BEYOND 34 CASE STUDY:

THE DEVELOPMENT OF A RECYCLING PUBLIC-PRIVATE PARTNERSHIP

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EXECUTIVE SUMMARY

Beyond 34 is a first-of-its-kind multistakeholder pilot project aimed at increasing the current EPA-reported 34% recycling rate in the U.S. by providing a scalable model for improving recycling and recovery rates. As part of the U.S. Chamber of Commerce Foundation's (USCCF's) broader commitment to help companies shift to the circular economy, the project aims to help communities, cities, and businesses create a more sustainable future.

USCCF established Beyond 34: Recycling and Recovery for a New Economy, its place-based pilot project, with leading brands, manufacturers, retailers, industrial service providers, and other partners to tackle the recycling and recovery gap in the U.S. and accelerate recycling infrastructure development. To complement USCCF's expertise on multistakeholder project design and strategic connections with like-minded businesses and state and local chambers of commerce and governments, USCCF invited RRS—an environmental consulting firm—to join Beyond 34 to contribute its technical background in recycling to the project. Additionally, private sector sponsors were invited to support the Beyond 34 pilot and lend their expertise in recycling from the business perspective. These founding Beyond 34 entities will collectively be referred to as the Project Founders throughout the case study.

After assessing various urban areas across the country to determine the most appropriate location for the Beyond 34 pilot, the Project Founders settled on the Orlando, Florida, region; including Lake, Orange, Osceola, and Seminole counties. In addition to its average area recycling rates, other factors that contributed to the Orlando region's selection as the Beyond 34 pilot region were strong public- and private-sector engagement, an innovative culture, and robust sustainability goals on both the state and local levels.

In July 2017, the Project Founders held an initial meeting with the Orlando Regional Chamber of Commerce and the city of Orlando to launch the pilot project, discuss expectations, and establish goals. Outcomes from that meeting included planning a subsequent workshop that would involve more regional stakeholders in the recycling space and the sharing of data to facilitate an analysis of Orlando area recycling.

After formally announcing the Orlando region as the pilot location in September 2017, Beyond 34 hosted the Orlando Region Waste Impact Workshop: How Public and Private Sectors Collaborate for Recycling System Optimization. This workshop gathered business leaders, recycling planners, and key stakeholders in the city of Orlando and the surrounding municipalities to collaborate around a sustainable system that would positively impact the local area's recycling rate. Speakers, including Orlando Mayor Buddy Dyer and representatives from area municipalities and businesses, set the tone for the day with their enthusiasm and support for the Beyond 34 pilot and the importance of working with partners in all sectors to achieve their recycling goals.

The rest of that workshop focused on a comparative recycling analysis with other states in the Southeast, visioning exercises to ascertain the group's collective thoughts on recycling needs in the region and how to meet them, and RRS' preliminary material mapping results and recycling best practices. A group of local champions, composed of attendees at the workshop, volunteered to lead efforts to achieve the group's objectives.

In January 2018, RRS provided its recycling gap analysis to the local champions to help them determine which implementation projects will be most relevant to achieve the goals they set for the region and increase local recycling rates. The gap analysis determined that over $62 million of currently disposed focus materials (i.e., fiber, metal, plastic, glass, and organics) could be of commercial value if they were recycled. In

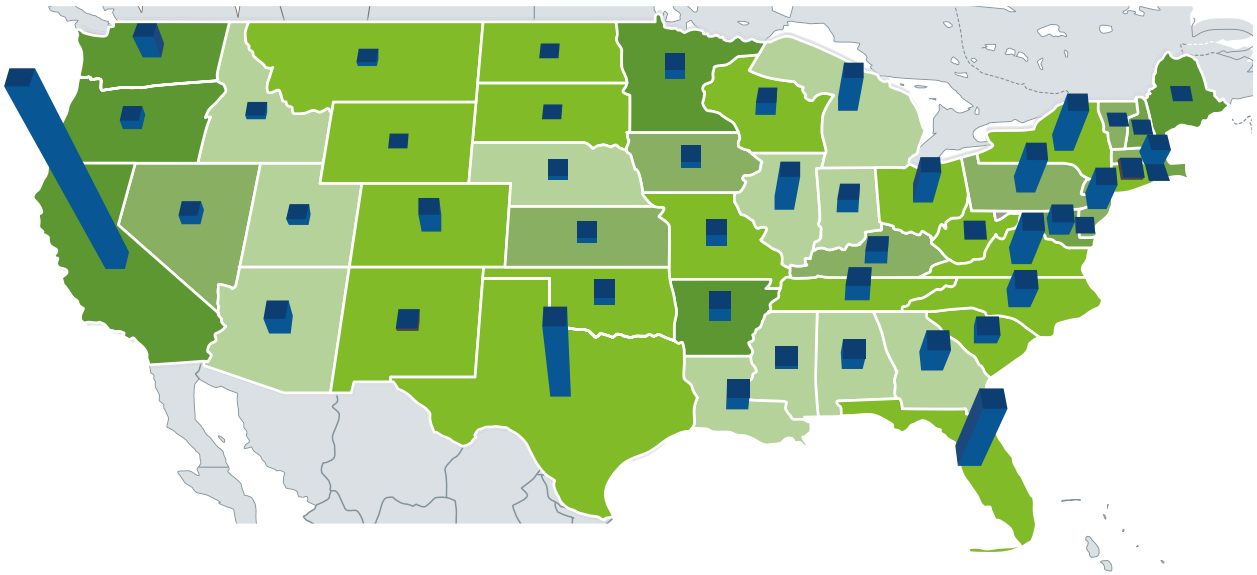
addition, it costs the communities $22 million to dispose of these materials by landfill and incineration. Therefore, recycling and recovering this material provide a direct economic opportunity valued at $84 million annually.

Based on gap analysis findings, here are some of the key recommendations:

- Organize a recycling champions' network.
- Develop a regional plan for recycling.
- Leverage technology to recover more commodity recyclables.
- Expand a backyard composting and food waste drop-off network.
- Develop supportive waste policies and incentives.
- Engage public and private stakeholders through a collaborative communications campaign.

Going forward, local stakeholders will consider the priority projects that RRS identified and projects that the Project Founders propose. The Project Founders will support and work to execute in tandem with local stakeholders the chosen implementation projects. Ultimately, the Project Founders plan to replicate the Beyond 34 model in another region with the lessons learned from Orlando.

FIGURE 1: WASTE GENERATION AND RECYCLING RATES IN 50 U.S. STATES



RECYCLING RATE

- Well-above Average (43.4%+)
- Above Average (28.9-43.4%)
- Below Average (14.5-28.9%)
- Well-below Average (0-14.5%)

WASTE GENERATION

- Waste Generation

OVERVIEW

In 2014, the U.S. generated 258 million tons of residential and commercial waste.[1] State recycling rates range from 4% in Oklahoma to 53% in California, with 33 states and the District of Columbia having recycling rates below the national average (see Figure 1).

From this generated municipal solid waste (MSW), only 34% was recycled or composted, even though much of that waste could have been used in manufacturing new consumer products.[2]

This statistic—34%—forms the basis for the U.S. Chamber of Commerce Foundation's (USCCF) most recent initiative on the circular economy. Beyond 34 is an innovative public-private partnership to help break through the current national recycling barrier of 34%. The goal of the project is to drive new local economies through the development of closed loop recycling and recovery systems that divert valuable residential, commercial, and industrial resources from the landfill.

This study illustrates how the investment is making an impact, fosters ideas for how to address the recycling and recovery gap, and provides insights on how to replicate such a project.

BACKGROUND

The circular economy, a regenerative economic model in which resources are cycled endlessly back into supply chains and waste does not exist (i.e., closed loop), represents a tremendous opportunity for businesses and the global economy. USCCF and Trucost, an environmental research firm, found that 5,589 of the largest publicly traded companies in the U.S. sent 342 million metric tons of waste to landfills and incinerators in 2014. For every $1 million in revenue, those companies on average generate 7.81 metric tons of waste. If those companies reduced only their paper waste by just 1%, they would collectively save nearly $1 billion on the cost of paper, to say nothing of reduced hauling costs to move the material through production, sales, or landfill.[3]

Moreover, shifting to the circular economy could unlock an estimated $4.5 trillion in additional economic growth by 2030 and could be the biggest economic revolution in 250 years.[4] Yet the U.S. ranks 18th in recycling among Organisation for Economic Co-operation and Development (OECD) countries, with $11.2 billion in recyclables landfilled as waste annually.[5] Adopting closed loop, circular methods is the best way for companies of all sizes and industries to eliminate waste and recapture its value.

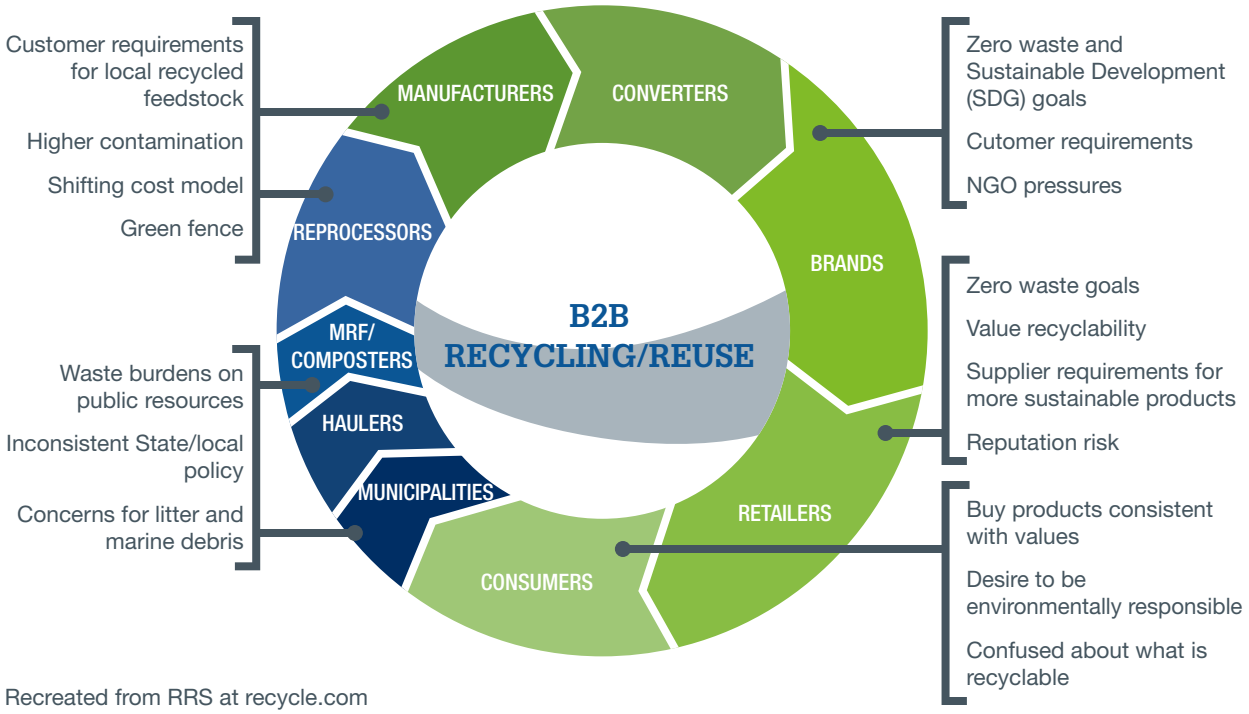
BEYOND 34 SPONSORS

Dow
Republic Services
Target
Walgreen Boots Alliance
Walmart Foundation

SHOWCASING THE CIRCULAR ECONOMY THROUGH A PILOT PROJECT

An essential component of transitioning to the circular economy is through the development of pilot projects to showcase the value of the circular economy and test best practices in a collaborative environment. Pilot projects can provide a blueprint, demonstrating how

FIGURE 2. KEY PLAYERS IN THE CIRCULAR ECONOMY



Recreated from RRS at recycle.com

companies and communities can successfully recycle and recover materials to keep them flowing in continuous, sustainable, and profitable loops. Pilot projects can also serve as powerful tools to raise awareness of the barriers and opportunities for transitioning to the circular economy and leverage key learnings toward achieving a world—and a future—without waste.

In addition, public-private initiatives can provide funding mechanisms for recycling infrastructure development, including curbside. However, many communities are missing the basic capacity and logistics expertise to submit fundable project proposals to these organizations. There is an increasing trend to collect commercial and residential post-consumer packaging materials, along with consumer products. Yet, no study to date has attempted to measure the high-value priority flows in a metropolitan region for infrastructure planning and end-market development.

Given these insights, USCCF established Beyond 34: Recycling and Recovery for a New Economy, its place-based pilot project, with leading brands, manufacturers, retailers, industrial service providers, and other partners to tackle the recycling and recovery gap in the U.S. and accelerate recycling infrastructure development. To complement USCCF's expertise on multistakeholder project design and strategic connections with like-minded businesses and state and local chambers of commerce and governments, USCCF invited RRS—an environmental consulting firm—to join Beyond 34 to contribute its technical background in recycling and the circular economy to the project. Additionally, private sector sponsors were invited to support the Beyond 34 pilot and lend their expertise in recycling from the business perspective.

These founding Beyond 34 entities will collectively be referred to as the Project Founders throughout the case study.

This pilot project is a first-of-its-kind effort that provides a unified voice of business to stimulate comprehensive recycling system

development. This is being accomplished through measurement of material flows, as well as engagement and education of key local stakeholders, including municipalities, state and local chambers and their members, and local and regional governments.

Key players and their drivers for change are summarized in Figure 2.

The primary goals of Beyond 34 are as follows:

1. Demonstrate a scalable process for improving recycling and recovery infrastructure through increased systems efficiency in a selected U.S. city-region.

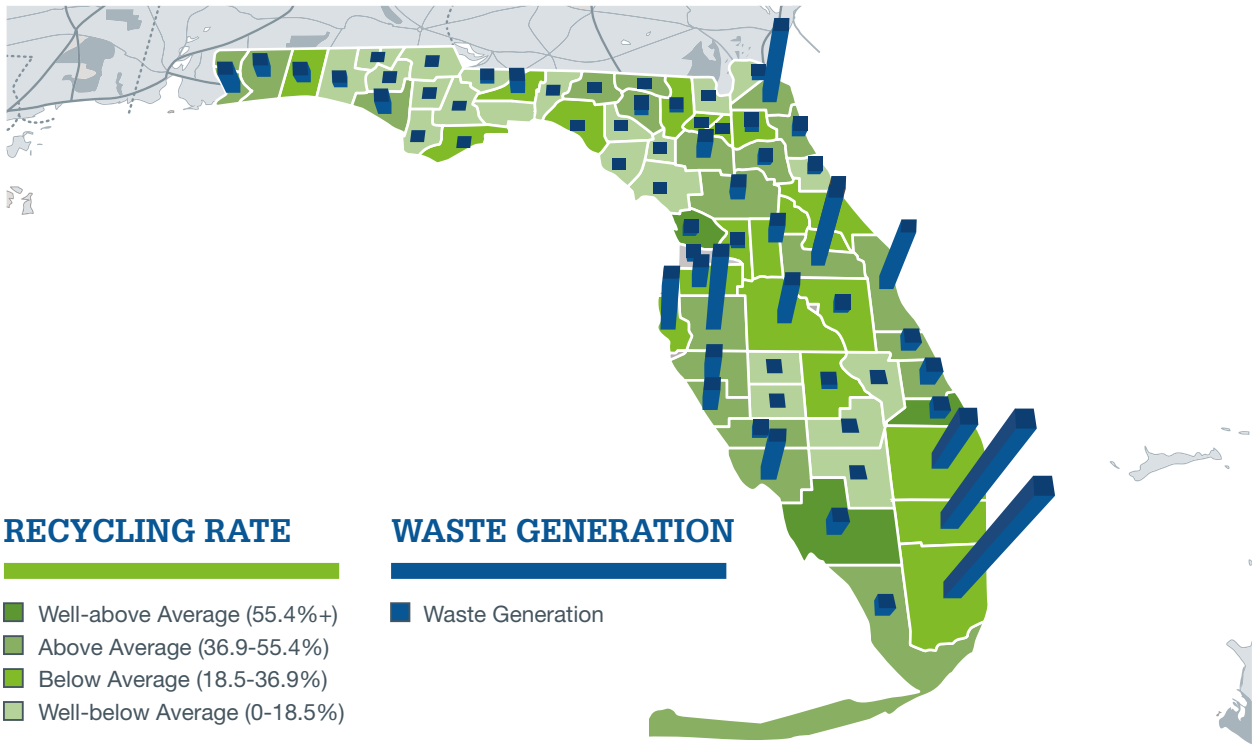
2. Provide a blueprint demonstrating how to optimize recovery of high-value materials from the waste stream through private-public partnerships and adoption of best practices. The blueprint will serve as a guide for other communities seeking to strengthen their competitiveness for growth through economic development (e.g., job creation) and environmental (e.g., zero waste) initiatives.

3. Develop strategic partnerships throughout the value chain and with state and local chambers of commerce to collectively accelerate the U.S. toward a market-driven approach to the circular economy for the benefit of communities, the environment, and the economy.

4. Raise awareness of the barriers and opportunities for transition to the circular economy in the U.S. and leverage pilot learnings to address closed loop challenges for materials recovery.

The ultimate output is a successfully operated pilot project that provides a blueprint for further replication and scaling of principles and best practices to help mainstream the circular economy in the U.S.

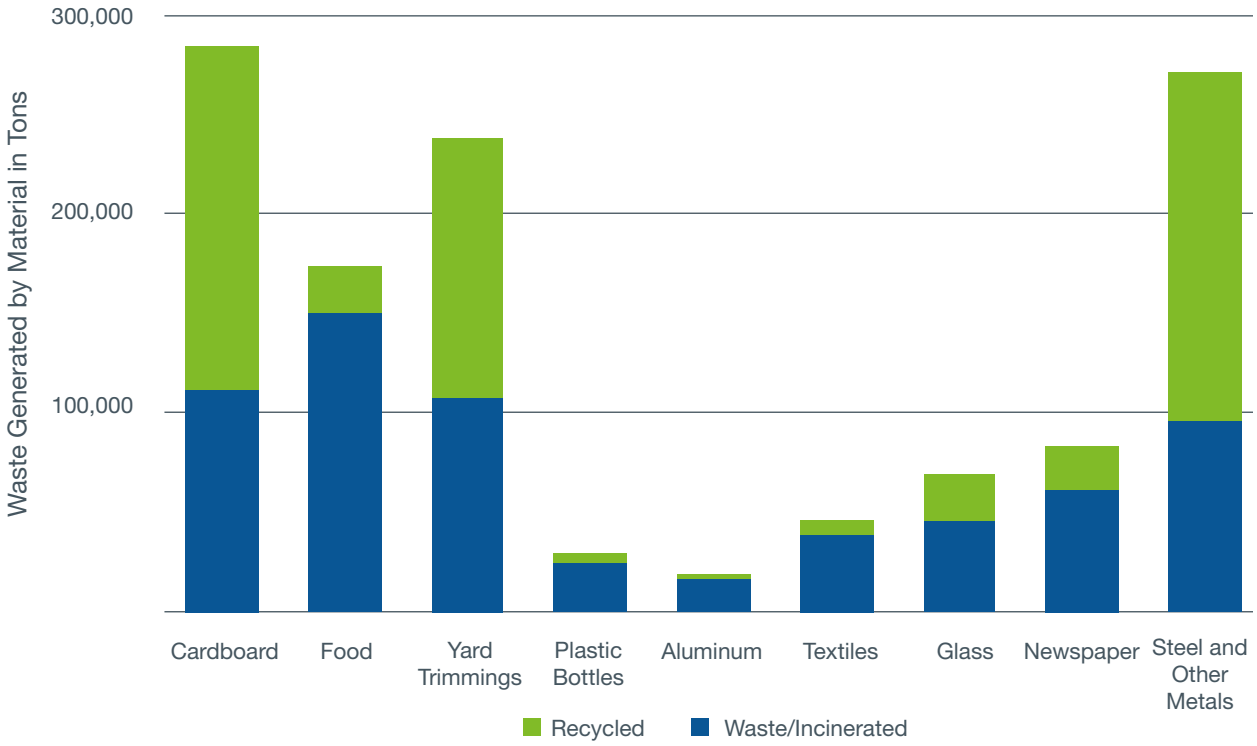
FIGURE 3. WASTE GENERATION AND RECYCLING RATES IN FLORIDA COUNTIES



MUNICIPAL SOLID WASTE GENERATED AND RECYCLED BY COUNTIES IN THE ORLANDO METROPOLITAN STATISTICAL AREA

COUNTY	COLLECTED (TONS)	RECYCLED (TONS)	RECYCLING RATE
Orange	1,336,526	682,373	51%
Lake	359,912	89,911	25%
Seminole	436,005	139,913	32%
Osceola	146,370	32,900	22%
Orlando Metro Total	**2,278,813**	**945,097**	**42%**

FIGURE 5. WASTE GENERATED AND RECYCLED IN THE ORLANDO METROPOLITAN STATISTICAL AREA IN 2015



THE CHOICE OF ORLANDO AS THE BEYOND 34 PILOT AREA

The Beyond 34 pilot endeavored to select a U.S. city-region that demonstrates a high degree of readiness for recycling system development. Readiness was defined by infrastructure, programmatic, and policy factors, plus the presence of manufacturing centers that indicate significant opportunity for value capture from a robust intervention to recycle more materials.

RRS created a customized screening analysis of metropolitan statistical area (MSA) recycling system opportunities and identified 28 initial city-regions where infrastructure exists. But other factors are contributing to lower recycling rates. Adding a score on current MSA recycling programs and state and regional recycling policy, the pool of candidates narrowed to where Orlando was the strongest choice.

WHY ORLANDO?

At the state level the average recycling rate, according to the Florida Department for Environmental Protection, is 37%, ranging from 3% in Glades County to 59% in Charlotte County, a rate that includes waste to energy production (see Figure 3). Recycling rates are higher in counties with higher population density, which also generate larger waste streams. For example, the recycling rates of counties with the major cities of Orlando and Miami were at 53% for Orange County and 33% for Miami-Dade County, respectively.[6]

The Orlando MSA, composed of Orange, Seminole, Lake, and Osceola counties, is Florida's third-largest MSA behind Miami and Tampa.[7] In 2015, the Orlando MSA generated 2.3 million tons of MSW, accounting for 10% of the total waste stream generated in the state (see Figure 4). The regional recycling rate is 42%, 5% higher than the state average.[8]

Orange County's relatively high recycling rate offsets lower recycling rates in the other three counties, which are below the state and national averages.The five-largest waste streams in the Orlando MSA by mass are cardboard, yard waste, ferrous metals, food waste, and paper products (excluding office paper and cardboard), which account for 49% of the waste generated in the region.[9]

A further analysis of the waste streams generated by each of the Orlando MSA counties reveals that recycling rates for newspaper, glass, aluminum cans, and plastic bottles are lower than national, state, and regional recycling rates (see Figure 5). Of other materials, textiles, food, and other plastic waste also have recycling rates below the average regional recycling rate (see Appendix A).

In addition to its lower than average recycling rates, strong public- and private-sector engagement, an innovative culture, and robust sustainability goals contributed to the Orlando area's selection as the Beyond 34 Pilot region. Further, local stakeholders demonstrated a willingness to engage throughout the project and are confident that Beyond 34 will help advance sustainability and economic growth goals, such as Orlando's goal to become a zero waste community by 2040.

Once Orlando was finalized as the Beyond 34 pilot choice, the next step was to begin initial planning and stakeholder engagement. The next section details how that process was executed.

LAUNCHING THE BEYOND 34 PILOT

The first Beyond 34 pilot meeting for Orlando took place in mid-July 2017 with the goal of achieving key objectives to set the pilot on a path to success. In addition to the Project Founders, key Orlando stakeholders in this preliminary conversation included representatives from the city of Orlando, Orange County, and the Orlando Regional Chamber of Commerce.

The day began by clarifying the project scope and the approach to identifying focus recycling materials. For the project scope, the Project Founders stated that they would begin by establishing the local champions in Orlando in conjunction with attendees at this initial meeting. The Project Founders would support these local champions with educational programming, mentoring, and local network development. Next, a material mapping of the "wasteshed" would follow to gather information regarding the current state of recycling.[10] Finally, the Project Founders would perform a recycling best practices gap analysis to identify priority projects for optimizing efficiency to inform a city-region recycling infrastructure business plan.

From the outset, participating stakeholders expressed enthusiasm for the pilot. They talked about diverting materials being landfilled and optimizing the material flow to get the best economic/environmental benefits as well as making the local value chain circular.

Stakeholders emphasized that partnerships are key to success. Beyond 34's private sector sponsors have great experience in logistics, which can assist municipalities and other recycling partnerships. They also acknowledged that the initiative needs to involve more than just the city or county when wastesheds do not obey those boundaries.

Next, the group considered other potential partners to include in the project. Stakeholders discussed how there are many types of industries in the Orlando area that can contribute to the Beyond 34 initiative and developed an extensive partner list. Among some of the potential partners mentioned are the theme parks. They make a strong impact in the area, conduct good recycling work, and would bring a unique perspective. It was also vital to have other municipalities at the table. In addition, Orlando is the 10th-largest school district in the country, so it would be beneficial to have the public school system as another partner.

THE NEEDS FROM CORE PARTNERS TO ENSURE PROJECT SUCCESS

The needs of the Project Founders included obtaining recycling data, both commercial and residential, to perform the material mapping. An additional need was being connected with communications contacts at the stakeholder organizations to conduct social media and other forms of outreach.

The other partners, the key Orlando stakeholders, had needs that pertained to the information in the deliverables proposed by the Project Founders. These included determining how they could build on existing recycling programs, funding mechanisms, and business models to finance the systems—considering the needs of all stakeholders involved—and providing information on recycling best practices in other cities and counties.

The group then addressed logistics and planning for a workshop with the broader group of key partners. It was proposed that the event be held two to three months after the meeting to enable adequate time for planning, notification, and initial analysis to be performed. The group decided that a meeting size of 40–50 people was ideal, and the event would span most of a day with a working lunch and not compete with other major events in the area. The Orlando Chamber volunteered to host the event and distribute the invitations based on the invite list that the group assembled.

FIGURE 6: THE COST OF LOST RECYCLABLES IN VARIOUS SOUTHEASTERN STATES

STATE	DISPOSAL COST	MARKET VALUE
Alabama	$31,600,000	$85,300,000
Georgia	$100,000,000	$300,000,000
North Carolina	$38,000,000	$96,000,000
South Carolina	$21,000,000	$157,000,000
Tennessee	$30,000,000	$82,700,000
TOTAL	**$220,600,000**	**$721,000,000**

The final conversation of the day entailed a summary of various next steps that partners would need to undertake. With these in place, the Beyond 34 pilot was officially underway.

BROADENING THE BEYOND 34 PILOT'S LOCAL PARTICIPATION

For several months after the meeting, the core partners worked on their assigned duties, planning a more extensive Beyond 34 workshop and analyzing local recycling data to provide preliminary information and recommendations at the event.

The workshop, The Orlando Region Waste Impact Workshop: How Public and Private Sectors Collaborate for Recycling System Optimization, took place in mid-October 2017 with over 50 local organizations in attendance. The day began with Mayor of Orlando Buddy Dyer and other representatives from key organizations outlining their hopes for the partnership and steps they are taking to improve recycling in the Orlando area.

The conversation then moved to the economics of recycling. Data from other states in the Southeast were presented by the Southeast Recycling Development Council to provide context for what other states were doing to reach their recycling goals. Of note, there are incentives to bring recycling facilities to the Southeast with $40 billion in economic activity coming out of these plants. These are strong reasons to improve end-market development.

KEY OBJECTIVES FOR FIRST BEYOND 34 PILOT MEETING

- Discuss project scope, boundary, and approach to identify materials to include in the scope.
- Identify core project partners' roles and responsibilities.
- Identify additional stakeholders key to project success; clarify and outline core project deliverables.
- Discuss logistics and planning for announcing city pilot location and focus materials.
- Discuss logistics and planning for fall recycling optimizing workshop.

The total cost of lost recyclables in the Southeast has an estimated market value of $721 million and a disposal cost of $220 million (see Figure 6).

RRS also discussed how the waste stream is changing with more cardboard boxes, flexible packaging (i.e., plastic bags), and lightweighting of packaging that necessitates more packaging to make a ton of end-market material. Overall, only 70% of the U.S. waste stream can be recycled or composted. The Project Founders then provided an update on the recycling gap analysis process and shared recycling system best practices.

For the majority of the day, however, the audience was broken into small groups to brainstorm their visions for collaboration, barriers to achieving it, and the logistics behind how the visions would be executed.

Following are five visions that were developed:

- Create a circular/regenerative economy.
- Capture value from material in our products.
- Recycle more through best practices to achieve goals.
- Develop local manufacturing processes and usable infrastructure that utilizes recycled materials to create new products—a closed loop economy.
- Promote collaboration, consistency in messaging, and a clear mission.

At the end of the day, a group of local champions volunteered to lead efforts to carry these visions to fruition and provide more extensive data to the Project Founders to help them complete the recycling gap analysis of the Orlando community. The local champions include representatives from the city of Orlando, Orange County, the Greater Orlando Aviation Authority, Disney, and ecoPreserve. Based on the results of the recycling gap analysis, the local champions, with guidance from the Project Founders, would work to achieve the goals they set for the region to increase local recycling rates.

NEXT STEPS ESTABLISHED AT FIRST BEYOND 34 PILOT MEETING

- Determine the type of agreement to formalize the collaboration and finalize it.
- Have the MSA send the recycling data to the Project Founders.
- Create and vet list of stakeholders for the workshop.
- Send Doodle poll with workshop dates to potential stakeholders.
- Distribute save the date email for the workshop.
- Obtain contact information for communications/marketing people from stakeholders who will be involved in project outreach.

BEYOND 34 PILOT RECYCLING GAP ANALYSIS

After the October workshop, the final step in the Beyond 34 pilot was to finalize the recycling gap analysis of the region. The goal of the exercise was to quantify the impact of commercial and residential recycling programs in the region and provide a fact-based analysis to identify regional cooperative opportunities to achieve greater adoption of recycling best practices.

A customized best practices survey was developed for municipalities and businesses to collect recycling data across sectors in the region and provide an assessment of the opportunities for a regional recovery system. Current programs in the Orlando area were benchmarked against national best practices and Florida's 2020 solid waste planning objectives of a 75% recycling rate.[11]

The gap analysis determined that the dollar amount of currently disposed materials of focus (i.e., fiber, metal, plastic, glass, and organics) that could be of value if they were recycled instead exceeds $62 million annually. In addition, it costs the communities $22 million to dispose of these materials by landfill and incineration. Therefore, recycling and recovering this material provide a direct economic opportunity valued at $84 million annually. Moreover, it is estimated that recycling collection, processing, and manufacturing activities will yield the opportunity to create an estimated 4,242 new jobs directly related to recycling and 4,242 additional jobs that would be indirectly related to recycling efforts.

The analysis also found that Orlando communities were at varying levels of effectiveness in their recycling programs but shared some common strengths and opportunities.

Overall, findings showed that opportunities exist for targeted investment to increase recycling. In particular, several key recommendations emerged from the analysis:

RECYCLING SYSTEM BEST PRACTICES

- **Collection**—Efficient recycling collection and access to collection are needed. This may include curbside carts accepting a single stream and/or using similar recycling collection vehicles between residential and commercial sectors.
- **Processing**—Add many waste streams to the recycling mix. Look at efficient processing, such as central processing facilities, so that communities can collaborate.
- **End Markets**—The end markets for resold recycled materials aren't just local. Effective collecting and processing drive value to end markets. Quality recycling facilities can assure businesses that they have a predictable supply of products.
- **Education**—Improved recycling education leads to better recycling. Typically, it is advised to allot $1 per household to a recycling education program budget. If changes are made to a recycling program, education spending should increase to $3—$4 per household.
- **Policy**—Recycling policies vary by location. Some policies to consider may be a pay-as-you-go policy or recycling ordinance.
- **Partnerships**—Public-private partnerships through financing or contractor relationships can be beneficial to improve local recycling facilities and processes.

Organize a Recycling Champions Network

- Create a Regional Planning Network responsible for waste diversion and recycling across the MSA. The Orlando Regional Chamber of Commerce, Orange County, and the city of Orlando lead in collaboration with MSA municipalities.
- Convene local businesses and stakeholders for regular network meetings.

Develop a Regional Plan

- Develop a regional plan with short- and long-term goals, strategy, economic and environmental benefit success measures, and defined responsibilities.
- Structure regional data collection beyond municipalities to include commercial and industrial sources of recyclables.

Leverage Technology to Recover More Commodity Recyclables

- Upgrade the closed material recovery facility (MRF) to an automated single-stream MRF with state-of-the-art technology to process today's prevalent packaging formats and materials from not only residential but also commercial and industrial sources.
- Consider a public-private partnership for the MRF.

Expand Backyard Composting and Food Waste Drop-Off Network

- Urge MSA municipalities to provide expanded community food waste diversion options.
- Grow backyard composting programs across the region.
- Increase food waste recovery to neighborhood and community drop-off sites (e.g., farmers markets and convenience centers).

Develop Supportive Waste Policy and Incentives

- Consider a landfill tip fee adjustment to drive waste diversion from landfill and raise revenue for the MRF.
- Revisit municipal ordinances within the MSA and ensure that multifamily and commercial recycling requirements are established and enforced.

Engage Public and Private Stakeholders Through a Collaborative Communications Campaign

- Develop branded regional recycling content for key messages to be used by stakeholders across their various platforms with support from Beyond 34 sponsors and conduct pre campaign design target audience research.
- Showcase zero waste best practices with organizations that share Beyond 34 goals.
- Provide recycling bins through retail partners to highlight community campaign.
- Utilize national partners to align resources and messaging and identify additional grassroots partners as stewards for campaign and messaging.

ONGOING EFFORTS

Moving forward, the focus will be to engage local stakeholders to identify implementation projects that will lead to the largest increase in the Orlando region's recycling rate per dollar spent. The Project Founders will mainly engage local stakeholders via the local champions established at the workshop. Further, local stakeholders have been engaged at events such as the Recycle Florida Today/Solid Waste Association of North America Florida Summit that took place in January 2018. Both RRS and USCCF attended. Local stakeholders will consider the priority projects that RRS identified and projects that the Project Founders propose. The Project Founders will support and work to implement in tandem with local stakeholders the chosen implementation projects.

The implementation projects initially identified will have different time horizons and will not be the only ones pursued in the Orlando region. The implementation phase will start with projects that have some quick wins as well as those that will take longer but could greatly increase the recycling rate. All implementation projects will have a positive return on investment. However, as this is a pilot, some projects may be subject to adjustment as they continue. Each implementation project will involve a measurement component to determine how much the intervention is increasing recycling and whether to continue the project.

In mid- to late 2018, USCCF will replicate the Beyond 34 model in another region with the lessons learned from the Orlando region. The ultimate goal is that the U.S. will move beyond its current 34% recycling rate once enough regions have embraced the Beyond 34 model.

COMMON STRENGTHS AND OPPORTUNITIES IN THE ORLANDO RECYCLING COMMUNITY

Strengths

- Curbside collection with rolling carts
- Weekly collection
- Some recycling education
- Recycling services embedded in disposal charges

Opportunities

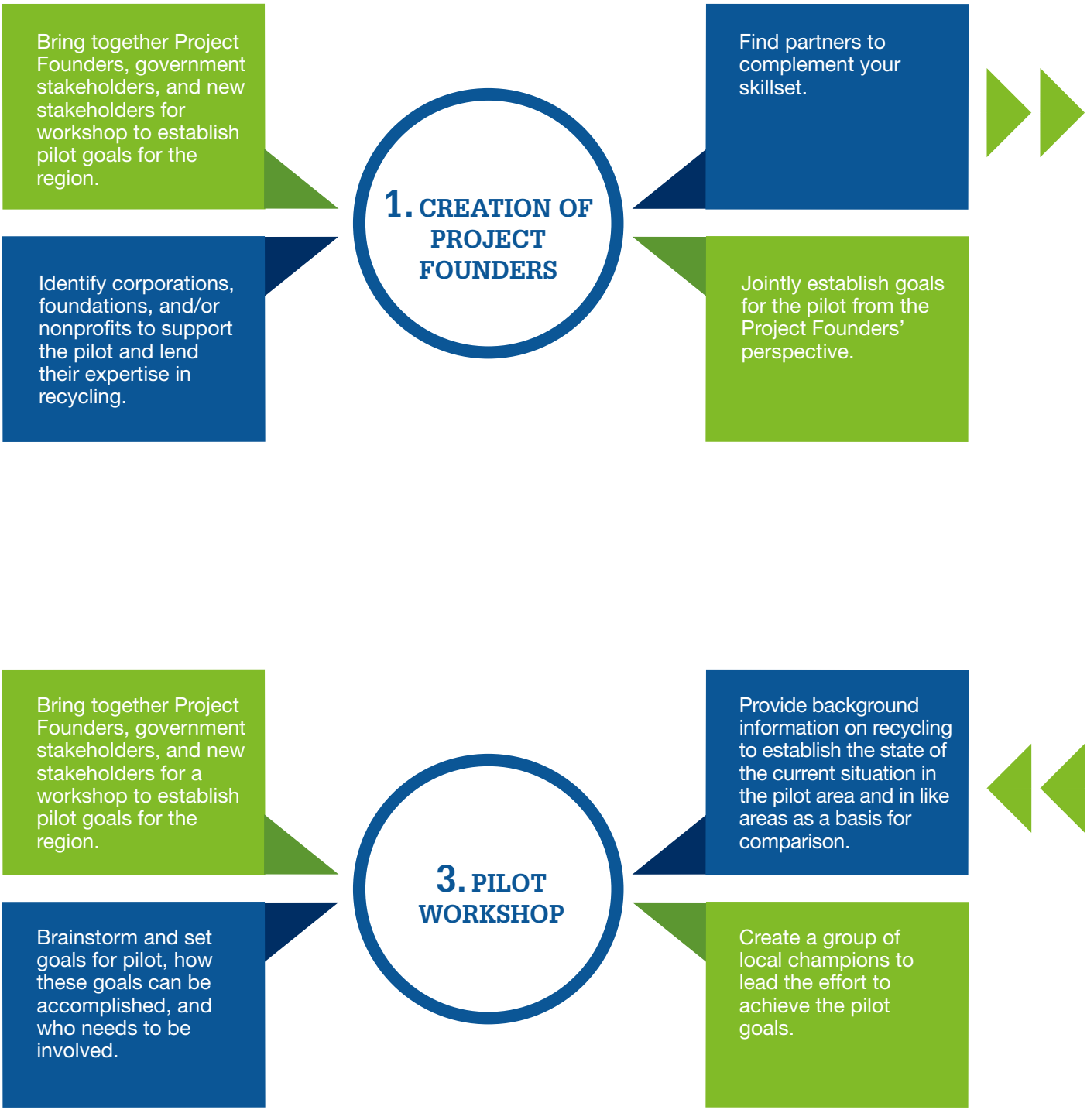
- Commercial and multifamily provision
- Food scrap collection
- Processing options
- Financing option
- Partnership funding opportunities
- Partnership programs—TerraCycle, E911, and RecycleBank

At the October Roundtable, Beyond 34 stakeholders worked in large and small groups to determine the important recycling issues impacting the Orlando community.

APPENDIX A: MUNICIPAL SOLID WASTE GENERATED AND RECYCLED IN ORLANDO METRO BY MATERIAL (FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION)

	ORANGE			SEMINOLE			LAKE			OSCEOLA		
MATERIALS	Collected (tons)	Recycled (tons)	Recycled (%)	Collected (tons)	Recycled (tons)	Recycled (%)	Collected (tons)	Recycled (tons)	Recycled (%)	Collected (tons)	Recycled (tons)	Recycled (%)
Newspaper	38,240	16,826	44%	18,761	2,627	14%	17,339	1,214	7%	9,000	810	9%
Glass	41,446	16,164	39%	15,173	2,883	19%	8,670	2,861	33%	4,501	1,800	40%
Aluminum Cans	9,868	2,171	22%	2,593	467	18%	4,335	130	3%	2,801	84	3%
Plastic Bottles	10,677	3,844	36%	7,536	1,130	15%	8,670	-	0%	2,900	-	0%
Steel Cans	21,259	13,818	65%	4,086	123	3%	4,335	-	0%	4,401	176	4%
Cardboard	200,855	130,556	65%	34,196	20,176	59%	33,347	14,339	43%	16,000	7,840	49%
Office Paper	30,308	22,428	74%	17,121	685	4%	4,335	-	0%	7,600	3,116	41%
Yard Trash	114,043	75,268	66%	60,372	36,827	61%	45,591	18,236	40%	18,000	-	0%
Other Plastics	31,137	9,341	30%	34,436	1,377	4%	13,004	1,691	13%	6,700	737	11%
Ferrous Metals	110,269	86,010	78%	30,211	28,096	93%	34,678	9,016	26%	10,918	9,717	89%
White Goods	23,389	15,437	66%	242	-	0%	8,670	1,734	20%	4,000	1,840	46%
Non-ferrous Metals	21,656	11,261	52%	18,042	16,238	90%	8,670	694	8%	3,101	341	11%
Other Paper	167,567	95,513	57%	81,559	12,234	15%	38,006	7,221	19%	9,000	4,770	53%
Textiles	17,765	5,862	33%	17,667	883	5%	8,670	607	7%	2,500	350	14%
Food	85,322	20,477	24%	41,358	1,241	3%	24,002	2,160	9%	24,000	-	0%
Miscellaneous	395,079	146,179	37%	52,223	14,100	27%	79,256	28,532	36%	20,148	1,209	6%
Tires	17,646	8,470	48%	429	416	97%	4,334	260	6%	800	-	0%
Total	**1,336,526**	**679,626**	**51%**	**436,005**	**139,502**	**32%**	**345,912**	**88,695**	**26%**	**146,370**	**32,790**	**22%**

FLOW CHART FOR B34 PILOT PROCESS



IF SITE SELECTION IS NEEDED ...

Create agreed-upon criteria and scoring to select pilot location.

Undertake selection analysis process.

Narrow list to 2-3 finalists.

Conduct interviews with key government stakeholders in the finalist areas to gauge their interest, willingness in hosting a pilot.

Based on findings from interviews, choose a pilot location.

2. PILOT STARTUP

Project Founders identify key government stakeholders to participate in an initial meeting to accomplish these goals:

- Discuss project scope
- Identify core project partners' roles, responsibilities, and needs
- Identify additional stakeholders key to project success
- Clarify and outline core project deliverables
- Discuss logistics and planning for announcing city pilot location and focus materials
- Discuss logistics and planning for workshop with additional stakeholders
- Determine the type of agreement to formalize the collaboration

Project Founders and key government stakeholders participate in initial meeting and establish next steps per the goals in the previous step and assign responsibilities for workshop meeting planning.

Formalize the collaboration through the established agreement.

ENDNOTES

1. *Advancing Sustainable Materials Management: 2014 Fact Sheet*, United States Environmental Protection Agency, accessed June 12, 2017. https://www.epa.gov/sites/production/files/2016-11/documents/2014_smmfactsheet_508.pdf These waste streams, commonly referred to collectively as municipal solid waste (MSW), included 69 million tons of paper products, 33 million tons of plastics, and 23 million tons of metals.

2. *Advancing Sustainable Materials Management.* This figure was calculated using a material flows approach, which consists of estimating the weight of waste generated and recycled based on domestic production, imports and exports data from the U.S. Department of Commerce, and recycling professionals. EPA's methodology included most residential and commercial wastes, but excluded industrial waste, construction and demolition waste, and sewage sludge.

3. Lawrence Bowdish, *Trash to Treasure: Changing Waste Streams to Profit Streams* (Washington, DC, U.S. Chamber of Commerce Foundation, 2016).

4. P. Lacy and J. Rutqvist, *Waste to Wealth: The Circular Economy Advantage* (London, United Kingdom, Palgrave Macmillan, 2015).

5. C. MacKerron, *Unfinished Business: The Case for Extended Producer Responsibility for Post-Consumer Packaging* (San Francisco, CA, As You Sow, 2012).

6. *Solid Waste Management in Florida 2015 Annual Report*, Florida Department of Environmental Protection, accessed November 5, 2017. https://floridadep.gov/waste/waste-reduction/content/solid-waste-management-florida-2015-annual-report

7. "American Fact Finder," U.S. Census Bureau, accessed December 20, 2017. https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

8. *Solid Waste Management in Florida.*

9. See Appendix A for a full breakdown of solid waste materials collected and recycled in Orlando MSA in 2015.

10. A wasteshed is defined as a city-region area in which it is appropriate to develop an effective "hub and spoke" recycling system. In this type of system, areas that collect recyclable materials feed them into centralized hubs where materials are sorted, baled, and sold to market.

11. "Florida and the 2020 75% Recycling Goal," Florida Department of Environmental Protection, accessed February 2, 2018. https://floridadep.gov/sites/default/files/inalRecyclingReportVolume1_0_0.pdf

Figure 1 is based on results from D. Shin, *Generation and Disposition of Municipal Solid Waste (MSW) in the United States –A National Survey* (New York, NY, Columbia University, 2014).

Figures 3, 4, and 5 are based on "Solid Waste Management in Florida 2015 Annual Report," Florida Department of Environmental Protection, accessed November 5, 2017, https://floridadep.gov/waste/waste-reduction/content/solid-waste-management-florida-2015-annual-report

Figure 6 is based on W. Sagar, "The Economic Impact of the Recycling Industry" (presentation, The Orlando Region Waste Impact Workshop: How Public and Private Sectors Collaborate for Recycling System Optimization, Orlando, FL, October 19, 2017).

ABOUT THE AUTHOR

Sara Zellner is the founder and principal of Lynz Consulting LLC, advising companies and nonprofit organizations on social responsibility. She works with the U.S. Chamber of Commerce Foundation Corporate Citizenship Center to augment its thought leadership through the creation of white papers, research reports, and online tools. Sara brings a unique skill set to her work with a background in management consulting, public-private partnerships, nonprofits, marketing, and data analytics.

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