

PILOTING FOOD WASTE COLLECTION in GRAND TETON NATIONAL PARK

2018

A collaborative step toward municipal food waste composting
in Teton County, Wyoming and Zero Landfill National Parks



Executive Summary

The sophomore year of the food waste collection pilot was once again a collaborative endeavor of the Subaru of America-sponsored Zero Landfill Initiative in Grand Teton National Park and the Road to Zero Waste in Teton County, Wyoming. These programs share the goal of reducing the amount of waste deposited into landfills. In continued pursuit of this goal, both programs still identify food waste composting as a critical strategy by which to achieve waste reduction targets.

Teton County plans to implement a commercial food waste composting program by 2020, upon completion of a landfill closure at the county facility. Currently, no large-scale food waste composting services exist in the vicinity. WyoFarm Composting in Thayne, Wyoming, however recently expanded the capacity of its commercial and residential food waste collection. This expansion offered an opportunity that did not exist in the first year of the food waste collection pilot program. When the West Yellowstone Compost Facility reached the threshold amount it could accept from Grand Teton concessionaires on a weekly basis, program organizers quickly switched gears and began sending a portion of the food waste to WyoFarm Composting. This move is what allowed year two of the pilot program to grow and meet its season goal of 150 tons of diverted material from the landfill.

The addition of a new food waste destination resulted in some initial confusion and contamination, as the two composting sites require different styles of bags and have different levels of acceptable contamination. Once the food waste generators were further educated on the requirements of each composting location, contamination levels quickly dropped.

The culture around food waste is changing in Jackson Hole as the average citizen is becoming more aware of the amount and types of food waste they generate. The recent growth of WyoFarm Composting's service and the high level of participation during year two of the food waste collection pilot program both have attributed to the increased awareness of food waste and its impact on the environment. In addition, the excitement about upcoming improvements to Teton County's compost facility that will allow commercial food waste is additional evidence of the community's evolving food waste culture. As the pilot progresses into year three and transitions into Teton County's commercial food waste composting facility, targeting Zero Waste methods to specifically removing food scraps from the waste stream, will move the community closer to its goal of 60% waste diversion from landfill by 2030.

The 2018 pilot project met the goal of 150 tons collected, all while bringing on board new collaborators and strengthening communication and desire for sustainable practices in Grand Teton National Park and Teton County amongst all partners.



Figure 1. A nearly full food waste bin with educational posters.



Figure 2. Recently delivered food waste at WyoFarm Composting.

Food Waste Collection Pilot: 2018 Summary

- ▶ 5 months: May - October 2018
- ▶ 2 Concessionaires: Grand Teton Lodge Company and Signal Mountain Lodge
- ▶ 7 Collection Sites
- ▶ 1 pickup per week per composting site
- ▶ 0 wildlife impacts
- ▶ 0 complaints of food waste odor
- ▶ 11% contamination rate
- ▶ 149.53 total tons of food waste composted rather than landfilled
- ▶ Lessons learned that will inform the 2020 implementation of a regional food waste composting program in Teton County.



Figure 3. Sunflowers grown at WyoFarm Composting.

Thank you 2018 Sponsors and Partners

Grand Teton Lodge Company

Grand Teton National Park

National Parks Conservation Association

Recycle Across America

Signal Mountain Lodge/Forever Resorts

Subaru of America

Teton Conservation District

Teton County ISWR

West Yellowstone Composting Facility

WestBank Sanitation

Yellowstone National Park

WyoFarm Composting

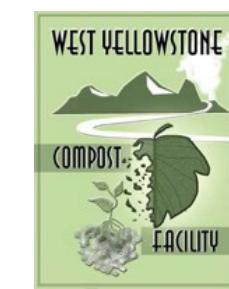
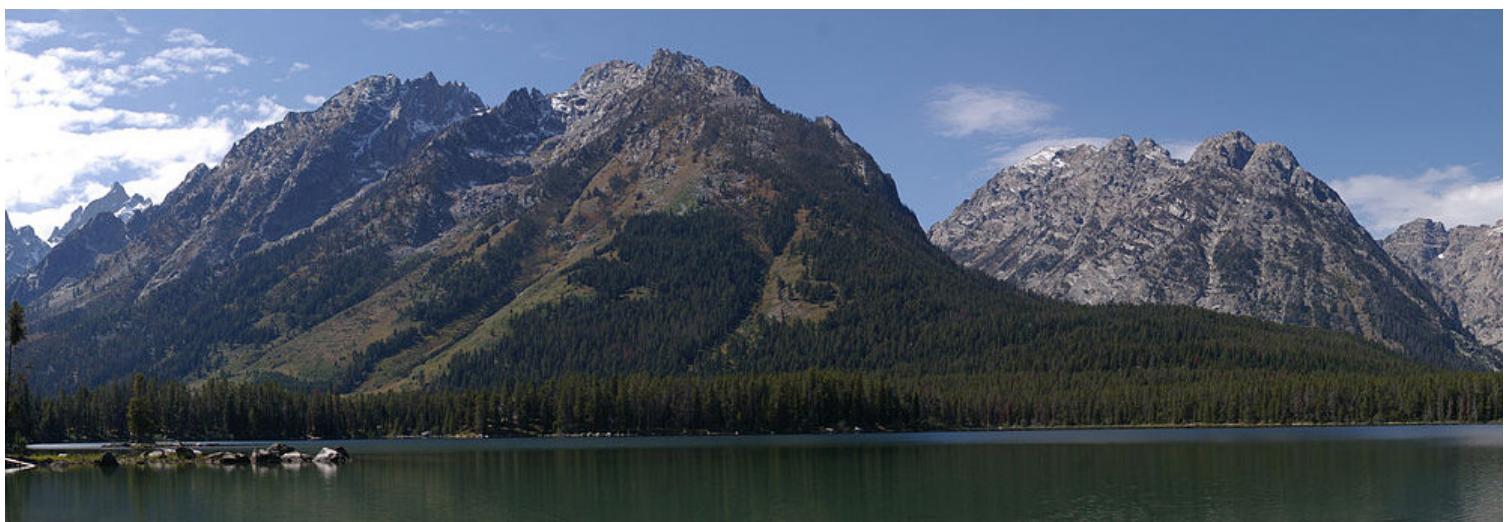


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Piloting Food Waste Collection in Grand Teton National Park

Introduction and Background

2018 marks the second year of the pilot program to collect food waste from Grand Teton National Park (GTNP) and divert material from the landfill. Food waste is targeted for landfill diversion by both GTNP and the surrounding community of Teton County, Wyoming, which has adopted a Road to Zero Waste Plan. The county's plan includes a goal of diverting 60% of waste from the landfill by the year 2030. Both Teton County and GTNP intend to capture organic waste material to compost and use as a nutrient rich soil amendment, rather than landfill waste.

The first year of the pilot program (2017) proved successful with the collection and composting of 73.3 total tons (146,620 pounds) of food waste. Challenges overcome during the pilot's inaugural year included the lack of space for bins, and optimization of bin sizes and bag types. These lessons created a strong foundation from which to set new goals and launch into a second year. The 2018 goals aimed to capture twice the amount of material, expand certain aspects of the collection within the existing concessionaire networks and improve on program education and logistics. Year two is considered another significant advancement toward municipal-scale food waste compost collection in Teton County, Wyoming.



Figure 4. Delivery of food waste from Grand Teton National Park to WyoFarm Composting in Thayne, WY for composting.

A Focus on Food Waste

Local efforts to minimize landfill-bound material continues to target food waste. Landfilling organics not only results in the loss of nutrients, but can also contribute to the production of leachate, as well as methane - one of the most potent greenhouse gases. The ability to compost food waste preserves nutrients and counteracts the potential for environmental harm.

Another reason food waste is singled out when it comes to minimizing landfill deposits is that it constitutes a significant portion of the waste stream. According to the 2013 Wyoming solid waste diversion study, food constitutes approximately 20% of the state's waste stream. A 2014 waste characterization study in GTNP revealed that more than 40% (twice the state average) was attributed to food.

Through its lodging, restaurants, retail, campgrounds and employee housing operations, GTNP generates more than 489 tons of food waste and 136 tons of non-recyclable/compostable paper per year. This number is in keeping with waste generation trends in hotels and hospitality operations.



Figure 5. An employee at Jackson Lake Lodge.

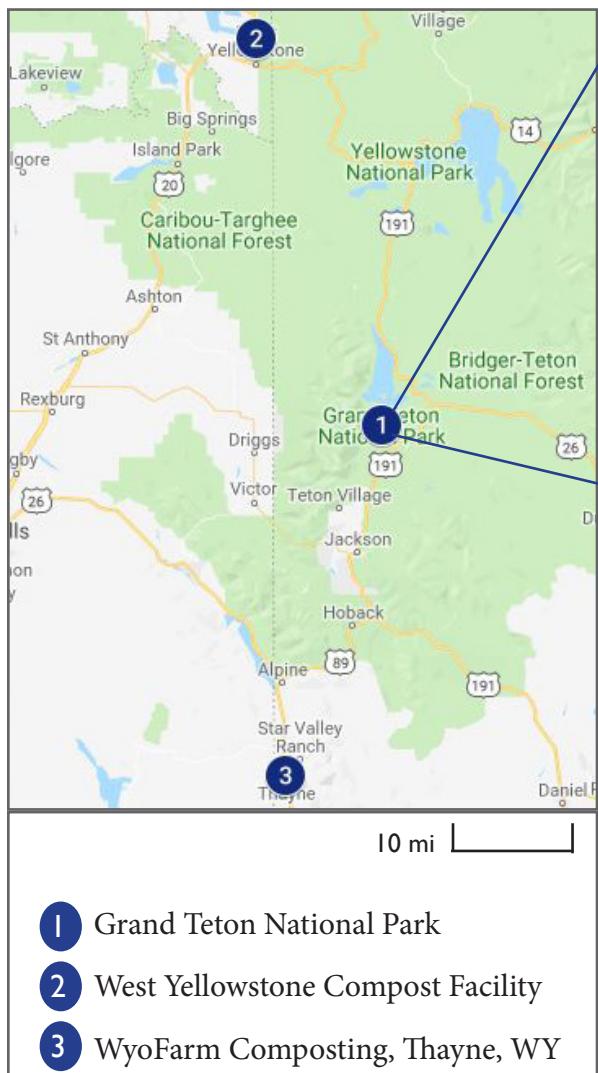
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Program Details for Year Two

Several changes were made in year two to accommodate increased volumes and an expansion of available composting services in the region:

Collection Sites

Seven sites were included in the 2018 collection. Material from Jenny Lake Lodge, Colter Bay Ranch House Restaurant, Colter Bay General Store, and Headwaters Lodge/Flagg Ranch were delivered to West Yellowstone Compost Facility, while Jackson Lake Lodge, Signal Mountain Lodge, and Leeks Pizzeria's materials were delivered to WyoFarm Composting.



Piloting Food Waste Collection in Grand Teton National Park

Timeline

Food waste collection began May 11, 2018 at three sites. All seven sites were fully operational by May 31. Several sites, including Jackson Lake Lodge, reached capacity by May 24. Material sent to West Yellowstone Compost Facility quickly exceeded season one maximums and West Yellowstone's daily capacity. Arrangements were made for a second weekly collection to be delivered to WyoFarm Composting, in Thayne, Wyoming. The program continued through the summer and early fall with the final collection on October 15.

Increased Tonnages

A total of 134.4 tons (268,730 pounds) of food waste was sent to both the West Yellowstone Compost Facility and WyoFarm Composting. At nearly double the tonnage from the 2017 program (73.3 tons), the 2018 program brought in considerably more material.

Not only were program tonnages up from 2017, but several loads of food waste, out of necessity, were sent to the landfill due to road closures. In other cases, bins that reached capacity prior to the weekly collection day were also sent to the landfill to comply with health and safety standards – for people and wildlife. These tonnages were not recorded and are not included in the season totals. An additional 15.2 tons of food waste was too heavily contaminated to go to either compost facility and were disposed of as trash.

As the tonnages increased, so too did the stress on the West Yellowstone Facility. It became clear that the pilot program needed another outlet for its food waste.

“The biggest difference for us this year was that we increased our collection capacity – both larger containers and added new locations – by quite a bit I think (3 fold). We also added guest facing collection in one restaurant and in bathrooms for paper towels.” Jon Dyer, Grand Teton Lodge Company

A Solution

WyoFarm Composting was contacted in early July to see how much food waste they could potentially compost at their location. WyoFarm Composting has operated a food scrap collection program for several years and introduced a home pick up service within the last year and a half. Good news for the pilot project – WyoFarm Composting was interested.

The solution came with its own strategic problems. WyoFarm Composting required food waste be delivered loose or in compostable bags. The concessionaires were accustomed to West Yellowstone Compost Facility requiring non-compostable bags. The mid-season switch for half the concessionaires was harder to implement than expected. The West Yellowstone Compost Facility



Figure 6. ISWR Superintendent Heather Overholser and Curtis Haderlie at WyoFarm Composting.

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found loads of compostable bags, which caused problems for their machinery, and WyoFarm Composting found non-compostable bags that had to be hand-removed.

Acceptable contamination levels were also different at WyoFarm Composting, which requires clean, non-contaminated material, whereas the West Yellowstone Compost Facility tolerates a less stringent level of contamination.

Hauling Improvements

WestBank Sanitation of Jackson, Wyoming was contracted through Teton County to provide collection services for the pilot program. WestBank transported the material from each of the collection sites, once per week, to the composting facility in West Yellowstone, Montana, with an additional transport of material once per week to WyoFarm Composting in Thayne, Wyoming. WestBank Sanitation made the change from rear-load containers and hauling trucks in 2017 to front-load containers and trucks in 2018. Dan Webb of WestBank Sanitation commented that “graduating from rear load containers and carts to front load containers eliminated the inefficiencies we saw from the hauling side.” This increased the maximum size bin from a 4-yard container to a 6-yard plastic container. This change allowed all sites to accommodate greater capacity, by either increasing the number of bear-proof bins or by finding an interior location to house non-bear proof bins.

Food Waste Only

Based on feedback gathered from other municipal composting operations and the overall success from the 2017 pilot program, Teton County chose to continue to restrict collected materials to food waste, paper towels, and napkins. The introduction of other materials, such as compostable cups, plates and utensils, adds confusion and invites increased contamination.

Contamination levels were higher in the 2018 program, primarily early season. This is attributed to newly trained seasonal staff, as well as a mid-season shift in compost facilities that required different style bags and different acceptable contamination levels. However, expanded education and training produced a sharp decline in contamination levels by early June.

The End Product

WyoFarm Composting composts food waste to fertilize the farm's vegetable and flower beds. Finished compost from the West Yellowstone facility is made available to the public and utilized in mine reclamation, as well as in excavation and road projects within Yellowstone National Park.



Figure 7. Vegetable rows at WyoFarm Composting.

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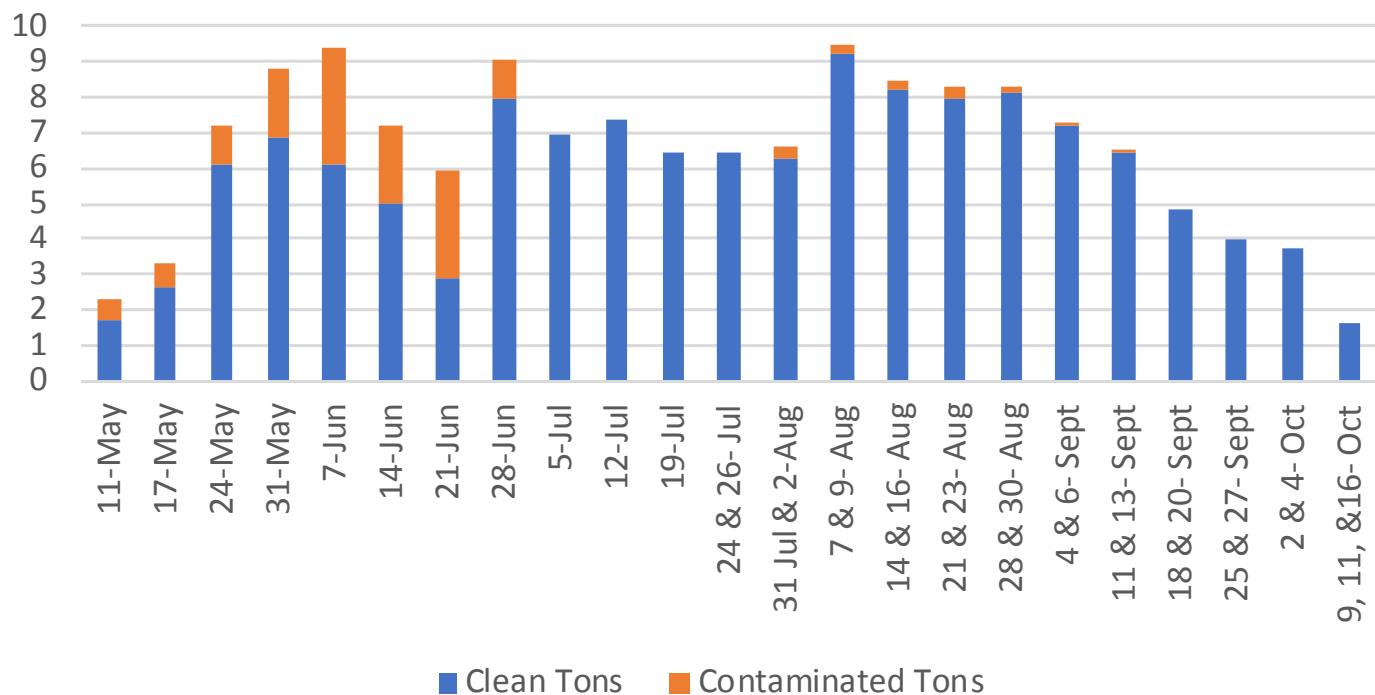
Funding- 2019

Funding for a third year of the food waste collection pilot in GTNP in 2019 has been approved by Subaru of America and the GTNP concessionaires. Composting tip fees are expected to decrease significantly in the 2019 season, as the majority, if not all, of the material will be sent to WyoFarm Composting.

This funding structure is unique to the pilot project. When Teton County institutes commercial food waste composting services at its Horsethief Canyon compost site, the cost to haul that material to the Teton County composting facility will be much less due to its closer proximity to the Park, and the tip fee for food waste is expected to be in line with or less than the cost of the landfill-bound tip fee.

Comparing 2017 and 2018: “From Signal Mountain Lodge’s standpoint, the pilot was pretty similar both years. We enjoyed the move to Haderlie due to the closer location, lower price and that we already were starting to get vegetables from Haderlie to serve in our restaurants. This allowed us to close the loop, especially for 2019.” - Erik Kimbal, Signal Mountain Lodge

Food Waste Tonnages Collected by Date



Graph I. Food Waste tonnages by collection date, summer 2018. Composting sites combined.

What Did Year Two of The Pilot Process Reveal?



Figure 8. Signs indicating the bin is full

Doubling Tonnage was Possible

By maximizing and increasing bin sizes and increasing education amongst staff and visitors the goal of 150 tons for the 2018 program was a success. See Graph 1 on page 10.

Accommodating Collaborator's Needs

West Yellowstone Compost Facility quickly reached material capacity with the expanded tonnages from GTNP. Not only were higher tonnages from the pilot being sent to the site, but Yellowstone National Park had also increased their tonnages. This created a perfect storm of compostable material. John Burns from West Yellowstone

Compost Facility describes the site: "We couldn't handle

more than five tons of the (Grand) Teton loads in one day as Yellowstone National Park also began to bring more volume. With the increased tonnage from both vendors, we had a hard time keeping up with leachate disposal. With these tonnages, we are 100% capacity in our tanks, but we were able to stay ahead of it through the summer." WyoFarm Composting was approached and brought on to divert some of the tonnage that couldn't go to West Yellowstone.

During the peak of the summer season, several sites produced far more food waste in the course of seven days than they had room to store in their bins. This excess was disposed of as trash in order to avoid health, safety or wildlife concerns. Most of the sites are limited in their bin space, so adding bins was not an option. In 2019, several of the sites will be picked up twice per week to alleviate this problem.

Successful Collaboration and Communication

Between seven collection sites, two compost sites, two national parks, one non-profit, one project sponsor, one hauler, and one solid waste management team, effective communication was essential. After making it through some early season contamination and the mid-season introduction of a new compost facility, all parties were able to celebrate a successful second year of the project.

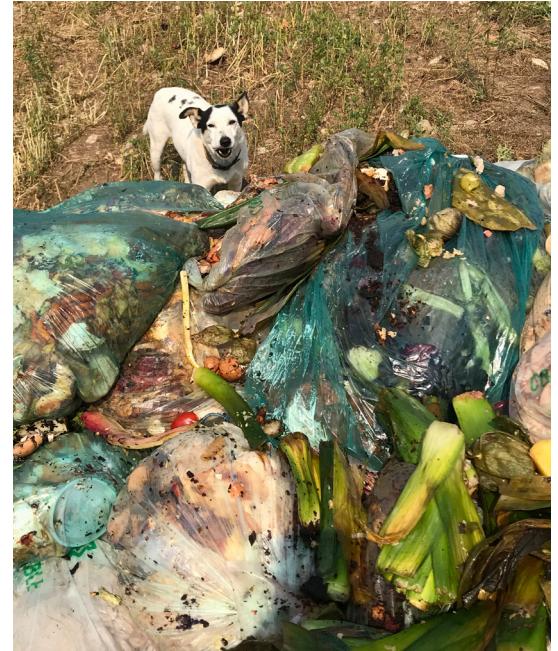


Figure 9. Compostable bags at WyoFarm Composting and a farm helper.

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Figure 10. Overflowing food waste.

Contamination Levels Carefully Monitored

While higher contamination levels were problematic in the early season and during the initial weeks of transport to WyoFarm Composting, quick communication and additional staff education promptly resolved the contamination issues. The requirements for bag type and acceptable contamination levels differed from West Yellowstone to WyoFarm Composting. Several food waste generation sites had to quickly adapt to a compostable bag, with a near-zero contamination tolerance at WyoFarm Composting. John Burns from West Yellowstone Compost Facility describes the season: “Overall, the compost processing of the Teton organics went well. We had some contamination issues in the beginning, but with the help of Heather [Overholser] and concessionaire staff, those issues were cleared up within a couple of weeks.”

“After some initial issues, we saw contamination at wonderfully-low levels, and as always, Signal Mountain Staff set a VERY high standard for everyone else to follow. Impressive.” - Dan Webb, WestBank Sanitation

No Odors or Negative Wildlife Impacts

Due to the use of bags, weekly collections, bear-proof bins, and zero tolerance for overflow, no odors or negative wildlife impacts were reported.

Bags are Important

Each compost site, due to varying operational approaches, required that the food arrive in different fashions. The West Yellowstone Compost Facility requires non-compostable bags. Their food waste shredding equipment can tear open a non-compostable bag and remove it from the food waste material, while a compostable bag will stretch and tangle within the machinery, dramatically slowing down operations. WyoFarm Composting only accepts compostable bags, as they do not shred the bags with machinery as is done at the West Yellowstone facility. WyoFarm Composting reported significant break down of the bags within the compost pile.

Education and Outreach in Year Two- Just as Important as in Year One

Year two continued to focus on “back of the house” kitchen operations, with some small additions, including housekeeping staff. Ongoing education and outreach assisted in resolving contamination and confusion. Several sites became more vocal to visitors and tourists about the pilot program in year two. “We were much more engaged in educating our visitors (in 2018) than in 2017 with the program feeling more on solid footing,” said Erik Kimball, of Signal Mountain Lodge.

Bin Sizing Matters

With the desire to capture more tonnage in the 2018 program, nearly every site increased bin size capacity, though many were limited by lack of space.

A Summary of Lessons Learned

that will inform the future of food waste composting in Teton County, Wyoming

- ▶ Initial and ongoing education and training are critical.
- ▶ Start small and simple, with food waste only, to limit contamination. Optimize basic operations before introducing additional parameters.
- ▶ Early adopters should follow education plan created by ISWR and University of Wyoming students.
- ▶ WestBank Sanitation's contract has been extended to cover the first summer of Teton County's food waste collection.
- ▶ Get creative about finding space for containers.
- ▶ Inter-agency Grizzly Bear Committee (IGBC)-approved bear-proof containers are recommended for food waste within the Greater Yellowstone Ecosystem.
- ▶ The use of bags is an important factor in reducing bin contamination and controlling odor.
- ▶ Composting of residential food waste will be considered following substantial optimization of commercial operations.

Looking Forward: 2019 and Season Three

Winter 2019

Several sites that house winter employees are offering winter food waste collection and composting. Details about bin sizing, pick-ups, and composting sites are still being worked out.

Summer 2019

With a theoretical maximum hauling capacity of 207 tons in a 23-week season (WestBank's truck can accommodate a legal haul limit of 9 tons, 1 pickup per week), the 2019 goal is to increase the tonnage by 50 tons, totaling 200 tons. In order to do this, certain sites will be picked up on a twice weekly schedule, including Jackson Lake Lodge. Collection will occur mid-May through mid-October.

The Jackson Hole Airport recently expressed interest in food waste collection and composting. Considering its

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“Everyone’s patience and ability to “get the big picture” to bring this together with substantial improvement over last year is a feel-good moment for all participants.” - Dan Webb, WestBank Sanitation

location in GTNP, the airport is a great next option for expanding the program. The airport is considering winter collection in early 2019 and hopes to continue into the summer 2019 collection. Loads from the airport would be transported to WyoFarm Composting as commercial loads since the airport is not permitted to haul through Yellowstone National Park.

The use of an odor neutralizing spray in all bins will continue in 2019 as it did in 2018. Concessionaires are responsible for fully cleaning and rinsing the bins if needed.

In May 2019, a small group of University of Wyoming students, as part of a class entitled “Environmental Solutions in Jackson Hole,” will work on a food waste education plan for commercial food waste composting in Teton County. They will heavily rely upon the experiences, successes and challenges of the GTNP pilot project to guide and inform their work.

How has the Pilot Impacted the Region?

Grand Teton National Park

As part of the Subaru, NPCA and NPS-led Zero-Landfill Initiative, GTNP and its concessionaires, Grand Teton Lodge Company and Signal Mountain Lodge/Forever Resorts, have improved their waste infrastructure and operations. In addition, the project raised public awareness around trash volumes in national parks and surrounding communities, and educated employees and guests on how to lessen their environmental footprint.

Teton County

Building upon this year and last year’s pilot project successes, including the low contamination rates and the identification of numerous efficiencies in food waste collection and transport, Teton County is further empowered to optimize food waste diversion to significantly reduce its landfill bound discards. This progress moves Teton County closer to its initial Road to Zero Waste goal of 60% waste diversion from the landfill by 2030.

In summarizing the second year of the pilot collection, Heather Overholser, Superintendent of Solid Waste and Recycling for Teton County commented, “The past two years have been a learning and growing experience for us all in many different ways. There were times when we thought things had completely fallen apart, but together we figured out how to glue them back together and make them stronger than they were before. And all it took was loads of passion, vision, hard work, communication, trust, and- food waste.”



Figure 11. WestBank Sanitation unloading food waste.