

Organization Name: City of Lakewood

Project Title: Quail Street Recycling Center Upgrade

Name of Project
Coordinator: Brian Nielsen

Project Coordinator email
address & phone number: brinie@lakewood.org
(303) 987-7192

Name of person
completing this report: Brian Nielsen

Email address & phone
number of person
completing this report: brinie@lakewood.org
(303) 987-7192

II. WORK PLAN

Deliverable	Completion Date	Comments (if deliverable <u>was not completed</u> , please explain why or what progress has been made)
Install cardboard baler.	12/1/2011	
Hire site manager.	12/10/2011	
Develop brochures, build educational billboard, and advertise drop-off site using various media.	5/31/12	
Complete drop-off site modifications.	12/15/2011	

III. PROJECT SUMMARY

1. Executive Summary

Background

Approximately twelve (12) years ago, the City of Lakewood's Environmental Services Division established a small recycling site at our City Shops Facilities, 1050 Quail Street, Lakewood, Colorado. Since its inception, City of Lakewood teamed with Waste Management Inc., and Recycle America to provide this recycling service to Lakewood citizens at no cost.

With the recent downturn in the economy, the cost for recycling has forced most recycling locations in Lakewood to no longer provide recycling bins for their customers. As a result, the waste diversion rate at the former site grew from 24 tons recycled per month to over 90 tons per month. However, with the growth of the site several issues arose to include the ability to have available enough empty bins to handle citizens needs for recycling.

As a result, the City made the decision to expand the recycling site and to apply for state grant funding to construct and operate the new/expanded recycling center.

New/Expanded Site

Upon notification of grant approval (7/5/11), City staff initiated the site design phase. On July 2011, the City applied for and received a budget exemption for the purpose of

spending up to \$150,000 as part of the Capital Improvement Budget for the construction of the new site. During the months of August and September, a preliminary site design was prepared with City staff input that incorporated the below listed new site construction requirements.

- The site should allow for as many as 12 25-yard gable top rolloffs within a fenced area, spaced to allow citizens to easily place recyclables on either side of the rolloffs.
- Moving the site west approximately 100 feet in order to maximize the space available for fueling operations at the shops.
- A separate entrance/exit for citizens using the site from the main entrance to the shops.
- Fencing around the site and gates to allow site security after hours.
- Undergrounding electrical lines to support the operations of a cardboard compactor/shredder.
- Asphalt the entire site to allow heavy trucks to load, unload and turn while on site.
- The site layout must allow for vehicles owned by Waste Management, Inc., to easily pick up and replace the rolloffs as required.
- Storm water quality must not be impacted by site operations.
- Additional site upgrades would also require the construction of a sidewalk, landscaping and a sprinkler system.
- At the entrance of the site, designate a small area to place a small shed for the attendant (if approved).

On September 12, 2011, Lakewood City Council approved the recycling concept and the estimated budget for the new recycling center. In September, Requests for Bids were released for two solar-powered compactors, two sheds, fence and porous pavement. All necessary construction permits and related contracts and agreements were executed in late September through early October, 2011. Construction started mid-October and was completed December 15, 2011. Five (5) part-time, temporary employees were hired, trained and equipped prior to the site opening; which occurred on December 21, 2011.

Successes

The new site has been an overwhelming success given the number of citizens/vehicles that now are using the center along with the great number of positive comments we continue to receive. Other notable successes include the following:

- Larger/expanded area currently sufficient to allow contractors and citizens to access the site
- Two (2) new contractors were added, Miller/Coors and Western Metals were added to provide additional recycling of glass and scrap metal, respectively
- Limited access hours to the new site meeting citizens' needs
- Purchased, delivered and installed two solar compactors

- Increased community education and awareness of the benefits of recycling
- Hired five (5) site attendants to distribute brochures and to operate the compactors
- Created materials that will educate the citizens on the benefits of recycling

Challenges

- Design and construct the facility in the fall and winter months
- Installed porous asphalt as the primary storm water management system
- Determine the optimum number of recycling containers to meet citizen demands and to achieve the highest possible dollar from contractor rebates
- Hire site attendants for a seven day a week operation

Results

Based on recent data, the expanded site is recycling the following approximate amounts:

Glass – 4 tons per month to Miller/Coors Bottling Plant

Scrap Metal – 4 tons per month to Western Metals Recycling

Paper – 30 tons per month to Waste Management, Inc.

Plastic – 2 tons per month to Waste Management, Inc.

Aluminum – 1 ton per month to Waste Management, Inc.

Cardboard – 16 tons per month to Waste Management, Inc.

Single Stream – 50 tons per month to Waste Management, Inc.

Also, on an average, the expanded site receives 2,200 vehicles per week to drop off their recyclables.

Economic Benefits

Given the current state of the economy and commodity prices, rebates received by the City are lower than expected. Hopefully, the economics of recycling will improve in the coming months.

2. Project Description & Overview of Work Completed

Two (2) project goals were included on the grant application to include:

Goal #1 – Expand and upgrade the current Quail Street Recycling Center

The following construction activities were undertaken for the project:

- Survey
- Temporary fencing for ongoing recycling site
- Signs
- Dump Fees
- Site asphalt (porous)
 - Design

- Phase I – Rock
- Phase II – HMA
- Concrete work (driveway, sidewalk, ramp and compactor pads)
- Erosion control during construction
- Move hydrant
- Permanent fencing and gates
- Purchase and install two (2) sheds
- Portable heater for shed
- Lights for shed
- Toilet install (lease)
- Purchase and install compactors
- Electrical (110W) to compactor area, shed and site lights
 - Phase I – Bore from building
 - Phase II – Conduit runs
 - Phase III – Final Electrical
 - Phase IV – Poles and luminaires
- Closed circuit surveillance camera system (in progress)
- Pavement marking for parking stalls
- Landscaping (in progress)
- Health and Safety Plan

Goal #2 – Increase Community Education and Awareness about the benefit of recycling

- Hire a site manager – complete
- Create materials that will educate the public about recycling – complete

Enclosed are representative examples of the brochures that are being distributed by the site attendants during their shifts.

In addition, five (5) site attendants have been hired to work at the new site. Currently, the site attendants work a five and a half (5.5) hour shift. The morning shift starts at 6:45 am and goes to 12:15 pm. The afternoon shift starts at 11:45 am and goes to 5:15 pm. The recycling center is open at 7 am and closes at 5 pm during the winter and in the summer, the hours of operation are expanded from 7 am to 7 pm. Given the current high volume of citizens the site serves on weekends, two site attendants are typically scheduled for the afternoon shifts on weekends. The hourly rate for a site attendant is \$9 per hour.

3. Summary of Findings & Results

The expanded Recycling Center has been wildly successful. Citizens and businesses alike are currently utilizing the site to recycle their residential and commercial paper, cardboard, plastic, glass, aluminum and scrap metal.

Given the overwhelming success and apparent need for a regional recycling center, the City is considering locating a second recycling center on the south side of Lakewood.

4. Summary of Unanticipated Outcomes or Roadblocks

While this was a fairly small project when compared to other City Capital Improvement Projects, the design and construction of the expanded recycling center did offer a number of challenges to include:

- Weather – After receiving notice of the grant award, the City started the design and permitting process. The process unfortunately took longer than expected. As a result, the installation of the porous asphalt, which required an ambient temperature of 50°F or better, was very tenuous at best.
- Optimum mix of recycling containers – Given the City's decision to offer Single Stream and Single Source Recycling, the exact number of rollofs for each commodity was not known. The decision to open the recycling center with a greater number of unsorted containers first and then slowly inserting specific recycling containers for glass, plastic and paper worked well. It is important that the recycling site be very simple and easy to understand with the fewest number of signs and directions. Further, it is our opinion that the recycling center once established remain constant without a large number of changes to the manner in which the recyclables are collected and processed.
- Compactors – While the one solar-powered compactor used to compact cardboard is working well, the second compactor currently used to compact aluminum cans is not as efficient as initially perceived. The amount of compaction for aluminum cans, given the manner in which the compactor functions, does not give the City the compaction ratio (typically 4 to 1) that would optimize our aluminum recycling operations. Instead, a vertical bailer would be a much better choice for the compaction of aluminum cans and it would give us the needed compaction not available using a compactor.

5. Communication of Project Findings

On September 10, a project status report update will be delivered to Lakewood City Council members. The update will include the topics of:

- Amounts of recycled material received and processed
- Number of vehicles per month
- Financial costs to maintain current operations and revenue projections for recycling rebate collection
- Future issues and projections

6. Future Impact of the Project

Currently, it is estimated that the City's new/expanded recycling site is diverting the following per month from landfills:

Glass – 4 tons per month to Miller/Coors Bottling Plant
Scrap Metal – 4 tons per month to Western Metals Recycling
Paper – 30 tons per month to Waste Management, Inc.
Plastic – 2 tons per month to Waste Management, Inc.
Aluminum – 1 ton per month to Waste Management, Inc.
Cardboard – 16 tons per month to Waste Management, Inc.
Single Stream – 50 tons per month to Waste Management, Inc.

Representatives from the City of Westminster were given a tour of the Quail Street Recycling Center on July 12, 2012. They indicated that they are interested in a similar operation for the City of Westminster.

7. Financial Summary

City of Lakewood Grant Budget Table

Description	Grant Funds Spent	Matching/In Kind Amount (if any)	Total Amount
Personnel Salaries	\$20,464	\$2,646	\$23,110
Fringe Benefits	\$0	\$0	\$0
Tuition/Fees	\$0	\$0	\$0
Travel Costs	\$0	\$0	\$0
Materials/Supplies/Equipment (under \$5,000)	\$0	\$2,648	\$2,648
Equipment Purchases (over \$5,000)	\$42,511.77	\$10,000	\$52,512
Contractors/Subcontractors	\$0	\$111,490	\$111,490
Consultants	\$0	\$2,000	\$2,000
Training/Education	\$0	\$0	\$0
Marketing/Advertising	\$0	\$500	\$500
Other Direct Costs	\$0	\$0	\$0
Indirect Costs	\$0	\$0	\$0
Total Project Cost:	\$62,976	\$129,284	\$192,260

8. Conclusion

Overall, the expansion of the Quail Street Recycling Center has been an overwhelming success, based on citizens' comments, vehicle totals and City staff reactions. In June of this year, Lakewood City Council approved the 2012 Revised 2013 Budget Exception Requests for the Quail Street Recycling Center that added \$23,790 to the 2012 Budget and \$47,190 to the 2013 Budget. The additional monies will fund the costs for the

required site attendants (currently six (6)) for the remainder of this year and 2013. It is anticipated that Quail Street Recycling Center will always require the onsite supervision of a site attendant when the center is open to the public. As mentioned earlier in this report, the overall efficiency of a compactor unit to manage aluminum and plastic containers is in question. The City may evaluate other alternatives for collecting and sorting aluminum and plastic containers in the future and evaluate the possibility of using a vertical bailer for this application.

9. Appendix

- a. Grant Metrics Table (attached)
- b. Community Leader Contact Information
 - 1. Jay Hutchison
Director, Public Works Department, City of Lakewood
(303) 987-7901
jayhut@lakewood.org
 - 2. Tom Quinn
Councilperson, City of Lakewood
(303) 717-8862
tquinn@lakewood.org
 - 3. Bob Murphy
Mayor, City of Lakewood
(303) 987-7040
bmurphy@lakewood.org
- c. Manuals, Brochures, Print Advertisements, Pictures, Educational Materials, etc.
To be sent hard copy with a separate cover letter.

Grant Metrics

Date project fully operational:

December-12

(Based on deliverables- month that impact of grant would have changed volumes/job creation/participants)

Diversion Rates:

(Choose one material per box. Only list those collected over the grant cycle. Must be listed as "tons". See tab labeled "Conversion Tables" if needed.)

Material Diverted #1 **Plastics (#1-7)**

Tons Diverted

July-11	
August-11	
September-11	
October-11	
November-11	
December-11	
January-12	
February-12	
March-12	
April-12	2.8
May-12	2.3
June-12	0
Total	5.1

Other div. material:

Material Diverted #2 **Newspaper/Office paper**

Tons Diverted

July-11	
August-11	
September-11	
October-11	
November-11	
December-11	
January-12	
February-12	
March-12	
April-12	9.7
May-12	6.8
June-12	30.7
Total	47.2

Other div. material:

Material Diverted #3 **Glass**

Tons Diverted

July-11	
August-11	
September-11	
October-11	
November-11	
December-11	
January-12	
February-12	
March-12	
April-12	
May-12	8
June-12	4.1
Total	12.1

Other div. material:

Material Diverted #4 **Scrap metal**

Tons Diverted

July-11	
August-11	
September-11	
October-11	
November-11	
December-11	
January-12	
February-12	
March-12	
April-12	
May-12	2
June-12	6
Total	8

Other div. material:

Material Diverted #5 **Cardboard**

Tons Diverted

July-11	
August-11	
September-11	
October-11	
November-11	
December-11	4.2
January-12	2.8
February-12	6.3
March-12	11.8
April-12	9.9
May-12	10.7
June-12	15.8
Total	61.5

Other div. material:

Material Diverted #6 **Aluminum / Steel cans**

Tons Diverted

July-11	
August-11	
September-11	
October-11	
November-11	
December-11	
January-12	
February-12	
March-12	
April-12	
May-12	
June-12	1
Total	1

Other div. material:

Material Diverted #7 **Other (pls describe below)**

Tons Diverted

July-11	
August-11	
September-11	
October-11	
November-11	
December-11	114
January-12	116
February-12	78
March-12	91.7
April-12	68.8
May-12	62.8
June-12	51.5
Total	582.8

Other div. material:

Material Diverted #8

Tons Diverted

July-11	
August-11	
September-11	
October-11	
November-11	
December-11	
January-12	
February-12	
March-12	
April-12	
May-12	
June-12	
Total	0

Other div. material:

End use of diverted materials:

(Describe where materials are going
[e.g., MRF, new products, reuse])

#####

Number of Permanent Jobs Created:

Include full-time & part time paid positions.
1 FTE = 40 Hours Per Week

5

Type of Permanent Job(s) Created:

(Provide titles of jobs created)

Part-time Temporary - Site Attendant Position

Average Salaries of Jobs Created:

(Average of all jobs created)

Less than \$15,000

Average Monthly Customers for FY 2011:

(July 1, 2010 - June 30, 2011)

2200

Average Monthly Customers for FY 2012:

(Estimate or customer lists)

Avg. Monthly Amount	
July-11	
August-11	
September-11	
October-11	
November-11	
December-11	9200
January-12	9200
February-12	9200
March-12	9200
April-12	9200
May-12	9200
June-12	9200
Ave. / FY 12	9200