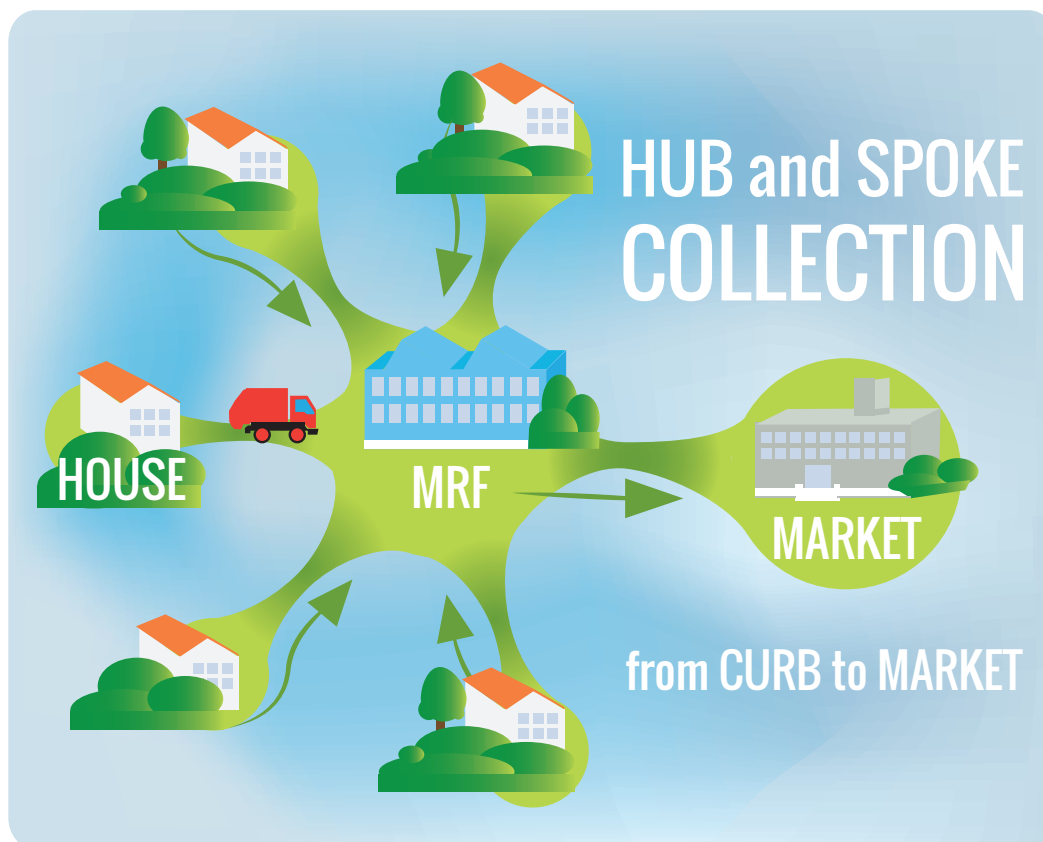
1 TALK TO HAULERS

Local haulers can provide a great initial overview of available recycling program options, especially if the majority of a community's materials are processed by that hauler. In general, local haulers are knowledgeable about the processing facilities available and may also be able to provide estimated costs for using those facilities. It's also important to work with hauler(s) to ensure existing service contracts are in compliance with regard to any potential changes.

Topics to initiate a discussion with the hauler can include the following questions:

- What opportunities are available to implement a recycling program?

- What challenges exist in implementing a recycling program?

- Do any nearby communities that you service offer a recycling program?

- What recycling facilities are potentially available, either locally or regionally?

2 IDENTIFY REGIONAL OPPORTUNITIES

Based on the inputs from the hauler(s), it may be necessary to contact regional facilities to further discuss opportunities to work together. Not only does this potential relationship benefit a community seeking to develop a recycling program, but the material recovery facility stands to benefit directly by receiving more marketable recyclables, thus increasing the revenue generated. Several factors come into consideration when working with facilities, including capacity, processing cost, distance, and exclusivity agreements with communities and/or haulers.

In particular, if there are capacity limitations, then one consideration could be to work with similar communities to help fund an expansion of the facility through public-private partnerships. Depending on the facility, these upgrades could range widely in cost. Even if costs are high, the commitment to invest offers a long term solution as more and more communities look for more ways to increase recycling, save money, and conserve landfill space.

3 DEVELOP PUBLIC-PRIVATE PARTNERSHIPS

If there are no local or regional facilities available, then looking into building a facility is another option. In some cases, building a MRF may be required. Since this can be expensive for a single community to fund entirely, forming a public-private partnership (PPP) can help share the costs, risks, as well as the benefits of the investment. This type of partnership system can also speed up the process of developing a facility.

Public-private partnership can be established with similar communities, haulers, processing facilities, and/or government agencies. Through a contractual agreement between public agencies and the private sector, recycling systems can be developed collaboratively, so each stakeholder shares in the risk and rewards. Public agencies benefit from having significant costs funded by the private sector, while the private-sector partners have opportunities to expand their reach as a service provider and potentially generate more revenue from material collection. Developing these strategies starts by finding interested stakeholders as well as feasible and publicly accepted locations to site the facility. Stakeholders to be identified include parties that would benefit from the collection of recyclables, the revenue from marketable materials, or the supply of materials.

The National Council for Public-Private Partnerships is a resource that offers general guidelines on forming successful PPP's. Where PPP's are not possible, state grants may be available to help fund recycling programs for rural communities. Contact state representatives for opportunities to provide financial incentives for recycling programs.

4 ESTABLISH COMMUNITY CONTACTS

Reaching out to nearby communities to discuss challenges, opportunities, and goals is an effective way to stay current on ways to partner or even share lessons learned. This can be as easy as setting up a monthly call to discuss projects that are being maintained or developed. If convenient, partnering on programs can help reduce cost of collection, development of materials, and processing or shipping costs. Networking is always an effective way to build regional partnerships that leverages the strengths of each member community.

Some rural communities don't have a dedicated government staff or budget to help facilitate a recycling program. One way to provide the appropriate support services is to create a regional agency made up of members from participating communities in the region, as well as any other stakeholders in the recycling infrastructure (processing facilities, non-profit organizations, and businesses). This governing organization can provide guidance on the development and operations of a Hub and Spoke system, and ensure formal agreements are made to guarantee the flow of materials from the spokes to the hub. A governing organization is especially helpful in developing the policies and ordinances to support a robust Hub and Spoke system. Regional authority organizations can also unify communications in a top to bottom approach, to avoid confusion and to provide standardized programs throughout the region.

5 CONSIDER SMALL-SCALE DEVELOPMENTS

A full processing facility may not always be necessary. Based on the type of regional facilities available, some communities may only need a transfer station to consolidate recyclables for transport to a regional facility. This option would avoid the costs of developing an entire material recovery facility. A transfer station would improve efficiency by reducing transportation costs, as well as the time and vehicles required to haul materials separately. The transfer station could serve local communities, as well as businesses that generate large amounts of recoverable materials.

Space requirements as well as development costs for transfer stations are less than those for processing facilities, which may make a transfer station more feasible for one or more communities to fund. This type of development should be coordinated with a specific processing facility in mind in order to guarantee that the infrastructure built is stable and dependable.

CONCLUSION

The Hub and Spoke system makes recycling available to remote or rural communities by centralizing the overall collection and processing of marketable materials. Communities across the nation have been using this system to effectively offer recycling services to residents and businesses. It has been an extremely successful example of how communities can work together to leverage resources that would otherwise be unavailable. More and more communities are starting to embrace this approach– as a result, there are plenty of resources and best practices available to aid in the details of developing a Hub and Spoke system.

The system can be tailored to fit the unique needs and challenges of a variety of communities with limited resources. A single move to initiate a Hub and Spoke system can go a long way, and the steps discussed in this paper can help increase the efficiency of recycling programs in rural communities.

CASE STUDY:

Rural communities make up approximately 85%[1] of the communities in New Mexico. To increase recycling, the State (through the New Mexico Recycling Coalition) has been proactive in supporting and encouraging the development of Hub and Spoke systems. Regionalized recycling programs are developed for communities within a maximum of 60-100 miles from centralized hubs. The Hub and Spoke system has provided the following benefits:[2]

- Creation of 38 direct and 52 indirect jobs

- Reduction of 4,016 tons of materials from landfills

- Formation of a regional recycling cooperative to help broker recyclables

- Direct outreach to over 500 community members and stakeholders

The Hub and Spoke system has standardized recycling programs throughout the state, while reducing the overall driving distances and operational costs for communities. Regions are also developing systems that work across state borders in order to develop opportunities for as many communities as possible.[3] To aid in the development of these programs, the New Mexico Environment Department has offered grants to cities to help develop and improve Hub and Spoke systems.

1 http://waste360.com/operation/rural-recycling-revolution
2 http://www.americanrecycler.com/1013/2306recycling.shtml
*3 GreenBlue, "Road Map for Effective Material Value Recovery," 2011.*

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Developing a Communications Plan to Increase Recycling Rates

Let's say you've decided to host a party for 30 people. Now think all of the details needed to make it a successful event: purchasing the food and beverages, preparing the food, arranging the space, setting up the decorations, and selecting the music. Now let's say you forgot to send out the invitations to your guests. How successful is the event if no one attends? How much time and how many resources have gone to waste?

You can't have a successful program if you don't provide education and outreach to the participants. In many programs, the education and outreach component, are left for last. Waiting until the end of the planning phase to develop the approach eliminates ideal opportunities to engage key stakeholders in the program. Communication helps the target audience better understand the purpose and details of programs; it builds trust and ensures transparency. Think of it in terms of supporting a friend through an important project, you're more invested in the project when you know more of the details. Not only does it mean that you've established a consistent means of two-way communication with your friend, but it also means you've found a reliable source for information.

EQUIPMENT
AND
PROCESSING

COLLECTION
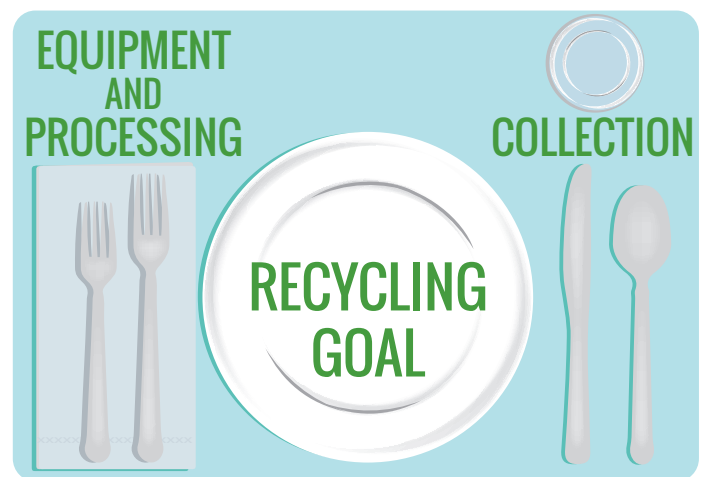
RECYCLING
GOAL

THE TABLE IS SET.

When executed successfully, effective communication generates a favored result. In regards to recycling, this could mean **higher recycling rates, lower disposal fees, and increased participation**. Increasing public understanding of recycling also **reduces contamination.** Lower contamination results in increasing the marketability of materials and reducing processing costs, which providing higher revenues.

Traditionally, communication methods include managing a website with pertinent information, mailing letters or bill inserts, flyers, and newsletters. These are all great communications tools that make recycling visible within the community. Setting up a communications plan is the best way to ensure education and outreach efforts are conducted as strategically as possible, especially when time and money are limited. Developing a communications plan can be a done relatively quickly with respect to this step by step process.

THE PLAN:

1. **Set Goals**
2. **Identify Target Audience**
3. **Define Message**
4. **Select Communication Tools**
5. **Launch Campaign**
6. **Track Results**
7. **Adjust Strategy**

1 SET GOALS

Developing a focused communications plan requires setting clear goals. What is the primarily goal the program is designed to achieve? What does success look like? Keeping the goal(s) clear can help streamline the decision making process, saving valuable time and resources.

This process, while it should be thoughtful and calculated, does not require a significant amount of time to establish. For instance, many communications goals consist of setting a regular timeline to publish information related to recycling. For example, once a month a recycling article is published in local newsletters and twice a week a recycling tip or reminder is posted on Facebook.

Another method to provide consistency is establishing a centralized kiosk or location for recycling-related information that the community can visit. Locations to consider are government offices, post offices, or libraries.

The consistency, while subtle, shows an investment on a municipality's part to support recycling initiatives. Additional examples of communication goals can include offering one-on-one outreach to businesses to provide recycling resources or using communications to increase recycling rates by 5%.

2 IDENTIFY TARGET AUDIENCE

Once the goals are set, the next step is to identify the target audience. What are the demographics of the audience (age, income level, race, gender, etc.)? Businesses, residents, schools all have different priorities and it's important to address concerns and the benefits of programs as related to each sector.

Businesses, for example, have a limited amount of time to read detailed outreach materials. Stating the goal and actions required needed in the beginning of a messages helps saves them businesses time, which and makes it clear what increases the chances of the message being received. Keep the message short and stick with the pertinent information. If there is concern that a short description may exclude important information, then provide a resource they can go to with more information.

In terms of residents, increasing recycling in low-income sectors are typically a challenge. Recycling is an afterthought within this demographic since providing for their families comes first, which can be a struggle in itself. Shaping messages around free services or events and opportunities to save families time and money provide a more positive response, as compared to focusing on saving resources or reducing greenhouse gas emissions. For example, providing recycling carts free of charge can help encourage residents to warm up to the idea of recycling, since they are not expected to pay for the equipment themselves. Identifying the target audience is an important step before crafting the message.

3 DEFINE MESSAGE

This is probably the most challenging and time consuming part of the communications plan, but it's also the most straightforward. It's important to make sure that all messages are clear, simple, and appropriate for the audience. Try to focus the messaging on a single action so the audience knows what they need to do.

Limiting messages to a single action can become part of an entire campaign, by highlighting certain items and reminding residents what can and cannot be recycled. For example, one month, the focus can be on junk mail, with articles and statistics related to the amount of junk mail generated. The following month can be focused on cartons, with information on what materials come in cartons. This can help residents to focus on materials one at a time without overwhelming the audience or the message.

It's always helpful to make sure the basic: who, what, when, where, how, and why questions are answered in messages. The wording that surrounds these details should cater to the demographics of the audience. Remember to use words and phrases that the general public knows and uses. It's also a good rule of thumb to keep program names simple for easy reference. The general rule of thumb is to frame a message so a school-age student understands the content. Developing a message can be time consuming, but the process can be much more efficient if the target audience is kept in mind.

4 SELECT COMMUNICATION TOOL

The number of communication tools available has increased rapidly. While traditional media (website, flyers, posters, etc.) is still an effective communication method, new tools can help enhance and expand the effectiveness of messages. This is exciting since it provides the ability to communicate to a much wider audience more dynamically and more directly. Another benefit is that most of these new communications tools are easy to acquire, if not already in use, and inexpensive.

Tool selection can be scaled down dramatically based on the demographics of the audience. College students in their early 20s are less likely to read a brochure mailed to them – they may not even know where the mailbox is! Social media like Facebook and Twitter tend to be more effective lines means of communication when it comes to this demographic. While social media may work for a younger audience, using the same approach for an older audience may be an ineffective strategy. What's the best way to determine how to best target your audience? It can range from identifying who is generating the materials targeted in a campaign, who is attending the outreach events, or even by using best practices from past experiences. There's always an option to survey people to determine how they prefer to receive their information.

5 LAUNCH CAMPAIGN

With the goal, audience, message, and media established, it's time to launch the campaign! Ready, set, go! Setting up a schedule for a communications strategy is beneficial to maintain consistent outreach. Frequent communication in a variety of methods provides maximum exposure and outreach. Setting a schedule for how often and when to communicate keeps the messaging consistent and organized. For communication tools that allow for public feedback, it's recommended to create ground rules, acceptable forms of responses and what types of responses are not permitted.

Strategically using a variety of media to communicate to the public engages more participation in recycling programs.

6 TRACK RESULTS

Now that the communications program has been launched, what next? It's time to evaluate how effective the communication was. How many people were targeted and how many were actually reached? What was the feedback? What were the lessons learned? Certain communications tools offer analytical capabilities that make data tracking easier. Metrics can be as simple as ensuring all businesses have been contacted or something more ambitious, like a 5% increase in recycling rates.

Documenting feedback or what the audience responded well, or poorly, provides good lessons learned. Social media tools, like Facebook, provide built in statistics to show how many people viewed the posts and how many responses were received. This provides a convenient way of tracking results and setting a baseline to compare future responses to.

7 ADJUST STRATEGY

Use data from the outreach and feedback from the audience to adjust the approach. Sometimes minor adjustments, even what day and time the outreach is conducted, is enough to increase the outreach by a substantial amount. Sometimes it may even take providing small giveaways to encourage participation. Any effective communication plan requires adjustment based on feedback, trends, and resources available.

If mailers went out the first time, then try accessing people through emails or community groups online. The more avenues used to publish information, the more potential there is to engage with the community and spread the message. These can all be viewed as opportunities for engagement, the more opportunities there are, the more likely people will get involved or see the message. If contamination in residential bins are still high after mailing reminders to residents, then try holding a contest to reward homes with low contamination rates. Prizes do not need to be significant, they can be reusable water bottles or gift cards. Even if few people participate, the incentive can help create an advocate for recycling, and is another effective way of spreading a message.

CONCLUSION

The menu of options available to develop a communications plan is large and it continues to grow. Developing a strategy that is multi-faceted and flexible is important as the environment shifts. Planning for communications early on in the process helps build a more successful strategy to support the goals of the program. The more communications tools that are used to convey a message ensures more people are reached, which helps ensure recycling goals are achieved and participation is maximized. Regardless of how many tools are used, a communications plan will ensure efforts are organized and as efficient as possible. The steps highlighted in this paper address the key factors that make up a successful communications plan to keep messages simple, clear, and fun.

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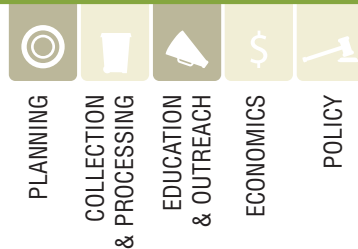
Social Media
Cheat Sheet & Planning Guidelines to Boost Recycling

So•cial Me•di•a (n): forms of electronic communication through which users create online communities to share information, ideas, personal messages, and other content.[1]

Let's face it, social media is no longer a trend. It's made its way into our daily vocabulary as much as it's made a comfortable seat for itself at the dinner table. Literally, many people are engaging in social media while they're having lunch or dinner. More so than that, statistics show that social media has become a cross-generational movement. It's hard to ignore this movement when developing a marketing strategy for recycling programs, since they offer an easy way to provide education and outreach to the community. So it's time to learn how to feed this long-term guest.

1. Merriam Webster, "Social Media." Accessed January 2014. Available at: http://www.merriam-webster.com/dictionary/social%20media

2. Statistic Brain, "Social Networking Statistics." January 1, 2014. Available at: http://www.statisticbrain.com/social-networking-statistics/

3. Cooper, Belle Beth. "10 Surprising social media statistics that might make you rethink your social strategy", Buffer website. July 16, 2013.

4. Fast Company, "10 Surprising Social Media Statistics That Will Make You Rethink Your Social Strategy." November 18, 2013. Available at: http://www.fastcompany.com/3021749/work-smart/10-surprising-social-media-statistics-that-will-make-you-rethink-your-social-stra

5. Socialnomics, "Politics Gets Social: 160 Jaw-Dropping Facts about the 2012 Presidential Election." November 6, 2012. Available at: http://www.socialnomics.net/2012/11/06/politics-gets-social-160-jaw-dropping-facts-about-the-2012-presidential-election/

SOCIAL MEDIA STATS

In the U.S., **1.15 Billion** users are on Facebook an average of 8 hours a month.[2]

The fastest growing demographic on Twitter is the 55 to 64 age bracket.[3]

YouTube reaches more U.S. adults aged 18 to 34 than any cable network.[3]

93% of marketers use social media for their businesses.[4]

88% of social media users are registered voters.[5]

Compared to businesses that can allocate significant amounts of money to marketing, municipal recycling programs are fortunate if they have a budget for educational outreach communications program. Here's where social media can help. Social media provides low-cost, easy maintenance, and high return on investment communication tools. It also allows more creative flexibility in delivering messages for recycling programs, resulting in increased engagement and higher recycling rates.

Traditionally, budgets for educational outreach and communications consist of allocating costs for developing, printing, and shipping flyers, post cards, and newsletters to residents and businesses. While this basic outreach can be effective, it's difficult to gauge how many people the material is reaching. Not only that, it must be repeated whenever there is a programmatic change, which means additional costs.

Let your messages work for you via social media. Social media is a quick, easy, and an economical way to communicate messages.

The rise and wide spread use of social media has introduced massive opportunities for marketing programs educating the community, and creating dialogue. The goal of education and outreach programs are to send a message to the community in a way that effectively engages the audience to produce a desired response. An overview of popular social media platforms, along with steps to develop a basic communications plan, is provided below to help promote an engaging outreach program.

INTRO

Many people use social media to build relationships, stay informed on pertinent topics, and to promote their ideas. Businesses are using social media to build brand recognition and to tailor their marketing strategy. Municipalities have used social media to highlight events, provide reminders, and address questions and concerns from the community. As a result, social media has opened the lines for two-way communication that's changing the way information is perceived. Selecting the appropriate tool, providing a sound structure, and engaging in the tools are essential strategies to successfully execute a social media campaign..

Currently the most popular social media tool is Facebook, followed by Twitter, and LinkedIn.[1] These tools differ in capabilities and demographics, so it's important to evaluate each tool based on the type of message being communicated and the goal desired. Most social media tools are free and many organizations already have these systems set up, so it's just a matter of incorporating them into the strategy.

What tool(s) should be used? It depends on the target audience and the type of message that is used. Are they links to resources, reminders, requests? For recycling programs in residential homes, women tend to make the decisions related to recycling, so catering to that demographic is important. This includes tips and resources to make recycling easier so they have more time for other things and reminders of how they are making an impact by continuing to recycle. Businesses that are limited on time and resources to stay up to date on information require short, succinct messages delivered through business forums or communities on LinkedIn or Facebook. Posts with captivating graphics tend to grab the attention of the audience more effectively than posts with large amounts of text.

Social Media Overview and Demographics[2]

Social Media Platform	Used to Share…	Demographics
Facebook	• Real-time news and updates • Resources and tips • Events • Photos	• Primarily Women • Users 18-29 years old • Highest percentage of active users between 30-65+ years old
Twitter	• Real-time news and updates (in 140 characters or less) • Emergency alerts	• Users 18-29 years old
LinkedIn[1]	• Professional networks • Professional events	• Primarily men • Users 25-54 years
Instagram	• Photos	• Primarily women • Users 18-29 years old
Pinterest	• Arts and craft ideas • Inspirational messages	• Women under 50 years old

There's no need to use every social media tool on the internet. A good way to start is by choosing one tool and spending time getting to know its capabilities. One type of tool may be all a community needs and really uses. Chances are, the community already uses social media and it's just matter of finding out what is already in use and expanding or rebranding that that effort to get the message across.

1 Versa Social, "Social Media Statistics" July 12, 2013. Available at: http://versasocial.com/social-media-statistics.html
2 Digital Sherpa, "Selecting the Right Social Media Sites to Market to Your Target Audience." April 26, 2013. Available at: http://digitalsherpa.com/blog/selecting-the-right-social-media-sites-to-market-to-your-target-audience/

It's important to determine how often to post information and updates to build a consistent and reliable source of information. That's all that a strategy really entails. What is the social media platform and what is the schedule for posting on it?

The goal with social media is to engage the target audience, so there isn't a "magic number" of posts required per day or per week. However, a rule of thumb is to post a minimum of 2 times per week and a maximum of twice per day to maintain engagement. Setting up regular times for posts and updates can help make providing information easier and more consistent. Tools are available to help manage and schedule automatic posts, like TweetDeck and HootSuite (for Twitter accounts); these are easy to use and they send out scheduled posts for people who may not have access to posting information.

Optimal Days and Times to Post on Top Social Media Sites1

Social Media Tool	Best Days	Best Times	Number of Posts2
Facebook, Instagram	Monday - Thursday	10am-4pm	1-2 times/day
Twitter	Monday -Thursday	1pm-3pm	No more than once every 2-3 hours, based on events/activities going on.
LinkedIn	Tuesday - Thursday	7am-9am, 5pm-6pm	1-2 times/week

1 Social Media Today, "Best Times to Post on Social Media." May 10, 2013. Available at: http://socialmediatoday.com/brianna5mith/1453951/best-times-post-social-media-infographic

It's important to keep the content concise and engaging. Post information that people would want to share with others. Here are a few content ideas to keep the material varied and engaging:

- Tips and facts
- Related news links
- Local events
- Quotes and inspirational thoughts or images
- Questions (if possible include giveaways)

Following news feeds from neighboring municipalities, organizations, and community groups is also a helpful way to find information to share. Using separate tones (informative, humorous, inquisitive, etc.) and including links with appealing images is effective in casting the education and outreach net over a wider audience and seeing what sticks.

TIP

Following news feeds from neighboring municipalities, organizations, and community groups is also a helpful way to find materials to post. Using different tones (informative, humorous, inquisitive, etc.) and including links with appealing graphics and images is effective in casting the net over a wider audience.

3 PROVIDE THE STRUCTURE AND CONTENT

Once the tool is selected, an important element to consider including in the social media strategy is a policy or guideline. Having a document that spells out specific details helps set the expectation on how the tool will be used, which can help avoid potential issues in the future. Topics to include in a policy or guideline include the following:

- Acceptable and unacceptable topics to post
- Tips on how to respond to comments
- Issues to avoid
- Rules for public comments/posts (no profanity, advertisements, and politically incorrect comments)

The policy can also help standardize the process, document best practices, and it also provides a resource for others to help manage and post on the various social media tools (i.e. here's how to delegate a task that meets your expectations). There are several references for social media policies available on the internet, including the Social Media Governance page, which offers example policies from organization, municipalities, and governments across the world.Participate - Observe and Respond

Observing and responding to public comments, feedback, and questions are just as important as posting information on a regular basis. Don't forget, social media serves as a form of dialogue – a two way street of information exchange and a great way to show transparency. Timely responses show the community that their message is being heard and taken seriously; it also keeps them continuously engaged. Analytical tools are available on most social media tools to help assess what types of posts are popular to help tailor the approach. Adjusting the social media strategy based on the feedback is a good sign; it means the strategy is as dynamic and flexible as the tool itself.

CONCLUSION

It can be easy to feel overwhelmed by the amount of social media tools available; there's no magic bullet and experimentation will help identify what works, based on the target audience and the resources available. There's no need to tackle all social media tools at once. Selecting one tool can help start the ball rolling. These efforts will lead to a cost-effective and engaging social media communications strategy. The main tools highlighted in this paper help identify which platforms to focus on and how to approach it strategically. When it comes to social media, there's no better time to start than now. Dive in and have fun!

CASE STUDY:

In 2009, the community of Lake Arrowhead, California, (population 12,500) had no budget for advertising. With very few options available, the marketing director decided to use social media as a cost effective way of promoting tourism and events.

Within 1 year, the community was able to use social media in place of print advertising and they've seen higher lodge bookings than the previous year. The marketing manager, a part time employee that works 10 hours a week, relied on social media management tools to streamline the communications process by pre-scheduling tweets via Twitter during different times of the day. After analyzing the data, it was discovered that half of the people clicking on the links were from Europe. Based off that observation, the time of day was adjusted to sync with time zone abroad so posts were getting to people in Europe during peak activity times.

During one of Lake Arrowhead's summer concerts, the announcer asked attendees to tweet about the concert using a hashtag, a themed word that's made searchable by Twitter users. Based off of that announcement over 15,000 messages were tweeted over the weekend. Now they've improved the outreach to include prizes for the best tweets from the community. Communities like this are finding that social media has helped fill the gap that budget cuts have made in departments.[11]

[11]   Social Media Examiner, "How Social Media Saved Lake Arrowhead When City Ad Budges Ran Dry." May 13, 2010. Available at: http://www.socialmediaexaminer.com/how-social-media-saved-lake-arrowhead-when-city-ad-budgets-ran-dry/

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POLICY

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# Funding a Recycling Program That's Flexible and Fair for Residents

There is a lot that goes into operating and maintaining a successful recycling program. Materials have to be collected, processed, and sold to recycling markets.

In order for that to happen, staff and equipment are required to provide support for the system. Additionally, community members need to be routinely educated and informed about program and program changes. These efforts aren't free. They require funding; typically this comes from taxes, fees, or rates paid for by the community. However, many residents are unaware that they are paying for these types of services. This is in part due to the way these services are charged, since costs can be hidden under other utility costs instead of being spelled out separately. How waste and recycling services are charged are critical to funding programs and building public support.

A successful and sustainable solid waste and recycling program is designed so the cost of services is clear and fully covered by the fees and revenues generated. Developing a cost structure that supports recycling programs while accounting for market fluctuations, population changes, and economic impacts requires a robust rate system. Establishing a well-defined cost structure up front provides more resilient system as waste generation and recycling related issues shift. It can also keep costs reasonable for residents. An example of trends that can affect rates include waste generation volumes, expansion in recycling programs, and landfill closures.

PROPORTIONAL PRICING
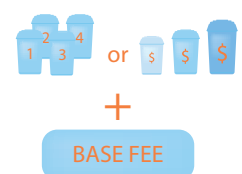Fee based on QUANTITY
of containers

1 2 3 4
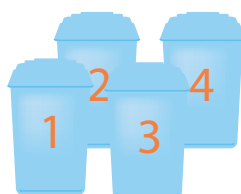
VARIABLE RATE PRICING
Cost based on SIZE
of container

$ $ $

MULTI-TIERED PRICING
Cost based on QTY or SIZE
of containers, plus a base fee

1 2 3 4 or $ $ $
+
BASE FEE

Tax-based fees, flat fees, and variable rate systems are different methods of generating revenue to cover costs for solid waste services. One structure commonly used throughout the United States is the pay-as-you-throw (PAYT) system. This is a type of variable-rate system where residents pay for waste and recycling services based on the amount of materials they generate. The PAYT system works the same way as utility bills; the cost for service is equal to the usage. This system can be designed to cover the costs of all waste and recycling services, leaving no unfunded mandates left on the table.

PAYT systems are frequently used in communities since they provide incentives for residents to waste less and recycle more. How much more? Communities have reported reductions in waste generated by almost 50%! The reduction in disposal volumes also results in cost savings in landfill fees. More revenue is also generated with greater volumes of recyclables collected. Compared to tax-based systems and flat fees, PAYT gives residents the choice to subscribe to the services that fit their needs and budget. This provides a direct understanding of the benefits that recycling provides.

The incentive-based PAYT system encourages residents to waste less and recycle more. How much more? Communities have reported reductions in waste generated by almost 50%![1]

The benefits of the PAYT system include:

- Reducing landfill disposal and transportation costs

- Achieving higher recycling rates

- Increasing volume of valuable materials

- Providing more transparency

1 Environmental Protection Agency, "Get SMART with Pay-As-You-Throw." Summer 2010. Available at: http://www.epa.gov/waste/conserve/tools/payt/tools/bulletin/summer10.pdf

PAYT - Benefits

PAYT has proven to be one of the most effective rate systems to reduce waste and increase recycling, while covering a program's costs for services. The benefits extend further, providing the environmental impacts of lowered greenhouse gas emissions, reduced pollution, and strengthened recycling markets. All of these benefits strengthen the overall recycling infrastructure locally, regionally, nationally, and globally. The benefits of the PAYT system are discussed in more detail below.

Reduces Cost of Landfill Disposal and Transportation

Less materials in landfills means municipalities pay less for landfill tipping fees. Additionally, overall transportation costs have the potential to decrease, depending on the location of the landfill compared to the location of recycling processing centers. Adoption of a PAYT system in Fort Worth, Texas, led to landfill disposal costs being reduced by over $7 million and a $540,000 increase in revenue of from the added recyclables.[1]

Achieves Higher Recycling Rates

Recycling rates have been shown to double after implementing a PAYT system. Worcester, Massachusetts' recycling rate increased from 3% to 36% after adopting a PAYT system.[2] Since residents immediately understand that the waste they generate is proportional to the cost they pay for service, more households recycle. This system also makes it popular for municipalities to add new materials to recycling programs, since it translates to more ways residents can save money.

Increases Volume of Materials

Increasing recycling rates generates a larger volume of recyclables collected. Larger, stable quantities of valuable recyclables collected make it easier to find markets and at higher return rates, increasing revenue.

Provides More Transparency

Often times, trash and recycling service fees are hidden under other fees or property taxes. Keeping waste and recycling service fees more visible helps create program transparency for residents. This added transparency make it easier for the public to understand how much effort it takes to operate and maintain solid waste and recycling programs, which can be helpful if and when programs change in the future.

1 Environmental Protection Agency and Johnson County, Kansas. "Getting SMART in Kansas – Saving Money and Reducing Trash." March 11, 2013. Available at: http://www.kdheks.gov/waste/workshops/works11/presentations/Dawani-Coon-GetSMARTinKS.pdf
2 Waste 360, "The Recycling and Economic Benefits of PAYT." March 1, 2011. Available at: http://waste360.com/Collections_And_Transfer/payt-recycling-economic-benefits-201103?page=2

PAYT - Actions

While there are many steps to establishing a well-tailored, cost effective, and efficient PAYT system in a community, the details can be summarized in 6 general steps.

1. **Program Baseline**
2. **Cost Analysis**
3. **Rate Structure Definition**
4. **Stakeholder Engagement**
5. **Implementation and Educational Outreach**
6. **Monitoring**

1 Program Baseline

Deciding the appropriate PAYT system begins with obtaining an overall understanding and assessment of the current waste and recycling programs and system. This provides an ideal opportunity to update goals and determine which programs have been effective or ineffective. This way, costs are guaranteed to fund effective programs that meet the goal and address the needs of the municipality and the community.

The baseline should include a review of current services provided, associated costs, collection frequency, material generations, and existing contracts. This information helps determine all of the factors that will affect the rates of an effective PAYT system. Government departments typically have this information available and it's just a matter of collecting all of the data so it can be analyzed. It also helps ensure the current level of services is maintained where possible so residents don't feel that they are being negatively impacted or paying significantly higher rates.

2 Cost Analysis

Once the baseline of the waste and recycling programs is established, the net cost of implementing PAYT needs to be estimated. The cost analysis will need to include:

- Revenue generated from the estimated quantity of recyclables collected

- Savings from avoided landfill disposal costs

- Costs for collection and processing, equipment, and staff

- Other programs that will be funded under the fees.

At a minimum, these additional programs can include bulky item pick-ups, household hazardous waste programs, and education and outreach programs. The types of containers used (carts, bins, or bags) should be evaluated based on cost and convenience for residents; containers should be easy to access for all age demographics. Once the net cost of the program is determined, then the fee structure for the PAYT system can be determined. The Environmental Protection Agency (EPA) offers a Rate Structure Design worksheet to help develop the cost for a PAYT program.

The best rate structuring for a municipality is one that is affordable and ensures the cost of services will be covered in the near and long term. This requires understanding the income level of residents and anticipating any potential changes in the future that may affect the waste stream and generation of materials. Potential changes include changes in material revenue due to market demand, fluctuations in populations that can impact the baseline revenue stream, and economic impacts that may result in significant decreases in waste generated. Engaging key stakeholders (staff, other departments, other municipalities, local experts) in this discussion can help address the potential risks before they occur. Each issue doesn't have to be solved, but it's important to keep them in mind so these changes are not unexpected if they arise.

PAYT systems typically use one of three types of rate structures: proportional, variable rate, and multi-tiered pricing. The appropriate rate structure is unique for each community, based on the resources available, stakeholder feedback, and services offered.

Proportional Pricing – This structure allows residents to pay for waste and recycling services as they set out each container – bag, cart, or bin. In most cases, residents are required to purchase bags from the municipality to collect waste and recycling.

Variable Rate Pricing – This structure charges residents service fees based on the size of the container used. Typically, 3 container sizes at 3 different prices are available to choose from, and containers are issued by the local government. Container sizes are generally around 35, 65, and 95 gallons.

Multi-Tiered Pricing –

First Tier: A base fee that all residents pay for basic services

Second Tier: A second fee based on the amount of waste and recycling that is set out. The proportional or variable rate pricing can then be applied to the second tier.

The appropriate rate structure will vary based on the municipality. Factors that impact the rate structure include the services provided, costs of disposal, revenue from material markets, population size, and infrastructure capabilities. Where population size and infrastructure are concerned, municipalities have found solutions by developing a Hub and Spoke system that works with neighboring municipalities to help offset costs and establish a wider range of service capabilities. Evaluating the advantages and disadvantages of each structure will help determine the ideal option.
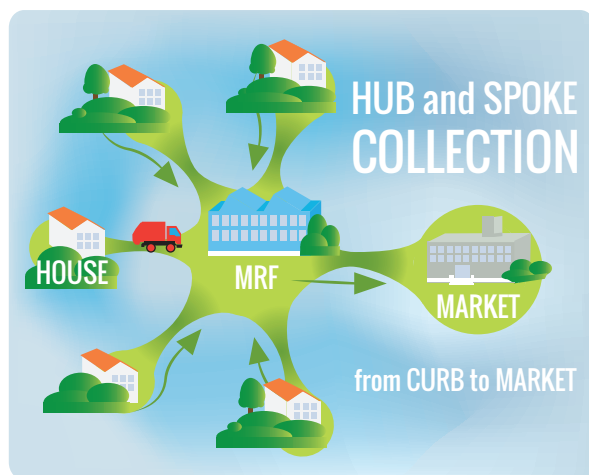
See "Hub and Spoke Recycling for Rural Communities" for more details.

Stakeholders are anyone who may be impacted by the program. These can be city officials, residents, businesses, haulers, or any other community member. Engaging stakeholders throughout the PAYT development process will provide transparency in the potential change in services and structure. Dealing with a potential increase in rates can be a sensitive topic to bring forth to stakeholders, and providing opportunities to understand the details of the decision making process can help build trust within the community. Engagement can take a variety of forms, including workshops, public meetings, articles, and bill inserts.

Surveys are also useful tools to obtain feedback on how much residents are willing to pay for waste and recycling services. The stakeholder engagement process is also a good opportunity to educate residents on how their trash bills are set up. If the fees are not explicitly called out in bills, then explaining how services are charged will need to be addressed very clearly and simplistically.

5   Implementation and Educational Outreach

In order for the PAYT program to be implemented, the local government has to adopt the motion and hauler contracts will need to be reviewed to assess the changes required. Once the approvals are obtained, the program will require the appropriate equipment (ex. carts, processing equipment, vehicle upgrades), and ensuring all facilities are set up to handle the collection and processing modifications. These logistics should be worked out within the local government, haulers, and processing facilities to ensure the appropriate expertise are involved to help make the implementation successful.

Enforcement may be considered, if there's a concern about illegal dumping. In general, communities have not seen an increase in illegal dumping after PAYT systems were established, but this consideration should be evaluated based on each unique community's dynamics.

Educational outreach is a critical element in the implementation phase, since it requires making all residents aware of the program details and the changes to the rate system. A well communicated campaign will go a long ways in terms of increasing participation levels and support, which will directly impact the success. Educational outreach should take the form of a variety of media to ensure all stakeholders are informed. Printed materials, community meetings, presenting at local organizations, and social media are all effective tools to communicate changes and address questions and concerns. Providing a document of frequently asked questions can also help address common questions that come up (ex. why the change is taking place, what are the benefits, etc.)up (ex. why the change is taking place, what are the benefits, etc.)

After implementation, it's important to monitor the program closely to address any concerns. Tracking the amount of waste and recyclables collected are an important metric to have to evaluate the overall progress of the PAYT system and to communicate to residents. This data includes past generation, disposal, and recycling data; comparing this to the new data can help provide insight on how the system is operating and if recycling goals are being met.

Actively seeking and tracking feedback from residents will also aid in improving the system's efficiency. Asking for feedback engages the community to help improve the program, so residents feel municipalities are working with them to develop an efficient system. It's also important to inform residents of the positive aspects of the program, whether it's increased recycling rates or reiterating the benefits of the program.

CONCLUSION

Developing or revising solid waste and recycling rate structures does not happen very often, so it's critical to invest the time and resources to provide a stable system that can adapt to future changes. There are a variety of funding mechanisms out there and a PAYT offers a robust system that can be customized based on each community.

A PAYT system is designed to reward residents to recycle more and dispose less. The cost structure is set up in a way that's easy to understand, giving residents a better grasp of the services they pay for and how they can be more pro-active about gaining more savings. The benefits of PAY include reducing landfill disposal costs, achieving higher recycling rates, generating more revenue, and developing a transparent system are different types of benefits that municipalities. The time spent implementing this cost structure will offer a return on investment that positively affects the community, the economy, and the environment.

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POLICY

The Top Policies Proven to Increase Recycling

Policies, mandates, and ordinances, oh my! It's normal to have hesitation when it comes to implementing these types of regulations in communities. These hesitations are typically packaged in the all-encompassing question of, "Do we have to?" There are valid concerns about how the community will react to more policies and if there are enough resources in the local government to establish an ordinance.

However, the question should really be, "Should we implement a recycling policy?" There are many components that make up a successful recycling infrastructure: the foundation (goals), the structure (programs and facilities), and the tools (equipment) to maintain the system. In order for the infrastructure to be designed to success standards, policies, mandates, or ordinances need to be developed.

An existing system with established recycling programs make it easier to implement policies. Voluntary programs, incentive-based programs, and mandatory policies all play a key role in contributing to an effective recycling system that they cannot achieve individually. These types of programs and policies should be implemented as a suite of tools in order to maximize the benefits of recycling. These benefits include:

- Reducing disposal costs
- Meeting or exceeding recycling targets
- Increasing volume of marketable materials
- Extending landfill capacity
- Improving public engagement
- Minimizing environmental impacts

> **Voluntary programs, incentive-based programs, and mandatory policies all play a key role in contributing to an effective recycling system.**

Policies are also an effective tool to create performance standards and recycling goals, as well as leveling the playing field to ensure key sectors are all participating. The latter can help the community understand that no particular sector is being targeted or "picked on." Instead, it highlights the importance of each sector to be part of the solution to reduce waste and increase recycling.

Where should a municipality start? The primary policies or ordinances that most effectively increase recycling in communities across the country are provided in this paper. As an overview, the top policies that to be considered include:

1. **Mandatory Recycling**
2. **Mandatory Composting**
3. **Mandatory Construction and Demolition Recycling**
4. **Disposal Bans**
5. **Environmentally Preferable Purchasing**

Policy changes add strength,structure and leverage to a program. The combined effects optimize a robust recycling system and build on the existing efforts.

INCREASED

CAPABILITY
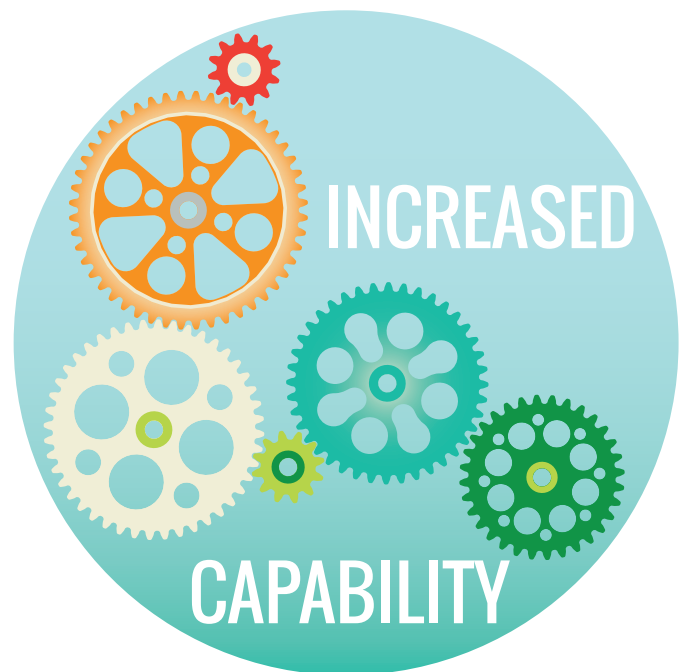
Once a recycling program has been established in a community, developing a mandatory recycling ordinance is an effective way to ensure maximum participation. This mandate provides recovery of the largest amount of materials with high market value. While the mandate can target all waste generators at once (residential homes, multi-family complexes, businesses, schools, and government facilities), it's recommended to start with specific sectors in a phased approach. This allows the logistics to be worked out on a smaller scale and for lessons learned to be established to refine the implementation process.

The ordinance should consider requiring recycling bins to be the same size, or larger, than bins that collect waste for disposal. This minimum size requirement makes recycling bins as convenient and accessible as disposal bins. Policies can also include establishing recycling goals to give the community a clear target to work towards.

The first step in implementing a mandatory recycling ordinance is to assess whether a local processing facility is available with enough capacity to handle more materials. This can be determined by working with the private hauler that interfaces directly with the processing facility. If materials are handled by the municipality, not a private hauler, then the processing facility can be contacted directly. For communities with limited access to a local facility, working with neighboring communities that have processing capabilities and resources can be a viable option.

The ordinance can be implemented in phases, or through a pilot program initially, to give a municipality adequate roll-out time. Enforcement is important to maximize participation and to minimize the amount of staff required to monitor the program. The hauler(s), if applicable, can be required to summarize the accounts that do and do not have recycling on-site for tracking and follow up efforts. Enforcement can take the form of a series of warnings before a fee is imposed or before collection services are suspended.

CASE STUDY:

In 2006, the City of Alexandria, Virginia, passed a mandatory commercial recycling ordinance[1] in order to meet the State mandated 25% recycling rate.

As a result the City implemented a mandatory recycling ordinance for all single family homes, multi-family homes, and commercial businesses. The City further extended the state mandate by requiring all multi-family and commercial businesses to meet a 35% recycling rate by 2011.[2]

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1   City of Alexandria, Ordinance No. 4438. February 25, 2006. Available at http://alexandriava.gov/uploadedFiles/tes/solidwaste/info/RecyclingOrdinance.pdf.

2   Business and Multi-Family Recycling FAQs, available at: http://alexandriava.gov/uploadedFiles/tes/solidwaste/info/RecyclingRequirements.pdf.

Green waste and food waste can make up over 40% of the materials a municipality generates. Implementing a mandate to address these organic materials can divert a significant amount of resources from landfills by converting the materials to compost. This mandate requires each residential and commercial property to have on-site composting collection for green waste and food waste. Concerns over odors and pests can be addressed by ensuring the equipment used are sealed and secure. It's also important to make sure food waste is always collected with green waste, since green waste can help minimize odors and pests. A phased approach, where green waste is collected first, followed by food waste can be developed to introduce the program to the community step by step.

The feasibility of this mandate is dependent on the availability of local composting facilities. Partnering with neighboring communities to utilize, or fund the development of, composting facilities may be options to consider. If a composting facility is not available or feasible, then another option would be to provide education and outreach on how the community can start a composting program at their home. While this would not be a mandatory requirement, it can still help address a significant portion of the waste stream. Education and outreach can take the form of offering classes, providing subsidies on compost bins, and developing reference guides on how to compost.

CASE STUDY:

In Seattle, Washington, a mandatory composting ordinance was passed in 2010.

The City diverted approximately 90,000 tons of organic waste from landfills in the first year. The mandatory program is geared towards the 30,000 single-family homes via curbside collection. The requirement is exempt for residences that compost at home.[1]

1   Wasted Food, "Seattle Steps Forward." March 30, 2009. Available at: http://www.wastedfood.com/2009/03/30/seattle-steps-forward/.

The construction and demolition (C&D) sector can generate a large amount of easily recyclable materials in the waste stream. Since C&D tends to have more homogeneous materials than municipal solid waste, recycling rates at C&D processing facilities are typically higher, with numbers up to 91%.[1] Typical ordinances require recycling for C&D projects over 5,000 square feet.

Developing the ordinance will be dependent on the type of C&D projects common within the municipality. The ordinance can require a recycling plan to be submitted along with any building permits, in order to gain approval to begin construction. Typically, recycling plans request a summary of the waste that will be generated, followed with where the materials will be recycled at and the recycling rate at that facility. A municipality can require a deposit for each project that files a permit to ensure recycling plans are followed. Projects that provide documentation showing the materials were recycled, based on the requirements, would be refunded the deposit once the project is complete.

Similar to the recycling and composting infrastructure, if a C&D processing facility is not available locally or regionally, then partnerships with neighboring communities may provide options for shared use or development of new facilities.

CASE STUDY:

The City of Brawley, California, is a rural town with a population of about 20,000. The City administers a mandatory construction and demolition debris recycling program that applies to all construction projects greater than $50,000 and demolition projects greater than 1,000 square feet. The ordinance requires a deposit, administrative fee, a recycling plan, and self-reports of the recycling conducted.[2]

2   Sustainable Cities Institute, "Construction & Demolition (C&D) Recycling Ordinance, Brawley, CA. 2012. Available at: http://www.sustainablecitiesinstitute.org/view/page.basic/legislation/feature.legislation/Ord_Const_Demo_Diversion_Brawley_CA

1 Burgoyne, Dan. "Construction & Demolition (C&D) Waste Diversion in California," accessed October 18, 2013.

Each player in the chain has an opportunity to enhance material recovery.
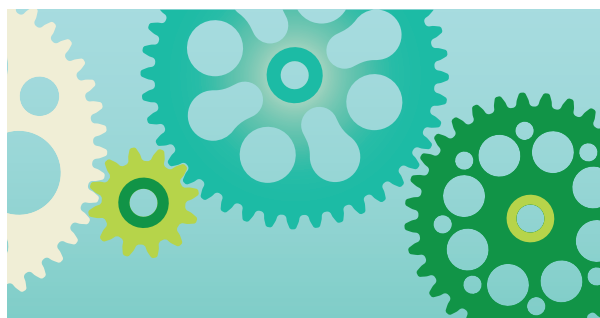
Disposal bans are effective in limiting the types and amounts of resources that end up in the landfill. Coupling a recycling program with a disposal ban guarantees that a larger quantity of valuable materials are recovered. This helps reduce disposal costs and increase the revenue generated. Disposal bans also make recycling an effort that is shared among all stakeholders.

The first step in implementing a disposal ban is to assess the types of materials that are commonly discarded that have market value. It's ideal to target materials that have higher recovery values to optimize the revenue generated. Materials can include items that are easily recyclable like the following:

- Paper products (cardboard, cartons)

- Plastic bottles (#1 and #2 plastic bottles)

- Glass containers

- Metal (aluminum, steel, scrap metal)

Fees have been an effective way to guarantee participation and assist in enforcement efforts. Loads of trash with large amounts of banned materials are typically fined or not accepted at all in facilities and/or landfills. Fees can be applied to haulers or generators in violation of the ban if a certain contamination level is exceeded (ex. 10-15%), based on visual assessments.

CASE STUDY:

The State of Wisconsin has banned over 40 types of materials from landfills and incinerators. The categories of materials banned include items that are easily reusable, recyclable, compostable, or considered toxic. The categories of materials banned include containers (plastic, glass, and metal), paper and cardboard, yard materials, appliances, electronics, and vehicle items (tires, car batteries, used oil, and used oil filters). Combined with other rigorous policies, the landfill disposal ban has contributed to the State keeping almost 2 million tons of materials out of the landfills each year.

5 ENVIRONMENTALLY PREFERABLE PURCHASING

Manufacturers respond to what the consumers want. While manufacturers should design with the end of life in mind, it's up to the consumer to make a conscious effort to purchase these environmentally-preferable products to create the demand. It's important to recycle, but it's just as important to support the materials that are being recycled.

Purchasing materials that are reusable and recyclable reduces the amount of waste generated and it limits the natural resources consumed. It also helps support the recycling industry. Environmentally Preferable Purchasing (EPP) ordinances are commonly used in government facilities. These ordinances ensure the procurement of products and supplies that are made from recyclable materials, easy to recycle, or convenient to reuse.

Implementing an EPP ordinance would require defining the standards that meet a municipality's requirements, based on what they order and the resources available. This requires identifying products that meet these requirements. Working with vendors is a solution to quickly identify the environmentally-preferable products available. Once these items are identified, then a system can be set up to help guide the purchaser when placing orders.

CASE STUDY:

United States federal government spends $350 billion for goods and services each year.

To help influence the products in the market place, an Executive Order was released which requires "federal agencies to advance sustainable acquisition by acquiring products that are energy-efficient, water-efficient, biobased, environmentally preferable, non-ozone depleting, contain recycled content, or are non-toxic or less-toxic alternatives." Government agencies that must abide by these guidelines include the Department of Defense, the Department of Interior, the General Services Administration, and the Environmental Protection Agency.

VOLUNTARY PRODUCER RESPONSIBILITY

While Voluntary Producer Responsibility (VPR) is not a mandate, it's becoming commonplace as more and more municipalities are developing partnerships with producers and manufacturers to develop solutions to reduce waste. These are essentially public-private partnerships, where all parties are invested in the goal, the process, and the outcome.

VPR addresses the capability of products be designed to be recyclable or reusable. It's critical for municipalities to work alongside manufacturers to find ways to develop economically-sound processes to recycle products. This cooperation early in the development stages is the best way to target products that have the potential to be recycled. Businesses have a keen understanding of how to maximize costs and operate efficiently, therefore partnerships can provide a great way to leverage opportunities in streamlined manner.

VPR may not be as high of a priority as implementing mandatory policies, but it's important to know these efforts are taking place. If these discussions aren't already happening in each state, they will be very soon. Being aware of these discussions help position municipalities to guide VPR policies.

The Carton Council has been an industry leader in promoting VPR. As part of its commitment to recycling, the Carton Council has found end markets for the sale of cartons while providing assistance and educational outreach to communities across the U.S. This example of VPR has led to providing carton recycling access to over 40% of households in the nation.

CONCLUSION

Policies, mandates, and ordinances can go a long way to enhance existing solid waste programs and there are a variety of policies and ordinances commonly used in municipalities locally, regionally, and nationally. Choosing the most effective policies to implement is dependent on each municipality's goals and the resources available. Developing policies enhance recycling programs that already exist; they are not meant to create an entirely new program or introduce an unfunded mandate.

Policies can be cost-effective ways to bolster recycling programs and to help achieve recycling goals. The implementation costs for these mandates are highly dependent on the individual municipality. Development and implementation can, in fact, be minimal if a successful recycling program has been established previously - especially when compared to developing a new program from scratch. The top policies covered in this paper are aimed at increasing the amount of recyclables recovered. As a result, more revenue will be generated to help offset the costs. Additionally, the use of fees and deposits can help offset any costs for monitoring and enforcement.

There are several examples of successful policies as well as a pool of resources (templates, guidelines, reference ordinances and/or policies, etc.) available to save a municipality additional time and money in the development phase. A few resources have been provided on the following page. Keep in mind that a minimal investment can go a long way to maximize recycling programs in communities large and small. The question is no longer, "Should we implement a recycling policy?" It becomes, "Which policy should we implement first?"

For more information on putting material recovery to work, visit cartonopportunities.org