An increasing number of private sector recycling investments, the emergence of new types of material processing facilities, grant programs designed to grow collection and initiatives to find new streams of material have many optimistic that plastics recycling is on an upward climb.

“This is an exciting time,” says Rob Kaplan, director of product sustainability at Walmart Stores, Inc. “It seems as if we are at the tipping point of making investments that will help collect and process more recycled material. In the last couple of years, everyone has recognized that collaboration is the answer and that we can create more results and be more effective working together.”

A look at the evolving recycling landscape underscores the changes taking place:

• Private investors are building plastic recycling facilities to sort out mixed bales of Nos. 3-7 plastics – material that used to go offshore until China enacted Operation Green Fence. Just one example: QRS Recycling – which opened its first plastics recovery facility (PRF) in 2011 in New Albany, Indiana – will have four such facilities when its new PRF in Baltimore becomes operational this summer.

• The $35 million advanced mixed materials recovery facility, or “dirty” MRF, in Montgomery, Alabama that opened last summer is producing quality bales of PET, HDPE and PP from trash and recyclables that are collected together in one curbside bin.

• In December 2013, Sims Municipal Recycling opened a $110 million MRF in New York City. It’s the largest commingled MRF in the U.S. with 16 optical sorters, four ballistic separators and the capacity to sort 400 million pounds of recyclable materials annually.

Besides those developments, Plastic Recycling, Inc. and Dart Container Corporation this summer will open a polystyrene recycling plant that can process 25 million pounds of recycled PS. It will be the first plant to process EPS and rigid PS together.

That plant will complement the 60 million pounds of recycled PS that Plastic Recycling processes annually at its existing plant – one-third of which comes from post-consumer PS material from drop-off sites.

“It is a gateway for a lot more PS to be recycled,” says Michael Westerfield, director of corporate recycling programs at Dart Corp. That plant, and a PS grant program for cities and MRFs that the Foam Packaging Coalition announced last month, are “two huge positive developments” for PS recycling, Westerfield says.

New types of plants

So what’s driving the increase in investments?

“All these plants to recycle and sort are coming on-line because companies see that there is a growing end market for all these recycled resins,” says Scott Saunders, general manager of KW Plastics Recycling Division in Troy, Alabama.

Scott Mouw, the top recycling official for the state of North Carolina, agrees.

“There is a demand-pull in the marketplace,” says Mouw. “Companies are looking to satisfy a market that wants more recycled...
resins so they are making investments in a fairly aggressive way and looking for new sources of material.”

“New plants and operators are coming on-line and growing,” says Dave Bellon, managing partner of QRS. “I’m encouraged by the growth we’re seeing in the infrastructure.”

And it’s not just the infrastructure landscape that’s changing.

Tools and initiatives
The tools and resources provided by the Association of Postconsumer Plastic Recyclers, the Curbside Value Partnership and others are growing and making it easier for companies to assess the economics and implement programs (see sidebar on page 37).

CVP, for example, has always offered technical assistance and educational outreach programs to communities. Last October it created a technical council of experts from 14 companies involved in recycling. And this month, CVP is launching its CARTS module, a Web-based resource guide that will have technical and educational resources to help communities launch curbside cart collection systems.

In addition, the industry is working feverishly to expand supply in a variety of ways.

APR initiatives include increasing the collection of polypropylene and bulky rigid plastics, and the group continues to work on the growth of PET and HDPE recycling. In the last three years APR’s grocery store backroom recycling project has spurred at least a half-dozen nationwide and regional grocery store chains to collect HDPE and PP food-grade plastics material.

“What APR has done brilliantly over the last four to five years is put the complete supply chain in the same room to develop solutions,” says Saunders, who also serves as chairman of the APR board of directors.

“It worked for polypropylene, it worked for bulky rigid and now they’ve started a film committee to expand that market. As the industry identifies new streams, they bring all the parties together to develop solutions.”

Increased collections
All those initiatives – as well as the increased sorting at new MRFs, PRFs (plastics recovery facilities) and mixed waste facilities – have led to increased amounts of recycled materials being collected and processed, even though PET and HDPE recycling rates are holding steady at around 32 percent.

The amount of non-bottle rigid plastics collected in 2012 was slightly over 1 billion pounds, or more than triple the 325.4 million pounds collected in 2007, the first year such statistics were compiled.

Similarly, the volume of plastic bags and film collected and recycled in 2012 was more than 1 billion pounds, up more than 50 percent from the nearly 652.5 million collected in 2005. And the amount of plastic bottles collected and recycled in 2013 was 2.9 billion pounds compared with 2.4 billion pounds in 2008.

That all means in the most recent year with figures available, 4.9 billion pounds were collected in bottles, non-bottles and film, compared with the 3.4 billion pounds collected in those categories during the earlier years mentioned. And that doesn’t include the more than 100 million pounds of PS being recycled annually or the bulky rigid food-grade stream of HDPE and PP containers grocery recycle.

“There has been a steady growth in the amount of pounds collected, and strides are being made in getting different types of materials and resins,” says Mouw. “The industry has made a turn to a new paradigm with the increased collection of other kinds of materials.”

“These are exciting times for plastics recycling,” says Steve Alexander, APR executive director. “Industry is taking the lead in establishing programs to go beyond HDPE and PET. There are tangible reasons to be optimistic that the amount of post-consumer plastic material available for recycling will continue to increase going forward.”

Infrastructure grants
Collection is also expected to get a boost from grant programs that have emerged in the past year.

The Recycling Partnership, a public-private initiative managed by the CVP, aims to increase collection through grants for infrastructure improvement and educational outreach. Its most recent grant brought $300,000 to the city of Columbia, South Carolina to help the municipality switch from 18-gallon bins to 96-gallon carts – a move that is expected to increase the amount of material collected in the city by 500 percent.

Indeed, the recycling initiatives begun with Recycling Partnership grants in Columbia; Florence, Alabama; and Richmond, Virginia are expected to net those cities $12.6 million over the next 10 years based on the value of the additional material they’ll recover. CVP also expects to partner with at least a dozen more communities in 2015.

“The interest in collecting material is growing nationwide and the infrastructure is growing,” says Keefe Harrison, executive director of CVP, a nonprofit organization. “We need something to put those two together. We are working to create cross-sector partnerships that tackle recycling challenges with urgency and efficiency.”

Meanwhile, the year-old Closed Loop Fund, which has eight founding members including Walmart, plans to invest $100 million over the next five years to help municipalities start or expand recycling programs. The low-interest loan program
Boost from single-stream collection

These initiatives, combined with the expansion of single-stream collection programs, aim to generate an ever-increasing supply of plastics available for recycling. The annual APR largest-city survey examines each state’s most populous municipality on the basis of recycling practices. Of those select cities, 46 now have single-stream collection, compared with just 31 in 2009. In addition, 37 cities in the group now collect all plastic containers Nos. 1-7, compared with just 16 in 2009. Seven of the cities also collect bulky rigid, up from two in 2009.

“The volume of recycled materials has increased with more communities now using single-stream,” says Bellon. “Knowing they can recycle something if it comes from the kitchen or the laundry room helps consumers because the average person isn’t going to look at the bottom of the container for a number.”

A case in point: The amount of plastics processed by Sims in the New York area went up 10-15 percent when New York switched to all plastics collection at curbside two years ago.

“Studies show that if you just simplify the program, you get a broader array of products because people aren’t frustrated trying to figure out what they can put in,” says Tom Outerbridge, general manager of the recently opened Sims MRF in Brooklyn.

Adds Harrison from CVP: “The simpler we can make things, the better. Confusion can hold someone back from recycling.”

Here come the PRFs

Single-stream collection has also helped spur the growth of PRFs that sort out bales of plastics Nos. 3-7 for the U.S. market.

One example is QRS, which began to sell off assets and invest the money from those sales into PRFs, starting in 2011. “We did a lot of R&D, made heavy investments, reinvested the money from those sales and took a significant risk to turn ourselves in a company of PRFs,” says Bellon.

“We invested in advanced sorting technology, optical sorting and gravity separators. The key is the cutting-edge technology and the sequence you create for using that technology.”

When its fourth PRF opens this summer, QRS will have the capacity to process 336 million pounds annually at its plants in Atlanta, Baltimore, New Albany and St. Louis.

“We will be able to service everything east of the Rockies,” says Bellon. “We sell the resins that we recycle domestically. So we are now stimulating our domestic manufacturing base, not China’s.”

QRS gets bales from more than 300 companies, but the majority of its supply comes from MRFS and PET and HDPE reclaimers. “We’re not competing with MRFS,” says Bellon. “We are just another outlet that they can sell to. We pay good value for the stuff [MRFS and other reclaimers] miss when they sort.”

“There is a lot of activity around mixed plastics,” says North Carolina’s Mouw.

“QRS has found a real niche and met a need. It’s a market being driven both by domestic opportunities and the Green Fence.”

Byron Geiger, president of Custom Polymers PET in Athens, Alabama, agrees. “The more we can do to separate the plastics in mixed bales, the better, because there is a need and market for those materials.”

Sorting it out from different sources

Another pleasant surprise for plastic reclaimers has been the quality of the material from the mixed-waste MRF in Montgomery, which can, according to facility owners, separate out up to 95 percent of the available recyclables at a rate of 30 tons per hour.

“The material is at least the equivalent of the material we get from single-stream materials, if not better,” says Custom Polymers PET’s Geiger, who is also the vice chair of the APR board of directors. “We were pleasantly surprised. The quality has been consistent and good and better than we thought it would be. We see that as a huge positive.

“Dirty MRFs are probably not the right answer for all cities,” Geiger continues. “But if we put more of those facilities in the right areas, it could make a big impact on collection, particularly in the South.”

Saunders of KW Plastics Recycling Division – which buys PP bales from the Montgomery MRF – agrees. “The quality of the material on the PRF
Growing new tools of the trade

Increasing supply is more than just investing in new facilities and adding new material streams. Online resources and tools have also given a boost to the collection of materials.

The Curbside Value Partnership, for example, offers technical assistance and educational outreach programs to communities, and can provide recycling officials with maps that show a user all the companies within a 100-mile radius that depend on recycled material.

“We need to get communities to think of recycling as community and economic development,” asserts Keefe Harrison, executive director of CVP.

This month CVP is launching its CARTS module, an online resource guide that will feature technical and educational resources to help communities launch curbside cart collection systems.

The Association of Postconsumer Plastics Recyclers has also been adding to its online tools and resources, including bale specifications, design guidelines for plastics recyclability and critical guidance documents.

By the end of the first quarter of 2015, APR plans to add a list of companies that sell recycled polypropylene to its website.

The grouping will be similar to the APR list of buyers and sellers of other plastic resins, but will additionally include “some physical characteristics of the resin,” says Liz Bedard, director of the APR Rigid Plastics Recycling program.

In addition, APR plans to post an online sort-for-value matrix that will let organizations input their own volumes of bulky rigid plastics to determine how to get the best value for them.

“That will be particularly valuable for MRFs,” says Bedard.

In addition, APR’s grocery store recycling website, www.recyclegroceryplastics.org, will add a fourth video for grocery stores outlining how to bale the rigid plastics found in the backrooms, delis and meat departments of those retail outlets.

That same website also has case studies that show the different economics of baling, stacking and recovering grocery store plastics in a single-stream format as well as an overall economic overview of the benefits from launching such a program.

and dirty MRF side is comparable to what we get on the MRF side,” says Saunders. “If the rebirth of the dirty MRF model continues to work as advertised, it could open up many, many doors for PET, HDPE and PP. It could be a game-changer for small- to mid-size cities underserved by MRFs.”

Another MRF using technology differently to sort out more materials is the Sims New York MRF. “We use more technology and equipment than traditional MRFs,” says Outerbridge.

For example, Sims uses two optical sorters at the onset and a third at the end to identify what was missed and send it back to the beginning of the sortation process.

“We also put a lot of time and thought into pre-processing to make sure we get an even distribution of material on our conveyors,” he says.

Serious investments

Saunders says dirty MRFs, PRFs and the Sims MRF in New York are solid examples of the “serious investments” being made in sorting out plastic recyclables.

“The Green Fence helped tremendously,” says Saunders. “It focused MRFs on the need to invest in the quality of the material they sort – and not just bale things up.

Those new material streams got the attention of big retailers and brands who wanted to be seen as having products that are a solution to the end-of-life packaging issues.”

That’s one reason Walmart got involved in the Closed Loop Fund.

“We have been intent on increasing the amount of recycled content in plastics packaging for a couple of years now, and have been asking our suppliers to do that,” says Kaplan. “But we don’t think they should have to choose between sustainability and affordability. Our goal with the Closed Loop Fund is to see what we can do to increase supply and break down the barriers to creating more infrastructure to recycle more material.”

“We need to use these projects to see where the material is coming from, where it’s increasing and then work to get it back into the supply chain and close the loop,” Kaplan adds. “We have to aggregate the information and data [from these projects] and get it back to upstream suppliers.”

Harrison agrees.

“Recycling is a loosely connected but highly dependent network of businesses, governments and nonprofits,” she says.

“We need to find out what the barriers are, design solutions around those barriers [and] offer integrated approaches to implementing scalable programs that increase national recycling numbers for the long haul.”

The signs are encouraging. However, everyone understands that more needs to be done.

“We are still beset with many challenges,” says Mouw. “We have to find more ways to build up the recycling infrastructure, but it is a question of who pays for that so you have trash cans and recycling bins next to each other – in offices, parks, restaurants, entertainment venues and places where people eat on the go.”

The other key: continuing to grow end markets for recycled plastics.

“If you don’t have those, you can’t justify the cost of recovering material,” says Bellon of QRS. “So all of us have to prove to the industry that we can provide them with a reliable repeatable quality of material and the volume they need every month.”

Mike Verespej is president of MAV Business Communications. He can be reached at maverespej@gmail.com or 440-973-4159.

Reprinted with permission from Plastics Recycling Update, PO. Box 42270, Portland, OR 97242-6270; (503) 233-1305, (503) 233-1356 (fax); www.plasticsrecyclingupdate.com.