Attachment 1
February 14, 2012
Worksession

Integrated Recycling Facility

Feasibility Analysis

FINAL DRAFT REPORT Ver. 4

Real Estate Information for Sites Not Included in this Version

Prepared for

City of Fort Collins

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January 2012

SloanVAZQUEZLLC

Municipal Solid Waste Management & Recycling Advisors

January 2012

Susan Gordon
Project Manager, Natural Resources
City of Fort Collins
215 North Mason St., 2nd Floor
Fort Collins, CO 80524

RE: Project No. 7249 – Integrated Recycling Facility Analysis – Final Draft Report Ver. 4 (redacted)

Dear Ms. Gordon:

Sloan Vazquez, LLC and Clements Environmental are pleased to submit this Final Draft of the Integrated Recycling Facility (IRF) Feasibility Analysis to the City of Fort Collins.

Our hope is that this report will provide the City with findings and recommendations that will allow the City to make an informed and sound decision regarding how to increase diversion levels in the City of Fort Collins and how to proceed with the development of the IRF, if the decision is made to do so.

We would like to express our sincere appreciation to all those who participated and assisted in our efforts to conduct this assessment, which would not have been possible without the guidance and support of City staff.

If you have any questions or need additional information regarding this assessment, please call me or Enrique Vazquez at (866) 241-4533. We look forward to future opportunities to continue assisting the City with solid waste management and recycling issues.

Cordially,

Joe Sloan
President

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1.0 INTRODUCTION

1.1 BACKGROUND

The City of Fort Collins (City) engaged the services of Sloan Vazquez and Clements Environmental (Project Team) to develop a feasibility analysis for an Integrated Recycling Facility (IRF) that will accept a variety of discarded materials such as electronic waste; household hazardous waste; compostable organics, including yard waste; construction and demolition debris; and, other types of recyclable commodities.

The City's goal to divert 50% of the waste stream from landfill disposal has not been met. The City currently operates a community recycling center that accepts a variety of recyclable materials. However, achieving additional diversion is constrained by the limited availability of local/regional infrastructure. This feasibility analysis is intended to assist the City in determining the viability for developing an IRF to increase waste diversion.

The purpose of the analysis is to evaluate the feasibility of such a facility including:

- Identifying Potential Sites and Siting Issues,
- IRF Conceptual Design,
- Target Recyclables,
- Capital and Operating Costs,
- Market Considerations, and
- Ownership Models.

1.2 REPORT STRUCTURE

This Report is organized as follows:

1. Introduction
2. Integrated Recycling Facility Options
3. Property Inventories (redacted)
4. Financial Models
5. Conclusions

Section 1 provides an introduction to the report with a brief background and purpose. In Section 2, the most feasible alternatives for developing additional recycling/diversion infrastructure are presented as three Options along with a general description of each facility and operational requirements. In Section 3, potential properties for siting a facility are examined and assessed along with recommendations for the most viable locations. Section 4 provides the financial models for each alternative including a summary of costs related to each operation. And finally, Section 5 provides a summary of the Project Team's conclusions.

2.0 INTEGRATED RECYCLING FACILITY OPTIONS

The Project Team developed three options for the City's consideration. The operational and management requirements will vary depending upon the Option and Phases of operations. These options are described in detail in this Section and are listed for ease of reference below.

- **OPTION 1: Development of a Stand-Alone IRF**
  - 40 hour per week operation (days and operating hours to be determined)
  - Targets "Self-Haulers" and lower value recyclables

    - **PHASE 1 – Small Volume Start-Up Operation (Up to 250 Cubic Yards per Day)**
      - $500,000 municipal capital investment for land and improvements
      - $237,000 municipal capital investment for IRF equipment
      - Requires less than 1 acre operating site
      - Projected annual diversion from landfill: 7,719 tons
      - Creation of 3 new jobs

    - **PHASE 2 – Medium Volume Operation (250-500 Cubic Yards per Day)**
      - No added municipal capital investment for land and improvements
      - No added municipal capital investment for IRF equipment
      - Requires less than 1 acre operating site
      - Projected annual diversion from landfill: 15,437.5 tons
      - Creation of a total of 6 new jobs

    - **PHASE 3 – Large Volume Operation (500-750 Cubic Yards per Day)**
      - $1,000,000 municipal capital investment for land and improvements
      - $442,500 municipal capital investment for IRF equipment
      - Requires less than 1.2 acre operating site
      - Projected annual diversion from landfill: 19,500 tons
      - Creation of a total of 10 new jobs

    - **PHASE 4 – Large Volume IRF (500-1,450 Cubic Yards per Day, Plus Organic Materials and/or C&D Processing Operations)**
      - $1,250,000 municipal capital investment for land and improvements
      - $1,492,500 municipal capital investment for IRF equipment
      - Requires less than 1.5 acre operating site
      - Projected annual diversion from landfill: 36,562 tons
      - Creation of a total of 21 new jobs

- **<u>OPTION 2</u>: Expansion of Rivendell School Drop-Off Operation**
  - Targets ferrous scrap, non-ferrous scrap and heavy-duty HDPE items
  - $21,600 municipal capital investment for additional storage containers
  - Projected annual diversion from landfill: 300 tons

- **<u>OPTION 3</u>: Development of a Stand-Alone Green Waste Recovery Operation**
  - Targets lawn clippings, leaves, tree timmings and garden prunings
  - Assumes six day per week operation
  - Assumes use of City owned site of approximately 1 acre and no required improvements
  - $500,000 municipal capital investment for wheel-loader, tub-grinder and trommel screen

    - **PHASE 1 – 25 Tons per Day**
      - Creation of 1 new job
      - Projected annual diversion from landfill: 7,410 tons

    - **PHASE 2 – 75 Tons per Day**
      - Creation of 3 new jobs
      - Projected annual diversion from landfill: 22,230 tons

2.1 OPTION 1: STAND-ALONE IRF

Option 1 is the development of a full-service, stand-alone IRF that can be implemented in up to four phases. The phases may be implemented one phase at a time or concurrently as deemed appropriate. Each phase is more fully described in the following subsections. Conceptual IRF site-use plans for each option are included in the following sections. A conceptual IRF site-use plan of the fully developed, Phase 4 option is included in Section 6, **Appendix A – Conceptual Site Plan**.

TARGETED MATERIALS FOR RECOVERY/DIVERSION

Each of the four phases targets the "self-haulers" and lower-value recyclables such as rock, brick, concrete, mixed salvage metals, green waste, wood, electronic waste (e-waste), and textiles. Though most of these materials have a low or negative value, they present excellent opportunities for increasing the amount of material that is recovered and diverted from landfill disposal.

The following materials are targeted for recovery under Option 1:

- Ferrous Scrap
  - Iron/Steel, Rebar, Cookware, Car & Truck Wheels, Canisters, Drums, etc.
- Non-Ferrous Scrap
  - Window/Door Frames, Lawn Chair Frames, Siding, Copper/Brass Fixtures, Electrical Wiring
- Concrete/Rock
- Brick/Tile
- Porcelain/Ceramic – Toilets & Insulators
- Asphalt – Paving & Shingles
- Wood – Dimensional lumber, Plywood
- Green Waste – Yard Waste, Tree Trimmings
- E-Waste – Monitors, Televisions, Computers, CRT's, etc.
- Corrugated Cardboard (OCC)
- Textiles
- Wet dirt from City Water Crews

The following table provides a summary of the four phases:

Table 1 – Option 1-Stand Alone IRF Summary

	Volume	Employees	Operations Area	Remarks
Phase I	250 cy	3	30,000 sq. ft.	Primarily self unloading
Phase 2	500 cy	6	30,000 sq. ft.	Staff assisted unloading
Phase 3	750 cy	10	50,000 sq. ft.	Add wheel loader and deck sorting of material
Phase 4	1500 cy	21	70,000 sq. ft.	Add C&D sort line and green waste chipping and grinding

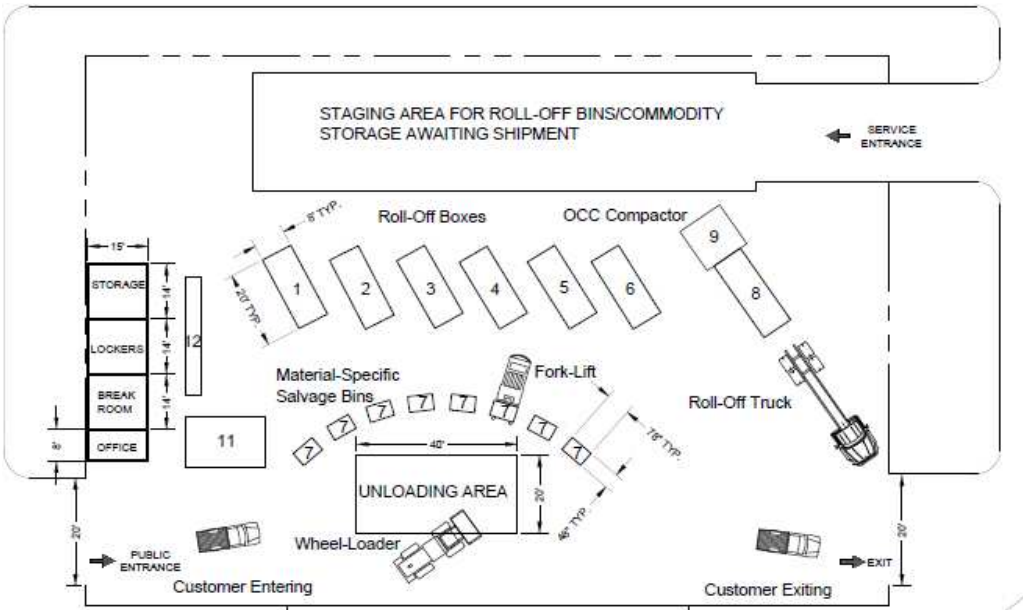
2.1.1 PHASE 1 – SMALL VOLUME START-UP OPERATION (UP TO 250 CUBIC YARDS PER DAY)

Phase 1 consists of developing a small volume operation that can receive up to 250 cubic yards per day or 65,000 cubic yards per year. Based on a 250 lbs/cubic yard factor, the facility will be capable of receiving up to 8,125 tons per year.

SITE OPERATIONS

Self-haulers (residents and commercial customers) enter the facility and are directed to the area for unloading their recyclable materials into designated salvage bins (see **Figure 1** – salvage bins are designated with a number 7). When full, the material-specific salvage bins are emptied into the larger roll-off boxes (designated with numbers 1 through 6 in **Figure 1**) by an equipment operator. The full roll-off boxes are delivered to local buyers/end-users.

Figure 1 – Option 1-Phase 1 & 2 Facility Layout



NOTES

1. CONCRETE, ROCK AND GRAVEL ROLL-OFF BIN
2. PORCELAIN, TILE AND CERAMIC ROLL-OFF BIN
3. ASPHALT SHINGLE ROLL-OFF BIN
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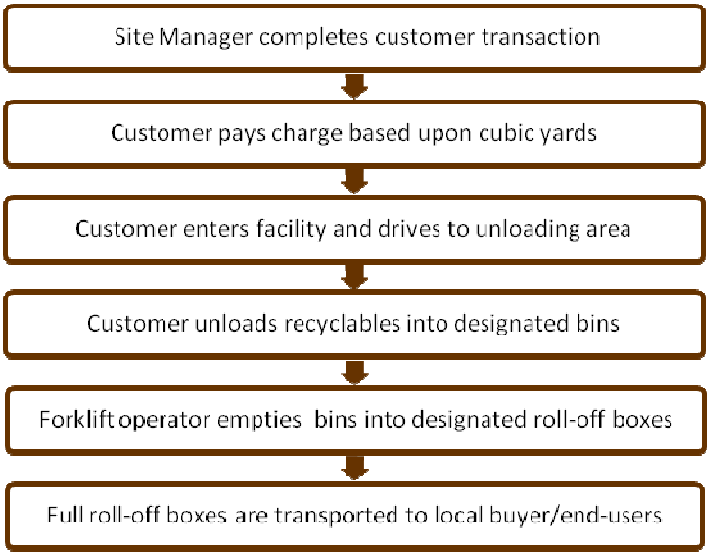
5. MIXED METAL ROLL-OFF BIN
6. GREENWASTE ROLL-OFF BIN
7. 3 CUBIC YARD BIN
8. OCC RECOVER ROLL-OFF BIN
9. OCC COMPACTOR
10. ROLL-OFF BINS
11. E-WASTE DROP OFF AREA
12. E-WASTE GAYLORD STORAGE

Figure 2 – Option 1-Phase 1 Site Operations



STAFF REQUIREMENTS

Phase 1 operations require the following full-time personnel:

- 1 – Site Manager
- 2 – Equipment Operators (Forklift, Roll-Off Truck)

Phase 1 operations require the acquisition of equipment as identified in **Table 2**.

Table 2 – Option 1-Phase 1 Equipment Requirements

Equipment	Quantity
Salvage Bins (3-Yard)	15
Roll-Off Boxes	
50-Yard Boxes	6
12-Yard Boxes	6
Forklift (with rotator & attachments)	1
Roll-Off Truck	1
OCC Compactor	1

MATERIAL RECOVERY & DIVERSION

Based on the materials targeted and the operational configuration of Phase 1, it is projected that 95% of the materials received will be recovered and diverted from landfilling.

Table 3 – Option 1-Phase 1 Recovery

Annual Tonnage		8,125
Recovered	95.0%	7,719
Landfilled	5.0%	406

CAPITAL EXPENDITURES REQUIREMENT

Implementation of Phase 1 requires approximately $737,000 in capital expenditures as itemized below:

- $500,000 – Land and Improvements
- $57,000 – Roll-Off Boxes and Salvage Bins
- $140,000 – Forklift and Roll-Off Truck
- $40,000 – OCC Compactor

2.1.2 PHASE 2 – MEDIUM VOLUME OPERATION (250-500 CUBIC YARDS PER DAY)

Phase 2 consists of increasing the quantity of material that can be received at the facility to 500 cubic yards per day or 130,000 cubic yards per year. Based on a 250 lbs/cubic yard factor, the facility will be capable of receiving up to 16,250 tons per year.

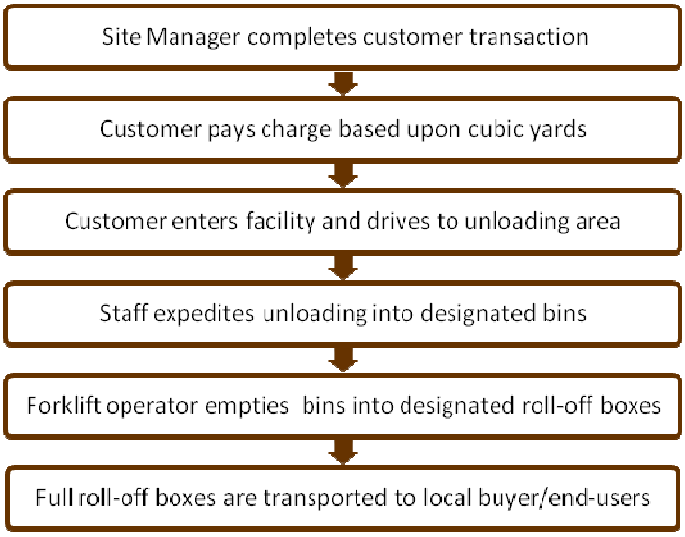
SITE OPERATIONS

Site operations in Phase 2 are identical with those of Phase 1 with the exception that under Phase 1, customers unload and deposit their materials into the designated salvage bins while in Phase 2, the unloading of materials is expedited with the assistance of IRF staff.

Implementation of Phase 2 requires three additional full-time sorter/unloaders for a total of six personnel to manage the anticipated additional tonnage/material. The personnel required for Phase 2 is as follows;

- 1 – Site Manager
- 2 – Equipment Operators (Forklift, Roll-Off Truck)
- 3 – Sorters/Unloaders

Figure 3 – Option 1-Phase 2 Site Operations



MATERIAL RECOVERY & DIVERSION

Recovery and diversion from landfilling in Phase 2 is projected at 95%.

Table 4 – Option 1-Phase 2 Recovery

Annual Tonnage		16,250.0
Recovered	95.0%	15,437.5
Landfilled	5.0%	812.5

CAPITAL EXPENDITURES REQUIREMENT

Phase 2 does not require additional capital expenditures other than the $737,000 identified for Phase 1.

2.1.3 PHASE 3 – LARGE VOLUME OPERATION (500-750 CUBIC YARDS PER DAY)

Phase 3 expands the capacity of the facility to receive up to 750 cubic yards per day or 195,000 cubic yards per year by targeting the same self-haul customers and materials but also accepting loads that may require additional sorting at the site. Based on a 250 lbs/cubic yard factor, the facility will be capable of receiving up to 24,375 tons per year. As the IRF operation matures, if the City charges a fee that is equal to, or less than the amount charged at the Larimer County Landfill, the 750 cubic yards per day, or 15, 50 cubic yard roll off containers daily, should be readily attainable.

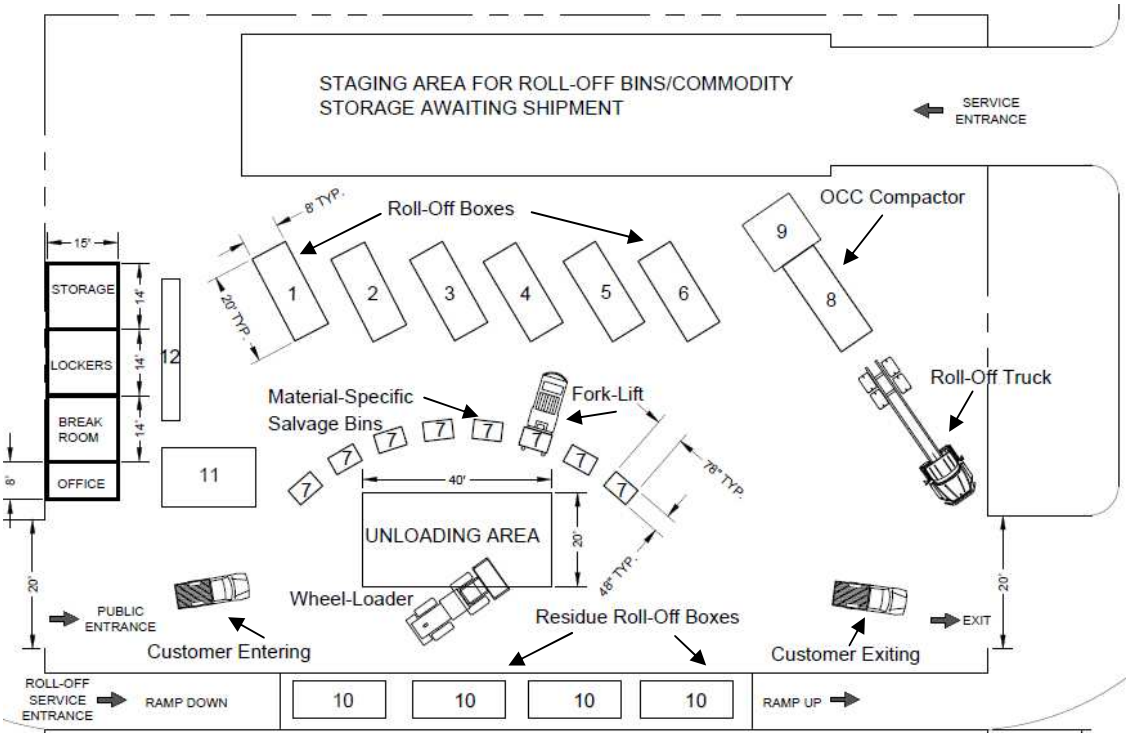
SITE IMPROVEMENTS

Implementation of Phase 3 requires the construction of a below-ground ramp for loading the residue resulting from the sorting process into roll-off boxes. This area is depicted at the bottom of **Figure 4**.

SITE OPERATIONS

Site operations during Phase 3 are similar to those in Phase 2; however, to accommodate the larger volume of materials, a wheel-loader spreads materials on the tipping floor to facilitate the identification and recovery of targeted materials by the sorters. The wheel-loader also removes residue (unrecyclable trash) from the floor-sorting process and deposits it into roll-off boxes designated for that purpose. Roll-off boxes for the accumulation of residue are shown at the bottom of **Figure 4** and indicated with a number 10.

Figure 4 – Option 1-Phase 3 Facility Layout



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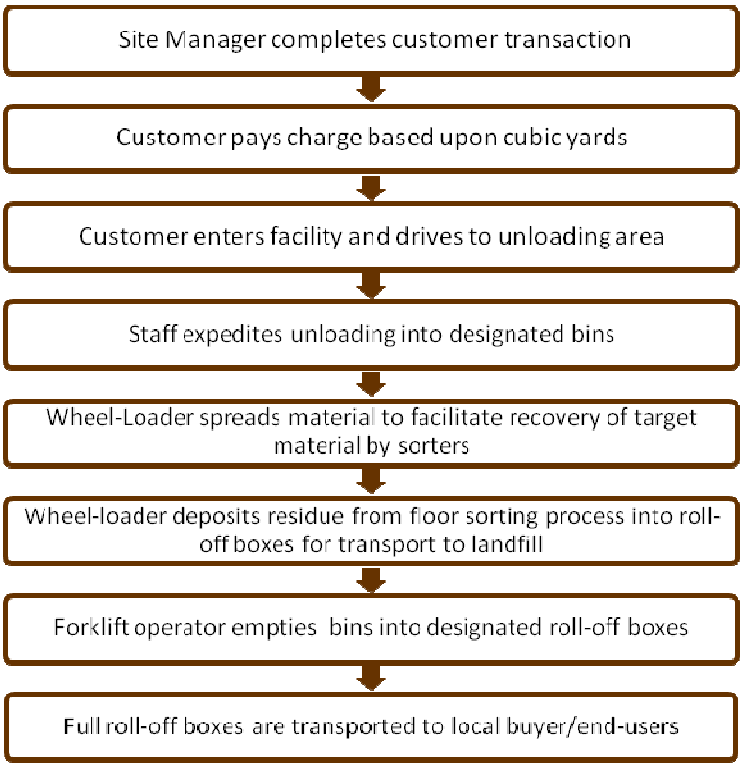
8. OCC RECOVER ROLL-OFF BIN
9. OCC COMPACTOR
10. ROLL-OFF BINS
11. E-WASTE DROP OFF AREA
12. E-WASTE GAYLORD STORAGE

STAFF REQUIREMENTS

Implementation of Phase 3 requires four additional full-time personnel for a total of ten (10) to manage the anticipated additional tonnage/material. The personnel required for Phase 3 is as follows;

- 1 – Site Manager
- 4 – Equipment Operators
- 5 – Floor-Sorters

Figure 5 – Option 1-Phase 3 Site Operations



EQUIPMENT REQUIREMENTS

In addition to the equipment acquired in Phase 1, Phase 3 operations require the acquisition of the equipment identified in **Table 5**.

Table 5 – Option 1-Phase 3 Equipment Requirements

Equipment	Quantity
Wheel Loader	1
Roll-Off Boxes – (50-Yard)	6
Pup Trailer (to pull double roll-offs)	1

MATERIAL RECOVERY & DIVERSION

Recovery and diversion from landfilling in Phase 3 is projected at 80%.

Table 6 – Option 1-Phase 3 Recovery

Annual Tonnage		24,375
Recovered	80.0%	19,500
Landfilled	20.0%	4,875

CAPITAL EXPENDITURES REQUIREMENT

The implementation of Phase 3 requires an additional capital investment of approximately $705,500 as follows:

- $500,000 – Building & Site Improvements
- $180,000 – Wheel-loader and Roll-Off Pup-Trailer
- $25,500 – Additional Roll-Off Boxes

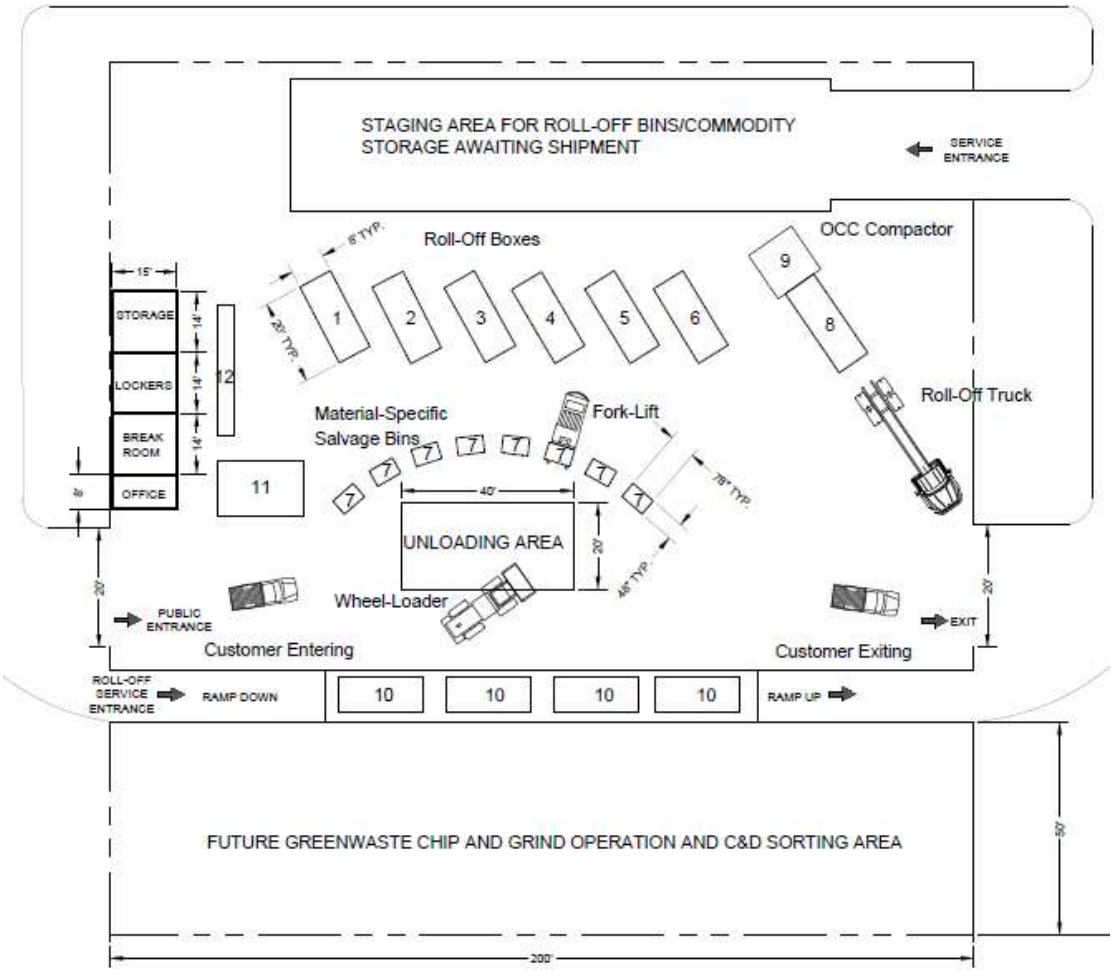
2.1.4 PHASE 4 – LARGE VOLUME IRF (500-1,450 CUBIC YARDS PER DAY, PLUS ORGANIC MATERIALS AND/OR C&D PROCESSING OPERATIONS)

In Phase 4, the IRF is expanded to become a full-service processing facility for self-haulers to bring green waste and construction and demolition materials with a capacity to receive and process up to 377,000 cubic yards of the various materials annually. Based on a 250 lbs/cubic yard factor for the self-hauler waste, 300 lbs/cubic yard for the yard waste and 400 lbs/cubic yard for the C&D debris, the facility will be capable of receiving up to 47,125 tons per year. Changes in local market conditions will facilitate the development of Phase 4. Changes that may stimulate a growth in IRF tonnage include; a significant increase in landfill disposal costs, a significant increase in the value of recyclable commodities, or regulation requiring the segregation, collection and processing of green waste and legislation to ban the landfill disposal of green waste.

SITE OPERATIONS

In addition to all the functions performed in Phase 3, site operations during Phase 4 include the addition of green waste and C&D processing capacity with the addition of a tub grinder, trommel screen, and a C&D sortline. The trommel screen can be used to screen both chipped wood, green waste, and the dirt from the City water utility. The additional equipment can be placed in the area designated as "Future Green Waste Chip & Grind Operation and C&D Sorting Area" in **Figure 6**.

Figure 6 – Option 1-Phase 4 Facility Layout



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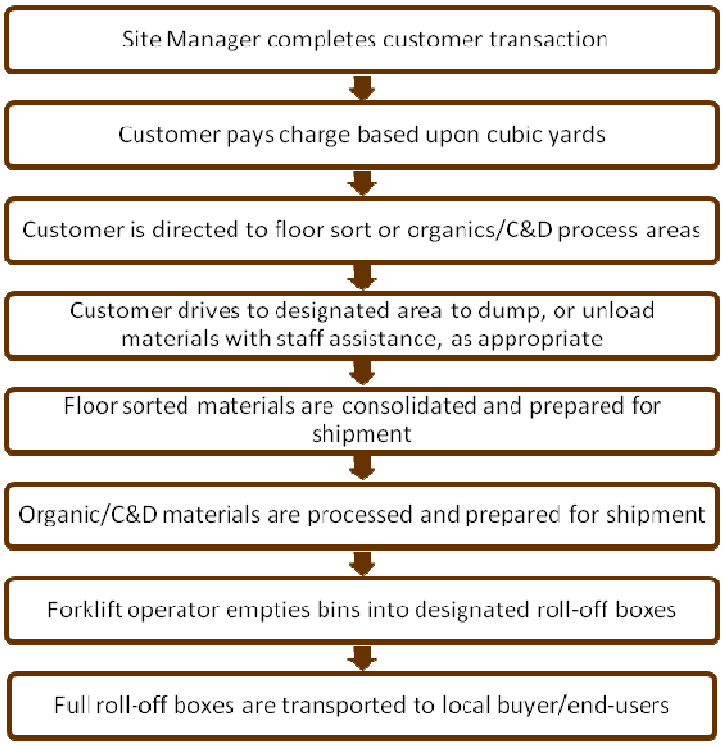
STAFF REQUIREMENTS

When fully implemented, Phase 4 requires a staff of 21 employees; one site manager, one supervisor, one clerk, six equipment operators, and twelve sorters.

- 1 – Site Manager
- 1 - Supervisor
- 1 - Clerk
- 6 – Equipment Operators
  -Forklift
  -Wheel-Loader (Floor Sort)
  -Wheel-Loader (Organics/C&D)
  -Roll-Off Truck
  -Tub-Grinder
- 12 – Sorter/Unloaders
  -5 – Floor Sorters
  -7 – C&D/Organics Sorters

Figure 7 – Option 1-Phase 4 Site Operations



EQUIPMENT REQUIREMENTS

In addition to the equipment acquired in prior Phases, Phase 4 operations require the acquisition of the equipment identified in **Table 7**.

Table 7 – Option 1-Phase 4 Equipment Requirements

Equipment	Quantity
Tub Grinder	1
Trommel Screen	1
C&D Sortline	1

MATERIAL RECOVERY & DIVERSION

Phase 4 continues the recovery and diversion achieved in the previous phases with the addition of recovery achieved from the green waste and C&D processing operation. The recovery rates achieved by the three processes are provided in **Table 8**.

Table 8 – Option 1-Phase 4 Recovery

	Floor Sorting		Green Waste Processing		C&D Processing		Total	
Annual Tonnage		**24,375**		**9,750**		**13,000**		**47,125**
Recovered	80.0%	19,500	95.0%	9,263	60.0%	7,800	77.6%	36,563
Landfilled	20.0%	4,875	5.0%	487	40.0%	5,200	22.4%	10,562

CAPITAL EXPENDITURES REQUIREMENT

Growth from Phase 3 to Phase 4 requires an additional capital investment of approximately $1,300,000, as follows:

- $250,000 – Site Improvements
- $700,000 – C&D Sorting System
- $300,000 – Tub Grinder
- $50,000 – Trommel Screen

Picture 1 – C&D Sorting System

C&D Sorting System including a steel-pan in-feed conveyor, a debris-roll screen for the removal of "fines", and a sortline for the removal of wood, rock, concrete, steel, cardboard, etc.

2.2 OPTION 2: EXPANSION OF RIVENDELL SCHOOL DROP-OFF OPERATION

Option 2 is the expansion of operations at the Rivendell School Drop-Off Center to include up to three additional materials.

TARGETED MATERIALS FOR RECOVERY/DIVERSION

Option 2 adds to the items accepted at the site, as follows:

- Ferrous Scrap
  - Iron/Steel, Rebar, Cookware, Car & Truck Wheels, Canisters, Drums, Bicycle Frames, Shelving, etc.
- Non-Ferrous Scrap
  - Window/Door Frames, Lawn Chair Frames, Siding, Copper/Brass Fixtures, Electrical Wiring
- Heavy-duty HDPE items such as big-wheel toys, garden hoses, 5 –gal buckets, etc.

It is important to note that only small ferrous scrap that is compatible with the current unattended drop-off operation will be accepted. Large ferrous scrap such as large appliances or equipment with combustible engines or lubricants such as lawnmowers, or large construction equipment will not be accepted. High value commodities (such as ferrous metals) at an unattended site are susceptible to theft. Two obvious solutions present themselves; first, to provide an attendant for the operation, and second, to reduce the opportunity for theft by locking the ferrous metal container during the hours in which the facility is not open. Finally, it should be noted that even though the materials may be pilfered, they will be recycled which is the primary IRF objective.

It is estimated that this option will divert approximately 300 tons per year, a very small amount in terms of overall diversion.

SITE OPERATIONS

The selected additional materials would be simply added to those currently accepted at Rivendell. The site can be rearranged to accommodate the delivery of ferrous and non-ferrous metals, as well as heavy-duty HDPE items or other items designated for recycling.

STAFF REQUIREMENTS

As currently operated, the Rivendell facility is not staffed. The addition of the three target materials will not necessarily require direct staffing of the site.

EQUIPMENT REQUIREMENTS

Option 2 requires the acquisition of the equipment identified in **Table 9**.

Table 9 – Option 2 Equipment Requirements

Equipment	Quantity
Roll-Off Boxes	
50-Yard Boxes	4
12-Yard Boxes	4

FINANCIAL CONSIDERATIONS

Additional expenditures for the site will include the acquisition of additional roll-off and storage boxes at an approximate cost of $22,000, and an ongoing annual expense of approximately $15,000 to haul material loads to market. Ferrous and non-ferrous metals are estimated at 80 loads per year at an estimated cost of $100 per load. Heavy-duty HDPE loads are estimated at 24 loads per year at an estimated cost of $300 per load.

2.3 OPTION 3: STAND-ALONE GREEN WASTE RECOVERY OPERATION

Option 3 consists of the development of a six-day per week, stand-alone green waste recovery operation that can be implemented in two phases. In Phase 1, the operation is configured to receive up to 25 tons per day or 7,800 tons per year of green waste and increasing to 75 tons per day or 23,400 tons per year in Phase 2. Currently, private companies provide green waste processing services to the City's residents and businesses for a fee.

TARGETED MATERIALS FOR RECOVERY/DIVERSION

Materials targeted for recovery at the green waste drop-off site include:

- Lawn Clippings
- Leaves
- Tree Trimmings
- Garden Prunings

SITE OPERATIONS

Resident and/or commercial green waste generators deliver source-separated green wastes including lawn clippings, garden prunings, tree trimmings, leaves, and other designated organic materials to a designated unloading area. The materials, unloaded by the generator, are pushed into a stockpile by the loader operator and held until they are processed through a grinder. The ground (size-reduced) organic materials are extruded from the grinder and stockpiled. The size-reduced materials may be used as mulch for erosion control, weed abatement, or seed bed material some of which could be used for landscaping projects by citizens and by City crews, and or as a future source of energy using low-emission conversion technology. It could also be further processed via composting for use as an organic solid amendment if it could be transported to an appropriately permitted composting facility (transportation costs are not included in this evaluation). Otherwise, it is possible that a surplus of mulch could develop for which a current market is not identified.

2.3.1 PHASE 1 – 25 TONS OF GREEN WASTE

When the site receives less than 25 tons per day, only one staff person is required to receive the incoming material and perform the functions of loader operator and grinder operator. As use of the site increases, additional personnel are needed to direct traffic on the site and operate machinery.

EQUIPMENT REQUIREMENTS

Option 3, Phase 1 requires the acquisition of the equipment identified in **Table 10**.

Table 10 – Option 3 Equipment Requirements

Equipment	Quantity
Wheel Loader	1
Trommel Screen	1
Tub Grinder	1

CAPITAL COSTS REQUIREMENTS

The implementation of Option 3 requires a capital investment of approximately $500,000, as follows;

- $300,000 – Tub Grinder
- $150,000 – Wheel-Loader
- $50,000 – Trommel Screen

2.3.2 PHASE 2 – 75 TONS OF GREEN WASTE

In Phase 2, when the tonnage received at the site increases to 75 tons per day, a total of three (3) staff will be needed. As long as the site is used strictly as a chip and grind operation, where the size-reduced materials are loaded and shipped offsite, the operation should not require more than three full-time staff: a loader operator, a grinder operator, and a person to provide traffic management and customer service, as well as act as load spotter and sorter.

No additional capital is required for Phase 2.

2.4 OTHER CONSIDERATIONS

TOTAL ACREAGE & BUILDINGS

Option 1, Phases 1 & 2 requires an area of not less than 30,000 square feet. Phase 3 requires an area of not less than 50,000 square feet. In order to host the Phase 4 operations, approximately 1.5 acres (220" x 290") are needed, as seen in Section 6, **Appendix A – Conceptual Site Plan**.

The simplest and least expensive option is an open-air facility. A small office is optional and can be a modular structure. The office will need to be equipped with a cash register, a safe, a computer, and billing software. The City may determine to install a scale and track the IRF material by weight instead of by volume. An enhanced version can include a building of approximately 10,000 square feet to 20,000 square feet to enclose the vehicle unloading area, providing shelter from the elements and reducing potential impacts of noise, dust, odor, and litter. Storage can be provided by bunkers, roll-off containers, and bins. It is not necessary to cover these storage areas or containers.

Both phases of Option 3 may be implemented as an open-air operation on a stand-alone 20,000 to 30,000 square foot parcel.

TRANSPORTATION CONSIDERATIONS

The simplest configuration is to load materials in roll-off containers. They can then be picked up by roll-off trucks and hauled to processing plants. E-waste and other special materials can be loaded in specially constructed boxes or shrink-wrapped on pallets and loaded by the forklift onto flat bed trucks and hauled to processing facilities.

ZONING CHARACTERIZATION

Industrial zoning and adjacent land uses are preferred.

STORMWATER MANAGEMENT SYSTEM REQUIREMENT

Stormwater will be controlled at the site by a series of bioswales, catchment basins, and/or retention ponds that will control and treat runoff before release offsite.

PERMITTING REQUIREMENTS

Construction and operation of a recycling drop-off facility does not require a formal solid waste permit. Wolfgang Kray at the Colorado Department of Public Health and the Environment's Solid Waste Division stated that under new regulations materials collected must be contained in a proper manner so as not to cause a nuisance. Expansion of the IRF to include material sorting/processing (Phase 2) requires the facility to register with the Colorado Department of Health and the Environment and report tonnages.

Additionally, an Application for Stormwater Discharges must be submitted in order to obtain a Recycling Industrial General Permit for stormwater. As part of the stormwater permitting process, a Stormwater Management Plan must be prepared and certified.

Lastly, the type of air permit required depends on the levels of criteria pollutants anticipated for the project. For the IRF, particulates are the primary source of emissions. If the facility produces greater than two tons of particulates annually, an Air Pollutant Emission Notice (APEN) must be filed. A Construction Permit is required for emission of more than five tons of particulates annually.

VEHICULAR TRAFFIC ACCESS PLAN

The traffic circulation plan depends on the specific site, its driveway locations, and layout. In general, vehicles delivering material access the site off an "arterial" grade street. They pull into the site and optimally follow a counterclockwise pattern to the tipping area and then head back out to the scales or directly off-site. Trucks picking up material follow a similar pattern. Sufficient space must be provided so that vehicles do not need to queue on the street.

INFRASTRUCTURE

Depending on location, the site may require modifications to the road and driveways to accommodate public vehicles and truck traffic. The site will require electricity for site lighting, fencing and gates, signage, and paved surfaces. If an office is included, then water, sewer, and gas connections would most likely be needed.

PUBLIC VS PRIVATE OWNERSHIP OPTIONS

If the IRF facility is to be provided as a public service, free to residents of Fort Collins, then it makes the most sense for the City to own the real estate. The operation of the facility and the provision of the equipment could be done by the City, or contracted out to a private company. In this scenario, the City would subsidize the entire cost of the operation.

If, however, the operation is to be self-supporting and charge a fee for the service, it is possible that the private sector could own and operate the IRF. It is unlikely that a venture of this sort would be profitable. The value of the material to be collected at the IRF is either low or negative. Landfill fees in Colorado are very low. If a fee is charged at the IRF that is higher than local landfills' fees (approximately $20 per ton), it creates an economic "disincentive" for residents to deliver material to

the IRF. One way this disparity in pricing could work is if the County and other landfill operators heavily penalized self-haul loads at the landfill, or banned them outright.

3.0 PROPERTY INVENTORIES

For this siting analysis, the Project Team evaluated potential sites in and around the City for an IRF. The City began as a hub for agricultural production but more recently, it has shifted its focus from an agriculture-based economy to a high-tech economy. Additionally, the City is the home to several breweries and a major university. There are several potential sites which may qualify for the IRF. Due to current economic conditions, a number of the sites initially identified are either abandoned or listed for sale.

3.1 SCREENING-LEVEL SITE EVALUATIONS

Rather than perform an exhaustive survey of all possible properties, representatives of the Project Team identified an initial 23 potential sites for the IRF. In order to identify these sites, the Project Team met with City representatives, including Lindsay Kuntz, a Real Estate Specialist for the City. Also, the Project Team made two trips to Fort Collins to tour the city and view potential sites first-hand. The sites fell within a broad spectrum of zoning and locations, including Industrial (I), Employment (E), River Downtown Redevelopment (RDR), Community Commercial North College (CCN), Transition (T), Harmony Corridor (HC), Commercial (C), and Low Density Mixed-Use Neighborhood (LMN).

The Project Team ranked each site on the initial list with a priority from high to low. **Table 11** shows the initial site list with site priority and availability. A map with the locations of all 23 sites is shown in **Figure 8**. Sixteen of these sites were ranked low due to ownership issues or other problems that were considered significant, and these sites were eliminated from further analysis. The seven high priority sites are highlighted in **Table 11** and were further evaluated using the established site evaluation criteria.

3.2 DETAILED EVALUATION CRITERIA

The seven high priority sites were analyzed using a matrix of site evaluation criteria that was developed by Clements Environmental. The criteria, listed in **Table 12**, represent a mixture of information regarding specific site development, environmental issues, land use compatibility, traffic issues, proximity to service areas, and availability.

3.3 COMPILATION OF DATA

Data required for the site analysis was obtained through:

- The City Zoning Department (zoning, assessor's maps, general plan, etc.)
- Site Tours
- Existing information and knowledge provided by City officials and staff
- City Real Estate Specialist, Lindsay Kuntz

3.4 ANALYSIS OF SITES

A matrix was developed to assist in evaluating the information for each site according to the site evaluation criteria. Each site was scored in each criterion, ranging from zero (0) to a high of five (5). A score of five (5) represents the best score for that criterion. Low scores indicate a weakness that will need to be addressed if the site is to be further considered. One low score was not grounds for elimination of a site because the weakness could perhaps be mitigated, and it is the relationship and totality of the various characteristics of a site that ultimately determine suitability. The scores for each criterion were then added to obtain an overall score for each site. The summary scores are shown on **Table 13**.

Site Evaluation Worksheets for each of the seven high priority sites can be found in **Appendix B – Site Evaluation Worksheets**.

Table 11 – Site Evaluation Criteria

SITE EVALUATION CRITERIA
Site Development Issues (minimize difficulty, maximize flexibility): • Relative Cost/Difficulty: Presence of major design constraints (parcel shape, slope, soils, rock, flooding, etc) • Useable Acreage: Facility expansion potential
Natural Environment Issues (minimize possible impacts): • Potential for Biological Impacts (presence of sensitive habitats) • Potential for Cultural Resources (known historic/archaeological sites) • Water Quality: Would the IRF impact either surface or ground waters?
Land Use Issues (minimize possible conflicts): • Noise (site proximity to sensitive receptors such as homes, hospitals) • Visual Issues (anticipated site visibility from homes, parks, scenic hwys) • Zoning: Is IRF permissible with current zoning, or is change required? Is IRF compatible with zoning of adjacent parcels? • Existing land Use: Would IRF displace a current use important to Fort Collins? Would IRF be compatible with adjacent land uses?
Traffic Issues (minimize congestion / dangers / air quality impacts): • Capacity of access routes (incl. number of lanes, left turn pockets, and arrows) • Traffic Safety Issues (if any) • Avoid access through or adjacent to residential areas • Availability of two or more site access points for circulation
Site Proximity to Service Areas (minimize travel distance) • Fort Collins (road distance to geographic center of the City) • I-25 Freeway (road distance to freeway for commodity trucks)
Availability for Acquisition (minimize uncertainty and cost)
City-Owned (best situation if space available for IRF use)

Table 12 – Siting Analysis Summary Table

Site Evaluation Criteria	Site 2	6	7	12	15	17	21
Site Development Issues (minimize difficulty, maximize flexibility):							
• Relative Cost/Difficulty: resence of major design constraints (parcel shape, slope, soils, rock, flooding, etc.)	5	3	5	5	4	5	5
• Useable Acreage: Facility Expansion Potential	4	4	4	5	5	4	4
Natural Environment Issues (minimize possible impacts):							
• Potential for Biological Impacts (presence of sensitive habitats)	4	5	5	4	4	5	5
• Potential for Cultural Resources (known historic/archaeologic sites)	5	5	5	4	4	5	5
• Water Quality: Would the IRF impact either surface or ground waters?	4	5	5	4	4	5	5
Land Use Issues (minimize possible conflicts):							
• Noise (site proximity to sensitive receptors such as homes, hospitals)	2	4	5	1	5	3	1
• Visual Issues (anticipated site visibility from homes, parks, scenic hwys)	3	4	5	1	5	4	1
• Zoning: Is IRF permissible with current zoning, or is change required?	3	4	5	2	5	5	3
Is IRF compatible with zoning of adjacent parcels?	3	5	5	2	5	5	2
• Existing land Use:							
Would IRF displace a current use more important to Fort Collins?	5	5	5	5	4	5	5
Would IRF be compatible with adjacent land uses?	3	5	5	2	4	3	2
Traffic Issues (minimize congestion / safety / air quality impacts							
• Capacity of access routes (incl. number of lanes, left turn bays, and arrows)	3	4	4	5	5	5	5
• Traffic Safety Issues (if any)	4	4	4	3	4	4	3
• Avoid access through or adjacent to residential areas	3	5	5	5	5	5	3
• Availability of two or more site access points for circulation	4	4	5	5	2	5	3
Site Proximity to Service Areas (minimize travel distance)							
• Fort Collins (road distance to geographic center of the City)	5	4	4	3	4	4	1
• I-25 Freeway (road distance to freeway for commodity trucks)	3	4	3	4	3	4	2
Availability for Acquisition (minimize uncertainty and cost)	3	2	2	2	5	4	2
City-Owned	0	0	0	0	5	0	0
TOTAL POINTS	**66**	**76**	**81**	**62**	**83**	**80**	**57**
Recommended	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**	**No**

4.0 FINANCIAL MODELS

Each Option/Phase presented in this report contains capital and operating costs considerations. The financial projections range from the minimal requirements of Option 2 with only $22,000 in capital expenditures, $15,000 in annual operating costs and no labor costs, to the large requirement of Option 1, Phase 4 with approximately $2,700,000 in capital expenditures and $1,360,000 in operating costs, and a full-time staff of 21.

In the sections that follow, financial models are presented for each of the Options and Phases proposed, together with the assumptions and costs projections used to develop each model.

4.1 OPTION 1 – FINANCIAL MODEL

The financial models for Option 1, Phases 1 through 4 are presented in **Table 16**. The financial models assume that materials will be received free of charge and therefore only revenue from the sale of recyclable materials is anticipated. However, considering that the materials targeted are currently being landfilled at a cost of $5.50 per cubic yard in addition to the time and hauling costs incurred by self-haulers, it is likely that a fee of up to $5.50 per cubic yard (approximately $44/ton) is attainable. Provided that the assumed operating factors are achieved, the costs per cubic yard calculated for Option 1 (Table 16) indicate that each of the phases could be operated at a lower cost than current landfill fees.

The revenues for all four phases were projected based on the waste characterization and commodity prices provided in **Table 14**. In addition to the percentage distribution of each commodity, the market value of each commodity is provided in column "$/Ton". The "Revenue/Ton" represents the proportionate amount of revenue that each commodity will generate per ton of material received. Based on this waste characterization and commodity prices, each ton of materials is projected to generate $10.59 per ton.

Table 13 – Option 1
Waste Characterization & Revenue/Ton

Commodity	%	$/Ton	Revenue/Ton
Ferrous Scrap	6.5%	$160.00	$10.40
Non-Ferrous Scrap	1.5%	$500.00	$7.50
Concrete/Rock	12.5%	$0.00	$0.00
Brick/Tile	12.5%	$0.00	$0.00
Porcelain/Ceramic	3.0%	$0.00	$0.00
Asphalt	6.0%	$0.00	$0.00
Wood	25.0%	($31.25)	($7.81)
Green Waste	15.0%	($33.33)	($5.00)
E-Waste	5.0%	($50.00)	($2.50)
OCC	8.0%	$100.00	$8.00
Textiles	5.0%	$0.00	$0.00
Revenue/Ton			**$10.59**

Note: The prices listed in the "$/ton" column are derived from conversations with local and regional buyers and brokers of the subject commodities (December 2011).

For Option 1, Phases 1 and 2, total capital expenditures were projected at $737,000 consisting of $500,000 for land and $237,000 for the acquisition of rolling stock and waste handling equipment (see **Table 15** for a detail projection of capital outlays).

In all options, land and improvement costs are amortized over a 30 year term at 3% interest.

In Option 1, Phase 1, up to 8,125 annual tons, or 65,000 cubic yards are projected. The net cost, after crediting the projected value of recovered recyclables, is $29.83 per ton, or approximately $3.73 per cubic yard (see **Table 16**). By charging a fee of $3.73 per cubic yard, the City can expect to break even under Phase 1.

In Option 1, Phase 2, additional capital expenditures are not incurred. However, added staff are required to handle the extra material that is expected – up to 16,250 tons per year, or 130,000 cubic yards are projected. With the added tonnage and no additional capital requirement, the IRF operating costs drop to $17.08 per ton, or $2.14 per cubic yard (see **Table 16**). By charging a fee of $2.14 per cubic yard, the City can expect to break even under Phase 2.

For Option 1, Phase 3, total capital expenditures of 1,442,500 were projected consisting of $1,000,000 for land and improvements and $442,500 for rolling stock and waste handling equipment (see **Table 15**). An additional three sorters are included in the full-time staff and disposal costs escalate due to the anticipated receipt of mixed loads that will likely contain more hard-to-recycle materials. Even with the expected annual tonnage increase to 24,375 for Phase 3, the added capital, labor and disposal costs render a per ton operating cost of $25.33 per ton, or $3.17 per cubic yard (see **Table 16**). By charging a fee of $3.17 per cubic yard, the City can expect to break even under Phase 3.

With the implementation of Option 1, Phase 4, the City will move into a full-service waste processing operation. Total capital expenditures of $2,742,500 are projected consisting of $1,250,000 for land and improvements and $1,492,500 in rolling stock and waste handling equipment, including $700,000 for a C&D sorting system, $300,000 for a tub-grinder, and $50,000 for a trommel (see **Table 15**). The IRF will operate the original self-haul recovery operation (Phases 1 through 3), plus full-scale C&D and green waste processing operations. The operating costs will be approximately $35.02 per ton with a cost per cubic yard of $4.38 (see **Table 15**). By charging a fee of $4.38 per cubic yard, the City can expect to break even under Phase 4.

Table 14 – Option 1 Capital Requirements

		Phase 1		Phase 2		Phase 3		Phase 4	
	Price	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount
Land			$250,000		$250,000		$250,000		**$250,000**
Building			$250,000		$250,000		$750,000		**$1,000,000**
Compactor	$40,000	1	$40,000	1	$40,000	1	$40,000	1	**$40,000**
Tub-Grinder	$300,000	0	$0	0	$0	0	$0	1	**$300,000**
Trommel	$50,000	0	$0	0	$0	0	$0	1	**$50,000**
C&D Sortline	$700,000	0	$0	0	$0	0	$0	1	**$700,000**
Wheel Loader	$150,000	0	$0	0	$0	1	150,000	1	**$150,000**
Forklift	$40,000	1	$40,000	1	$40,000	1	$40,000	1	**$40,000**
Roll-Off Truck	$100,000	1	$100,00	1	$100,000	1	$100,00	1	**$100,000**
Pup Trailer	$30,000	0	$0	0	$0	1	$30,000	1	**$30,000**
3-Yard Salvage Bins	$400	15	$6,000	15	$6,000	15	$6,000	15	**$6,000**
50-Yard Roll-Off Boxes	$5,000	6	$30,000	6	$30,000	9	$45,000	9	**$45,000**
12-Yard Roll-Off Boxes	$3,500	6	$21,000	6	$21,000	9	$31,500	9	**$31,500**
TOTAL			**$747,000**		**$747,000**		**$1,442,500**		**$2,742,500**

Table 15 – Option 1 Stand-Alone IRF Proforma

	Phase 1			Phase 2			Phase 3			Phase 4		
Revenue	***tons***	***$/ton***	**Annual**	***tons***	***$/ton***	**Annual**	***tons***	***$/ton***	**Annual**	***tons***	***$/ton***	**Annual**
Gate Fees	*8,125*	*$0.00*	$0	16,250	*$0.00*	$0	24,375	*$0.00*	$0	47,125	*$0.00*	$0
Commodity Sales		*$10.06*	$81,723		*$10.06*	$163,441		*$8.47*	$206,437		*$0.27*	$12,870
Total Revenue		***$10.06***	***$81,723***		***$10.06***	***$163,441***		***$8.47***	***$206,437***		***$0.27***	***$12,870***
Operational Costs												
Labor		*$22.19*	$180,331		*$17.67*	$287,179		*$18.97*	$462,302		*$19.89*	$937,113
Equip Maint & Ops		*$7.15*	$58,128		*$3.58*	$58,128		*$3.83*	$93,420		*$3.44*	$162,129
Disposal	*406*	*$25.00*	$10,156	813	*$25.00*	$20,313	4,875	*$25.00*	$121,875	10,563	*$25.00*	$264,063
Sub-Total Operational Costs		***$30.60***	***$248,615***		***$22.50***	***$365,620***		***$27.80***	***$677,597***		***$28.93***	***$1,363,305***
G&A Costs		***$1.65***	**$13,400**		***$0.82***	**$13,400**		***$0.71***	**$17,420**		***$0.43***	**$20,100**
Interest & Depreciation												
Interest Expense		*$2.65*	$21,568		*$1.33*	$21,568		*$1.73*	$42,224		*$1.70*	$79,903
Depreciation		*$4.98*	$40,476		*$2.49*	$40,476		*$3.55*	$86,500		*$4.24*	$199,833
Sub-Total Interest & Depreciation		***$7.64***	**$62,045**		***$3.82***	**$62,045**		***$5.28***	**$128,724**		***$5.94***	**$279,736**
Total Costs		***$39.88***	**$324,060**		***$27.14***	**$441,064**		***$33.79***	**$823,742**		***$35.29***	**$1,663,141**
Surplus/Deficit		***($29.83)***	**($242,337)**		***($17.08)***	**($277,624)**		***($25.33)***	**($617,305)**		***($35.02)***	**($1,650,271)**
Tons			8,125			16,250			24,375			47,125
Cu Yds @ 250 lbs			65,000			130,000			195,000			377,000
Cost/Cu Yd			($3.73)			($2.14)			($3.17)			($4.38)

4.2 Option 2 – Financial Model

Option 2 calls only for the expansion of materials that are accepted at the City's Rivendell School Drop-Off Operation. It assumes the City's current contract for hauling full bins to recycling processors would be renegotiated to add trucking services for new materials. As such, only the addition of four roll-off boxes and four salvage bins is anticipated. The financial model for Option 2 is presented in **Table 17**.

If mixed metals are recovered in the projected quantities, it is estimated that Option 2 will produce annual revenue of approximately $58,000 after deducting costs related to transportation and interest and depreciation for the purchase of roll-off boxes and salvage bins.

Table 16 – Option 2 Expanded Rivendell Proforma

Revenue	tons	$/ton	Amount
Gate Fees	*333*	*$0.00*	$0
Commodity Sales		*$229.31*	$76,360
Total Revenue		***$229.31***	***$76,360***
Operational Costs			
Labor		*$0.00*	$0
Equip Maint & Ops		*$44.82*	$14,925
Disposal	-	*$0.00*	$0
Sub-Total Operational Costs		***$44.82***	***$14,925***
G&A Costs		***$0.00***	**$0**
Interest & Depreciation			
Interest Expense		*$1.83*	$609
Depreciation		*$9.27*	$3,086
Sub-Total Interest & Depreciation		***$11.10***	**$3,695**
Total Costs		***$55.92***	**$18,620**
Surplus/Deficit		***$173.39***	**$57,740**

It is important to note that at a capacity to handle 333 tons per year, Option 2 will accomplish little in terms of added annual diversion. In comparison, Phase 1 of Option 1 will operate at 8,125 tons capacity per year.

4.3 Option 3 – Financial Model

Option 3 presents a full-service green waste drop-off operation. The operation is presented in two phases; Phase 1 will receive and process up to 25 tons of green waste per day, Phase 2 will ramp up to 75 tons per day.

It is anticipated that the green waste drop-off center will be located on the City's Timberline Road property. A capital investment of approximately $500,000 will be required; $300,000 for a green waste grinder, $150,000 for a wheel-loader, and $50,000 for a trommel screen.

An operating cost of $75 per ton was used for the grinding operation.

In Phase 1, only one staff person is required. When the tonnage is ramped-up to 75 tons per day in Phase 2, three staff are required; one spotter/sorter, and two equipment operators.

Table 17 – Option 3 Green Waste Drop-Off Proforma

	Phase I			Phase II		
Revenue	***tons***	***$/ton***	**Amount**	***tons***	***$/ton***	**Annual**
Gate Fees	*7,800*	*$0.00*	$0	23,400	*$0.00*	$0
Commodity Sales		*$0.00*	$0		*$0.00*	$0
Total Revenue		***$0.00***	***$0***		***$0.00***	***$0***
Operational Costs						
Labor		*$6.66*	$51,946		*$5.96*	$139,507
Equip Maint & Ops		*$7.27*	$56,700		*$5.54*	$129,600
Disposal	-	*$0.00*	$0	-	*$0.00*	$0
Sub-Total Operational Costs		***$13.93***	***$108,646***		***$11.50***	***$269,107***
G&A Costs		***$0.00***	**$0**		***$0.00***	**$0**
Interest & Depreciation						
Interest Expense		*$1.84*	$14,316		*$0.61*	$14,316
Depreciation		*$7.23*	$56,429		*$2.41*	$56,429
Sub-Total Interest & Depreciation		***$9.07***	**$70,744**		***$3.02***	**$70,744**
Total Costs		***$23.00***	**$179,390**		***$14.52***	**$339,852**
Surplus/Deficit		***($23.00)***	**($179,390)**		***($14.52)***	**($339,852)**

5.0 CONCLUSIONS

Each of the Options presented in this report accomplish important aspects of the City's objectives in commissioning the IRF Study. A household hazardous waste component for the IRF was considered impracticable because of the extraordinary costs of permitting, receiving, handling, manifesting, transporting, processing, recycling and disposing of the material. The financial models for each option demonstrate that the cost per cubic yard can be lower than the cost of landfilling. It is important to note that the bottom-line costs in each model are driven by a projected volume of incoming material and a projected value of the recovered commodities. We have used conservative projections for the volume and value in the financial models for each assumption.

Option 1, presented in four Phases, is designed to accomplish all of the City's stated objectives immediately upon implementation of Phase 1. With Option 1, Phase 1, the City will be able to offer a service to residential and commercial "self-haulers" that will target materials that are currently being landfilled. With Phases 2, 3 and 4, the City will be able to expand local services to receive and process larger volumes of materials, if needed. The quantities of materials projected to be processed, recovered and landfilled under each phase of Option 1 are summarized in Table 19.

Table 18 – Option 1 – Recovery Summary

	Phase 1		Phase 2		Phase 3		Phase 4	
Annual Tonnage		**8,125**		**16,250**		**24,375**		**47,125**
New Recovery	95.0%	7,719	95.0%	15,437.5	80.0%	19,500	77.6%	36,563
Landfill Disposal	5.0%	406	5.0%	812.5	20.0%	4,875	22.4%	10,562

Under Option 1, the singular difference between Phase 1 and Phase 2 is the addition of personnel in Phase 2 to handle an increased volume of materials. Phases 3 and 4 require considerable additional capital investment and increased staffing, up to 21 personnel. If implemented, Phases 3 and 4 will become a major component of the Northern Colorado solid waste/recycling infrastructure.

Option 2 offers an opportunity to expand the targeted commodities that Fort Collins residents may recycle. With this Option, the City would simply expand the items accepted at the Rivendell Drop-Off site. This option will require a small capital investment and, depending upon commodity sales revenue, may produce a net positive financial result. With the projection of approximately 300 tons per year of additional diversion, this option will accomplish very little toward the City's goal of reducing landfill disposal.

Though Option 3 targets only green waste, with its implementation, the City will be able to offer a full-scale opportunity for all residents to dispose of their lawn, garden, and tree trimmings in a program that will divert those organic materials from landfill disposal. It projected that up to 7,410 tons will of green waste material will be divereted in Phase 1 and up to 22,230 tons in Phase 2 of Option 3.

The City is fortuate to have numerous sites that could be appropriate for hosting the operation of an IRF. Because the (redacted) site (see Section 3.5.5 and 3.6.1) is already owned by the City and is ideally located, we believe that this site presents the fewest obstacles for successfully implementing Options 1 and 3.

Finally, during the preparation of this report, we were pleased to find that the local area is well served by various public, private and non-profit organizations that offer opportunities to recycle and reuse concrete, rock, brick, tile, organic materials, ferrous and non-ferrous metals, furniture and fixtures, in additional to the traditional newspaper, bottles, and cans.

Highly motivated residents and businesses already have multiple options for recycling. The primary benefit of developing an IRF operation would be to provide a convenient lower-cost option for the self-haulers that currently use the landfill. While an IRF could serve as catalyst for a new wave of recyclers and recycling in the commmity, it is likely that the success of such a facility will require sustained operational and financial support from the City.

6.0 APPENDICES

6.1 APPENDIX A – CONCEPTUAL SITE PLAN

6.2 APPENDIX B – SITE EVALUATION WORKSHEETS

6.1 APPENDIX A – CONCEPTUAL SITE PLAN

6.2 APPENDIX B – SITE EVALUATION WORKSHEETS