METRO

Renewal & Replacement Account Study
For Solid Waste Facilities

Final Report

Prepared by

URS Corporation
in association with
Bell & Associates, Inc.

March 18, 2009

March 18, 2009

Bob McMillan
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Dear Bob:

URS in association with Bell & Associates, Inc., is pleased to submit the result of our Solid Waste Renewal and Replacement (R&R) Account Update Study. Our study involved reviewing the facilities and equipment at the two Metro transfer stations to identify what repairs or equipment replacements are necessary during the next 20 years. URS also reviewed the current R&R Account for the two Metro Transfer Stations and the St. Johns Landfill Closure Account to determine if the current balance and contributions are adequate to fund the project through the same projected period.

Major tasks included in this report are:

- Condition assessment of the key operation equipment and system.
- Determination of the appropriate amount of funds to be contributed to the R&R Account to maintain the proper balance.
- Verification of the adequacy of the St. Johns Landfill Closure Account.

In general, the major findings are as follows:

- Condition Assessment: Generally, the facilities are in good condition. URS updated the 2005 equipment list based on our field observations and the latest construction cost information gathered from recent solid waste projects.
- Renewal and Replacement Account Analysis: It is our recommendation to maintain the current annual contribution ($694,700) through FY 27-28. Since the repair and replacement costs used in this report are conservative estimates, Metro Management team should have the flexibility to review and adjust the funding balance and the spending periodically.
- St. John's Landfill Closure Account: Assuming 3% inflation rate and 3% interest earnings, the current $7.3 million fund balance is adequate to fund the outlays through FY 27-28.

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We appreciate the opportunity to work with you on this project. Please contact us if you have any questions regarding this report or if additional information is needed.

Sincerely,

URS Corporation

Krystal S.Y. Li, P.E.
Project Manager

Robert W. Carn, P.E.
Principal in Charge

Attachment

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1. INTRODUCTION

1.1 Background

On November 21, 1989, Metro adopted Ordinance No. 89-319, the Solid Waste Revenue Bond Master Ordinance (Master Ordinance). The Master Ordinance requires Metro to establish a Renewal and Replacement (R&R) Account for the capital assets of the solid waste system, and to review the requirements of the account every three years. This effort is one in a series of the renewal and replacement analysis on the current Metro Solid Waste & Recycling Renewal and Replacement Account. This report updated the study titled "Renewal and Replacement Account for Solid Waste Facilities," prepared by FCS Group and URS Corporation, dated April 29, 2005 (2005 RRA report).

The study focused on the equipment and systems of the two transfer stations and two hazardous waste collection facilities. The equipment at the Latex Recycling Facility was included in the analysis. An evaluation of the adequacy of the St. Johns Landfill Closure Account funds is also included in this study. The scope of work included in this study is as follows:

1. Review and update the condition and estimated costs of the key operating equipment and systems.
2. Determine the appropriate amount of funds to be contributed to the Renewal and Replacement Account to maintain the proper balance.
3. Evaluate adequacy of the St. John's Landfill Closure Account Funding.

1.2 Approach

URS and Bell & Associates, Inc. (URS Team), started the evaluation with a kick-off meeting with Metro's Project Manager. The purpose of the meeting was to gather available relevant documentation and to confirm the project scope and project goal. After reviewing the available project information, the URS Team conducted numerous site visits to physically inspect the inventories that are listed in the 2005 RRA report. During the site visits, URS Team also interviewed facility operators and Metro staff to gain working knowledge of the equipment and the systems. In addition, a planning-level study of the existing stormwater system at Metro Central Facility was performed by a licensed professional Civil Engineer.

The collected field information then was assembled and used to update the R&R Equipment List that is attached to the document. The costs establish a baseline for 2008 that is used to project future repair or replacement costs. With the estimated costs, the fund balance for the R&R account was projected over a 20-year period.

Finally, URS Team evaluated the adequacy of the current St. John's Landfill Closure/Post-Closure Account to determine if the current funding balance would meet the project needs over the same period as the R&R account.

2. CONDITION ASSESSMENT REPORT

The findings of the updated asset inventory, evaluation of the current asset condition, evaluation of replacement costs, and useful life estimates are summarized in the Condition Assessment element of this report (see Schedule 1 in Appendix B). The capital outlay projections resulting from this investigation were used in the preparation of the financial analysis. These findings are summarized in Section 3. The capital assets at the Metro Central and Metro South waste transfer processing facilities are addressed in the identified outlays. These include the Household Hazardous Waste Facilities for both Metro Central and Metro South, and the equipment at the Latex Recycling Facility.

2.1 Description of Facilities

2.1.1 Metro Central Facility

In 1989, Metro renovated and converted an existing steel fabrication warehouse to a solid waste transfer station. The original structure was constructed in the early 1920's with steel frames, metal sidings, concrete tilt-up partial walls, and heavy concrete floors. During the 1989 renovation, the size of the building was increased to 165,200 square feet to handle the transfer and material recovery operations including wood and yard wastes.

Several new buildings were also added to the site including the Contractor's offices (3,700 square feet), Metro offices (1,230 square feet), and three scale houses (400 square feet each). The facility began operations as a transfer station in 1991. The materials recovery operations of the facility began later that same year.

A 3,500 square foot HHW (household hazardous waste) facility was constructed in 1993 to receive and to store hazardous material. The HHW facility is not part of the transfer station operation's contract but is included in this report.

Several other projects necessary for safe and efficient operation of the facilities have also been completed. These projects include:

- Increased the size of self-haul public vehicle receiving and unloading area.
- A new compactor feed conveyor was added to Compactor SSI No. 1. Some building columns were removed to improve access to the new compactor feed conveyor.
- Overhauled and upgraded baler to extend useful life.
- In 2003, the existing metal roof panels were replaced with translucent roof panels to improve lighting levels.
- Line conditioner was added to the electrical system to address power problems.
- Concrete floor slabs were resurfaced to improve the dozer operations.

- Woodline conveyors were replaced in 2007.
- Compactors No. 1 and No. 2 were refurbished in 2008 and 2007, respectively.
- Scales No. 3 and No. 5 were replaced in 2006 and 2008, respectively.

Currently, the Metro Central facility receives, compacts and transfers about 1,200 tons of solid waste per day. Both commercial haulers and the general public deliver waste to this facility. Wastes from the general public and clean commercial wastes are unloaded onto Bay 1 and Bay 2 tipping floors, respectively. Facility operators then sort through the wastes to recover certain recyclable material before the wastes are pushed into in-ground conveyors then loaded into the compactors and transfer. Dirty wastes brought by the commercial haulers are unloaded onto Bay 3 tipping floor and are pushed directly into conveyors, then loaded into compactor and transfer.

The HHW facility is not part of the transfer station operation's contract. It is staffed and operated by Metro.

2.1.2 Metro South Facility

The Metro South transfer station has been in operation since 1983. This station is classified as a "pit" transfer operation. The approximately 40,000 square foot building contains a 40-foot wide by 12-foot deep pit which runs the length of the building in one direction. In the original design, the commercial vehicles enter the building on one side of the pit and self-haul public vehicles enter on the other. Both sides unload directly into the pit. The waste in the pit is moved by a track-mounted dozer over to a loading and transfer point. Between 1983 and 1989, waste was transferred to the St. John's Landfill. In 1989 a compactor was installed to compact the waste before transfer. In 1992, two more compactors were installed at the other end of the pit. Since 1992, track-mounted dozers load waste into two compactors. The compacted waste is then transferred in transfer trailers to a regional landfill located in Arlington, Oregon, about 145 miles from Portland.

In 1992, a HHW facility was opened on site to receive and to process household hazardous waste. This 4,000 square foot building complex underwent major maintenance due to flooding in the spring of 1996. A Latex Recycling facility was opened in 1998. However, the latex processing operation has been relocated to a leased building on Swan Island. The 1998 building has been converted into a maintenance facility and conference area. The HHW facility and the Latex Recycling Facility are both staffed and operated by Metro and are not part of the transfer operations operator's contract.

Other improvements that have been made to the station include:

- A new scalehouse and scales were added and improvements were made to the entrance and exit roadway to improve traffic and increase daily throughput.

- A 4,000 square foot addition was made to the "commercial" side of the main building.
- A new truck wash and enclosure was installed.
- A new 24,000 square foot public unloading building was constructed. Self-haul public vehicle unloading was relocated to this new building and the "public" side of the original building was converted to commercial use.
- An approximately 7,500 square foot addition was made to the "public" side of the building to accommodate commercial vehicles.
- Pavements were resurfaced in 2002.
- Scales No. 1 and 2 were both repaired to improve accuracy.

Currently, Metro South receives wastes from commercial haulers and general public. The Metro South transfer station has received and transferred up to 1,500 tons per day since it began operating in 1983. The daily average is currently about 1,000 tons per day. Metro owns this facility which is operated and maintained by private contractors.

2.2 Condition Assessment and Renewal and Replacement Needs

2.2.1 Process Description

Several meetings between the URS Team, Metro administration and operations personnel, and employees of the private contractor were required to develop the Condition Assessment. The format of the findings in this section is similar to that used in the 2001 and 2005 reports. The steps used to develop the 2008 Condition Assessment and R&R needs are:

1. URS Team visually inspected the system previously identified in the R&R Account during several site visits at the Metro South and Metro Central facilities. This inspection also included the condition of compactors at both Metro South and Central facilities, as well as the wood processing line and baler at Metro Central.
2. URS performed a planning-level analysis on the existing stormwater management system and developed planning-level improvement recommendations for Metro Central Transfer Station. Stormwater management system was not included in the 2001 and the 2005 reports. Due to recent stormwater treatment quality issue, this item is added to the 2008 report at Metro's request.
3. URS updated a summary of the expenditures compared to the previous planned R&R for the past three years.
4. All of the information was compiled and used to produce the updated 2008 R&R Account financial tables.

2.2.2 Consideration in Developing R&R Needs

The following key items were considered during the development of the R&R needs:

1. Equipment or structural components considered critical to the operations of the facilities were included in the account.
2. Structures such as the main processing building, scale houses, HHW buildings, offices, and utilities where the intent is not to "replace" the structure were not included in the account.
3. Equipment or structural components maintained or replaced on a regular basis as part of standard operations and maintenance were not included in the account.
4. Equipment or structural components owned by the station operator are not included in the account.
5. Equipment or structural components with a replacement cost less that $10,000 are not included in the account. While some of these components are critical to the operation of the station, the relatively low costs can be funded out of the standard operations and maintenance budget.

2.3 Renewal and Replacement (R&R) Items

A description of the items that appear in the 2008 R&R Account Plan and how the money is intended for use is discussed below. The R&R accounts were grouped into subcategories for each facility. These subcategories represent the functional components of the overall facility and are similar to the 2001 and 2005 reports. This method of organization provides Metro with a snapshot of the status of funds available for replacing critical items for each functional component of the facility at any time. Under each subcategory is a description of the item and the assumptions used to establish the cost to replace or renew the item. Items associated with R&R requirements are included in the discussion by facility.

2.3.1 Metro Central

2.3.1.1 Status of Utilities

- Stormwater Management System. The Metro Central Transfer Station operates under a 1200-Z Industrial Stormwater Discharge General Permit issued by Oregon Department of Environmental Quality (DEQ). Recent samples taken by City of Portland staff indicate that the facility's stormwater management system is not always treating runoff adequately to meet the permit's benchmarks. URS developed a planning-level stormwater system improvement recommendation. A planning-level budget for the improvements is included in the R&R Account study process. The letter report is included in Appendix A.

- Two (2) percent of the replacement cost was added to the list to help offset any Extraordinary Repairs at the Facility.

2.3.1.2 Buildings

There are several buildings located at Metro Central. The elements related to the individual buildings that are critical to the function of the building are listed below each subheading.

- **Main Transfer Station Building** – Elements contained in the R&R Account include: the Metal Roof, the Ventilation System Replacement, Metal Wall System, Concrete Floor Repair, and Rollup Doors. The Roof and Ventilation System were replaced in 2003 in order to improve facility lighting.
- **Scalehouses** – Each of the scales are listed at the scalehouses. The replacement cost for the scale mechanism is included in the account. The only other costs included are the Radiation Detector (used on Commercial loads at Scale House B) and the Computer Network. Heat pumps were not identified in the previous reports but are added to the 2008 report.
- **Household Hazardous Waste (HHW)** – The ventilation system and electrical system at the HHW facility are both critical in the operation of the facility and are included in this report. Chiller and Scrubber were not included in the previous reports but are added to the 2008 report.
- **Support Structures** – The Truck Wash and Support Buildings are listed as subheadings but no critical elements were identified in 2008.
- **Extraordinary Repairs –** A Building Contingency of 2% of the replacement cost was added to the list to help offset unexpected Extraordinary Repairs at the Station. This contingency amount was set in 2001 and accrued over 20 years, resulting in funds being set aside for unexpected extraordinary expenses.

2.3.1.3 Site Conditions

- The upkeep of the concrete slabs and asphalt concrete pavement are included in the list since they need occasional repair. The condition of these surfaces is critical to the operation of the station. Bay 3 was resurfaced in 2005. Concrete slabs have a life expectancy of 10 years, so many of the other bays will likely need to be resurfaced in the next few years. The apron area north of the main building is also in need of re-surfacing. The Operator frequently drags large drop boxes in this area, resulting in substantial damage.

2.3.1.4 Primary Equipment

Equipment was categorized into Transfer Operations and HHW Operations. The Transfer Operations were further split into Compactors, Wood Processing, and Baling.

- **Compactors and Feed Conveyors** – Each of the three compactors is essential to the operations of the facility and is thus listed in the R&R. They are projected to a service life of 10 years. During the 10-year life span compactors often need replacement of cylinders or structural components of the unit. Compactors No. 1 and No. 2 were rebuilt in 2008 and 2007, respectively. Compactor No. 3 is scheduled for re-built in 2009.
- **Wood Processing Line** – The wood processing line includes all the major pieces of processing equipment. This includes both shredders, the conveyors, the magnetic separator, and the load distribution paddle. It does not include the grapple, as that is included in the Mobile Equipment Category. All of this equipment was installed in 1991. Wood line conveyors were replaced in 2007 to improve the performance and to save maintenance money.
- **Baler System** – The baler line includes the baler and the feed conveyor. The baler was rebuilt in 2001. The bailer is only used three days per week.
- **Miscellaneous Items** – Several smaller items were identified for the HHW operation.
- **Extraordinary Repair –** A Primary Equipment Extraordinary Repair Contingency of 10% and 2% of replacement costs was included to address unexpected repairs for compactors and other primary equipment, respectively.

2.3.1.5 Mobile Equipment

- Site vehicles and equipment owned by Metro are identified in the R&R. These pieces of equipment include the mobile grapple used at the wood processing line and the trucks and forklifts associated with the HHW operations. Most of this equipment is considered to be in good working order. Metro does report ongoing mechanical problems with the grapple, and the grapples mechanical arm has been prone to breaking. The grapple is vital to the operation of the wood processing line.
- Extraordinary Repair Contingency of 2% of replacement costs was included to address unexpected repairs.

2.3.1.6 One Time Expenses

- Upgrading the lighting was identified in the 2001 R&R. The estimated costs for the upgrade was $149,000 and is not a reoccurring item. It is our recommendation that money previously included for the replacement of the lights remain on the list.

2.3.2 Metro South

2.3.2.1 Status of Utilities

- **Sewer Systems** – Several pump stations necessary to maintain operations are included in the sewer system. These pumps have an estimated 15-year life span.
- **Electrical** – The 600A Electrical SWBD equipment was originally installed in 1983. It has functioned without any known major problems for the last 25 years, but equipment is in poor condition and is reaching the end of its service life and capacity.
- **Backup Generator** – The 250kW backup generator cost reflects the estimated cost to refurbish the existing unit at the end of the current life span. The Station Operator conducts standard unloaded testing on a monthly basis, and indicates it is currently in good condition. It is recommended the Station Operator conduct standard Loaded testing on a monthly basis, to better simulate emergency operation and also to fully exercise the generator. Unloaded testing at idle speeds does not test the generators ability to power critical equipment during a power outage. We also note that a new generator transfer switch was installed in 2007.
- **Site Lighting** – Many of the existing wooden light poles are missing there metal protection caps. This allows water damage to occur and has lead to the rotting of some poles. Poles should be inspected for structural integrity regularly. Also, many concrete bollard lighting has been damaged, has yellow lenses, or inoperable due to flooding and or heat from end of life cycle. Replacement of these fixtures is recommended, especially near pedestrian walkways and parking areas.
- **Extraordinary Repair** – A contingency of 10% of replacement cost was included to address unexpected repairs.

2.3.2.2 Buildings

The elements related to the individual buildings that are critical to the function of the building are listed below each subheading.

- **Transfer Building, Bay 1 and Bay 2** – Elements contained in the R&R Account include: the Metal Roof, the Ventilation System Replacement, Wall System, Concrete Floor Repair, Dust Suppression System, and Lighting. The Dust Suppression System was originally installed in 1983. Operations of the building have changed significantly and the building has undergone a 25% increase in area. Some of the original building elements may need to be expanded to compensate for increased operations. Bay 2 concrete push wall was not identified in the 2005 report but is included in the 2008 report.

- **New Public Building, By 3 and Bay 4** – Included in the R&R for this building are the Metal Roof, Metal Wall System, Concrete Floor Repair, and Ventilation System. This building is generally in good condition.
- **Scale House** – Each of the scales are listed at the scalehouses. Scales have long lifespans. The replacement cost for the scale mechanism is included in the account. The only other costs included are the radiation detector (used on Commercial loads at Scale House B) and the Computer Network. Heat pumps were not listed in the 2005 report and are added to the 2008 list.
- **Household Hazardous Waste (HHW)** – The ventilation system at the HHW facility is critical in the operation of the facility and is included in this report.
- **Support Structures** – The HHW Fixed Trailer is considered a separate item since Metro management plans to retire the trailer at the end of it's current life.
- **Extraordinary Repair –** A contingency of 2% of replacement cost was included to address unexpected repairs.

2.3.2.3 Site Conditions

- Pavement Replacement, Replacement/Repair of Retaining Wall, and a 2% Extraordinary Repair Contingency is included in the R&R Account.
- Compactor Bridge Asphalt Deck was not identified in the 2005 report but is included in the 2008 report.

2.3.2.4 Primary Equipment

- Both of the compactors are essential to the operations of the facility and are thus listed in the R&R. They are projected to a service life of 10 years. During the 10-year life span, compactors often need replacement of cylinders or structural components of the unit. Compactors No. 1 and No. 2 were both installed in 1999. Since both of these compactors are approaching the end of their 10-year lifespan, significant repairs and/or replacement is expected in the next few years.
- An air compressor and cardboard compactor at the HHW facility are included in the account.
- Extraordinary Repair Contingency of 10% and 2% of replacement cost were included to address unexpected repairs for compactors and other primary equipment, respectively.

2.3.2.5 Mobile Equipment

- Mobile equipment includes the vehicles, trailer and forklifts associated with the HHW operations. Most of this equipment does not see heavy use and is in good working condition.
- Extraordinary Repair Contingency of 2% of replacement cost was included to address unexpected repairs.

2.3.3 Latex Recycling Facility

- A new Latex Recycling facility was set up in a leased building on Swan Island in 2007. Latex equipment for this new facility has been included in the R&R Account.

2.4 Cost Estimates

The cost estimates for this 2008 R&R update have been developed as follows:

- Estimated costs are in 2008 dollars and have been inflated at a rate of three percent per year, compounded annually, for future years.
- Replacement costs from recent URS transfer station projects have been utilized where possible.

The results of this study are summarized in two schedules contained in Appendix B at the end of this report. These schedules are in a similar format to those included in the 2001 and 2005 R&R reports.

- Schedule 1 contains the R&R Equipment List. This list contains the components and equipment included in the Renewal and Replacement Account for each facility. The schedule identifies the present condition, information for the replacement calculation, and the current estimated cost to replace or refurbish the item.
- Schedule 2 contains the Detailed Outlay Schedule. This schedule presents the project equipment outlays as they occur each year based upon their current projected life. The cost is based on inflated dollars, with each category subtotaled, followed by totals for each facility.

It should be emphasized the useful life of structures, structural components, and equipment is often difficult to determine. Operating procedures, quality of equipment purchased, and preventative maintenance programs all have a significant effect on the useful life of these items. The useful life information presented in the tables is based upon past operation and maintenance experience, field observations, vendors, and discussions with operators.

3. RENEWAL AND REPLACEMENT ACCOUNT REPORT

3.1 Basic Description of Prior Approach and Definition of Baseline

The financial analysis of the Renewal and Replacement Account is based on the capital outlay needs and replacement schedules generated as part of the Condition Assessment element developed by URS as part of the 2001 Study. The financial analysis reflects the methodology applied using the R&R Model from the 2001 study. In brief, this approach looks at replacement needs and funding on an asset-by-asset basis, calculating required deposits for each individual asset and summing those individual needs to generate the total deposit schedule. This method creates a "sinking fund" to fund replacement for each individual asset.

The methodology and assumptions applied are discussed in more detail Section 3.1 of the December 2001 URS "Renewal and Replacement Account Update for Solid Waste Facilities" report.

The 2001 study recognized that this conservative asset-by-asset sinking fund approach would produce large and growing fund balances over the projection period. The recommended scenario from the 2001 study imposed a balance "cap" of $7.3 million, with required contributions reduced to keep the R&R fund balance below the cap. The resulting contribution schedule was summarized in Table 1 on page 3-7 of the December 2001 report. Note that the interest rate used for the first two years in the prior analysis was 3%, increasing to 4.82% thereafter (based on historical Metro interest earnings), and that the inflation rate applied in calculating the replacement cost was 2%.

3.2 Policy Evaluation

3.2.1 Overview of Adopted Policies

As described earlier in this report, the Renewal & Replacement Account is a condition of Metro's financial covenants and a requirement under ***Ordinance 89-319***. Secondly, Metro's Capital Asset Management Policies provide guidance on this evaluation procedure. Section 7.1 of the Policy dated April 16, 2007, state the following used to develop the projected reserve balances:

> *"Section 7.1.C Schedule Renewal and Replacement Needs*
>
> The schedule should have at least five years of renewal and replacement needs on the current report and accommodate out years (years that go beyond the schedule) to have a full understanding of total current, as well as future, renewal and replacement needs of your department. In addition, this listing will enable

effective, efficient record keeping as well as facilitate physical examination of those assets. (A sample listing is attached.)

a. Estimate/Update Replacement Cost. The replacement cost should be established. When first putting an asset into use, that replacement cost will be the cost of the asset. When estimating replacement cost of assets, find out the cost of acquiring a new asset of equal utility expressed in current dollars.
b. Evaluate/Update Useful Life. The useful life of the asset should be established. If purchase date cannot be established, an estimate should be made. Notify Accounting Services of significant changes in estimated useful lives than those currently in the Asset Management database.
c. New Assets. Add each new asset over $10,000 to this schedule when acquired. This step is essential for this planning tool to remain effective.

Section 7.1.O Planning Review

At planning time, annually review the full listing from the schedule. The purpose of this review is three-fold: 1) identifies what you should be planning to do in the next few years so that you can budget for those plans; 2) provides information to make sure that you are adequately planning for future renewal and replacement needs by giving you an opportunity to review your current and required reserve levels; and 3) gives you a basis for understanding present and future funding needs that can be clearly articulated."

The following method was utilized to calculate the Renewal and Replacement numbers:

- Specific Calculation Method – When first putting an asset to use, that replacement cost will be the cost of the asset. Later, when estimating replacement cost of assets, find out the cost of acquiring a new asset of equal utility expressed in current dollars.

The life of the asset should be established. The annual renewal and replacement cost would be the total replacement value of the asset, minus what is already in reserves, divided by the remaining years. Adjust the amount set aside by potential earnings on the reserve balances.

3.2.2 Interest Rates and Inflation

The 2008 analysis assumes that interest earnings will accrue at a rate of 3% per year for the study period and inflation at 3%.

The 2001 study assumed that construction costs would increase at 2% per year. The total

replacement costs (in 2001 $) projected in the 2001 study were $13.14 million. The total projected replacement costs in the 2005 study were $14.88 million. For 2008, projected replacement costs increased to $15.75 million with the increase of approximately 7% attributed to:

- Cost inflation, and
- Equipment replacement cost estimate adjustments reflecting extraordinary increases since the prior study, such as the escalation in steel prices.

3.2.3 Minimum/Maximum Fund Balance

The 2001 study established a fund balance "cap" of $7.3 million and an approximate minimum balance of $5 million. In general financial management terms, the theoretical cap on the R&R account balance would be equal to the replacement cost estimate in current dollars, or about $16 million. The 2007/08 fiscal year-end balance in the R&R account was $8,203,752. This analysis focuses on evaluating a reasonable minimum balance to be maintained in the R&R account, while meeting the cash flow needs. A number of factors play into establishing the minimum account balance, including:

- The total replacement cost is $15.75 million (in 2008 $) and the average useful life of the assets is approximately 17.3 years.
- The average annual outlay over the next five years is $1.3 million, and over the next twenty years, that amount drops slightly to $1.29 million.
- At the current annual funding level of $694,700, plus projected interest of $255,000, deposits to the fund are estimated at $949,700
- The projected maximum annual outlay in the next 10-year period (2008/09 to 2017/18) is approximately $11.6 million.

The purpose of a minimum balance is to provide a contingency against unforeseen or unanticipated events. Such events might include the early replacement of a major asset or accidental damage repair. Keeping the current fund deposit unchanged at the projected level of replacement will maintain a positive fund balance until 2026-07. The table on the following page details the annual changes in the fund balance.

3.2.4 Financial Analysis

Deposit amounts remain unchanged at the current budgeted amounts ($694,700) over the next 20 years. If the current level of fund remains unchanged at $694,700, the fund will be drawn down to a negative balance in the fist year 2026/27, but will be positive in the following year.

Table 1 – Fund Deposits at Current Budgeted Amounts

Fiscal Year	Beginning Balance	Deposits	Interest	Projected Expenses	Ending Balance
06-07	7,114,192	694,700	366,640	(905,820)	7,269,712
07-08	7,269,712	694,700	335,449	(96,109)	8,203,752
08-09	8,203,752	694,700	246,113	(434,001)	8,710,564
09-10	8,710,564	694,700	261,317	(1,081,500)	8,585,081
10-11	8,585,081	694,700	257,552	(2,397,211)	7,140,123
11-12	7,140,123	694,700	214,204	(1,780,052)	6,268,974
12-13	6,268,974	694,700	188,069	(800,237)	6,351,507
13-14	6,351,507	694,700	190,545	(1,095,514)	6,141,238
14-15	6,141,238	694,700	184,237	(637,624)	6,695,032
15-16	6,382,551	694,700	191,477	(947,495)	6,321,233
16-17	6,321,233	694,700	189,637	(1,710,089)	5,495,481
17-18	5,495,481	694,700	164,864	(705,882)	5,649,163
18-19	5,649,163	694,700	169,475	(1,034,816)	5,478,522
19-20	5,478,522	694,700	164,356	(1,493,588)	4,843,989
20-21	4,843,989	694,700	145,320	(2,039,694)	3,644,315
21-22	3,644,315	694,700	109,329	(918,969)	3,529,376
22-23	3,529,376	694,700	105,881	(1,751,579)	2,578,378
23-24	2,578,378	694,700	77,351	(791,449)	2,558,981
24-25	2,558,981	694,700	76,769	(1,824,551)	1,505,899
25-26	1,505,899	694,700	45,177	(1,328,891)	916,885
26-27	916,885	694,700	27,507	(2,085,481)	(446,389)
27-28	(446,389)	694,700	(13,392)	(135,020)	99,899

Flexibility of the Fund Balance

The repair and replacement costs are conservative estimates that assume average replacement lives; however, history is proving that many of the assets are experiencing longer lives due to regular repair and maintenance. If the service life of an asset can be extended or if the actual cost is less than estimated, the deposit amount could be reduced in the short term. The same logic can be applied if service lives are shortened or higher than expected, whereas the deposit amount can be increased. What gives Metro managers the flexibility is the amount accrued in the fund balance.

Rate Impact

The following table details the expected tonnage volumes divided by the deposit amount to calculate the approximate price per ton that would be accessed on the disposal fees charged at the transfer stations. The projected $1.35 price per ton is only 1.8 percent of the current $74.75 disposal fee.

Table 2 – Fund Deposits Impact on Disposal Fees

Fiscal Year	Deposits	Projected Tons	% ▲in Tons	Price per Ton
08-09	694,700	519,517		$1.34
09-10	694,700	514,466	-1.0%	$1.35
10-11	694,700	521,383	1.3%	$1.33
11-12	694,700	532,025	2.0%	$1.31
12-13	694,700	542,667	2.0%	$1.28
13-14	694,700	552,113	1.7%	$1.26
14-15	694,700	560,330	1.5%	$1.24
15-16	694,700	568,735	1.5%	$1.22
16-17	694,700	577,266	1.5%	$1.20
17-18	694,700	585,925	1.5%	$1.19
18-19	694,700	594,714	1.5%	$1.17
19-20	694,700	603,635	1.5%	$1.15
20-21	694,700	612,689	1.5%	$1.13
21-22	694,700	621,879	1.5%	$1.12
22-23	694,700	631,208	1.5%	$1.10
23-24	694,700	640,676	1.5%	$1.08
24-25	694,700	650,286	1.5%	$1.07
25-26	694,700	660,040	1.5%	$1.05
26-27	694,700	669,941	1.5%	$1.04
27-28	694,700	659,892	-1.5%	$1.05

3.2.5 Recommendation

It is the recommendation of the Project Team to maintain the current level of funding to ensure adequate balances in the Repair and Replacement Fund while affording management limited flexibility to adjust spending or funding in the short term.

4. ST. JOHN'S LANDFILL CLOSURE ACCOUNT REPORT

The primary purpose of the St. John's Closure Fund is to finance the post-closure activities as well as any capital cost associated with the upkeep of the closed landfill. Inflows of money into the fund are from interest earned on the fund balance as well as revenue generated from the sale of methane gas extracted from the site. Fund outlays are from closure activities that include regular ground water testing, methane monitoring, and site maintenance. During the 2005 R&R study, a schedule of capital improvements were proposed with the projected costs. While most of the projects have been completed since 2005, the following improvements were reported by Metro as either in progress or scheduled to be completed by 2010/11.

Dike Repair	$ 730,000
R&R Final Cover Liner	$ 772,000
Flare Station Retrofit	$ 250,000

An update of fund balance analysis was completed for St. John's Landfill Closure Account using the following assumptions:

- Regular post-closure activities are estimated at $220,000 per year
- Inflation at 3% for regular post-closure activities
- Interest earned on the invested fund balance is 3%
- Capital costs schedule to occur during the next four years were not inflated
- Contingency of $1,000,000 was spread out over 15 years (2009 to 2024) and inflated at 3%

Incorporating the above assumptions, the expected fund balance is projected to be solvent until the fiscal year 2032/33. The table below is the summary of the fund balance over the next 20 years at 5-year intervals, starting in 2008. For detail, please refer to Appendix B, Schedule 3, St. John's Landfill Closure Account Projected Cash Flow Schedule.

Table 3 – Selected Fund Balances for St. John's Landfill Closure Fund

	2008	2013	2018	2023	2028
Beginning Balance	$7,315,587	$5,763,727	$5,009,257	$3,784,144	$2,319,057
plus: Additional Revenues	[(a)] 78,578				
plus: Interest	327,894	172,912	150,278	113,524	69,572
plus: LF Gas Revenues	48,243	41,828	30,698	22,529	11,889
less: Materials, Services & Testing	(223,619)	(255,040)	(295,662)	(342,753)	(397,344)
less: Landfill R&R Expenditures	(99,182)	(77,285)	(89,594)	(103,864)	0
Ending Balance	$7,447,501	$5,646,142	$4,804,977	$3,473,581	$2,003,174

Note [(a)]: Streaked Horned Lark habitat project

5. SUMMARY AND RECOMMENDATIONS

Metro adapted Ordinance No. 89-319, the Solid Waste Revenue Bond Mater Ordinance, in November 1989. The Master Ordinance requires Metro to establish a Renewal and Replacement Account for the capital assets of the solid waste system and to review the account for adequacy periodically. This report is one in a series of the periodic study of the R&R Account.

Our study involved reviewing the facilities and equipment at the two Metro transfer stations to determine whether the current R&R Account and recommended annual contribution are adequate during the next 20 years. URS also evaluated the St. Johns Landfill Closure Account to determine if the current balance is adequate to fund the project through the same projected period.

Major tasks included in this report are:

- Condition assessment of the key operation equipment and system.
- Determination of the appropriate amount of funds to be contributed to the Renewal and Replacement Account to maintain the proper balance.
- Verification of the adequacy of the St. Johns landfill Closure Account funds.

In general, the major findings and recommendations are as follows:

Condition Assessment:

- In general, the facilities are in good condition.
- URS updated the 2005 equipment list based on our field observations and the latest construction cost information gathered from recent solid waste projects. The new investments since the 2005 study were also included in the revised equipment list.
- Due to periodic stormwater treatment not meeting DEQ permit benchmarks, a planning-level stormwater system improvement study was performed for Metro Central Transfer Station. A planning-level budget to improve the current stormwater system is included in the financial analysis. This recommended improvement was not included in the previous 2001 report or the 2005 report.

Renewal and Replacement Account Analysis:

- The Renewal and Replacement account is a condition of Metro's financial covenants and a requirement under Ordinance 89-391. This report also utilized Metro's Capital Asset Management Policies dated April 16, 2007, as a guideline.
- It is our recommendation to maintain the current deposit amounts ($694,700 annually) over the next 20 years to ensure adequate account balance.
- Since the repair and replacement value used in the report are estimated values that assume average replacement life. It is our recommendation to allow the Metro

management team the opportunity to periodically review the funding balance and the ability to adjust the spending or the funding level in the short term.

St. John's Landfill Closure Account:

- URS updated the 2005 St. John's Landfill Closure Account Funding Analysis.
- As of 2008, the balance of funding for St. John's Landfill and Post closure Improvement is approximately $7.3 million. Assuming 3% inflation rate and 3% annual interest earnings, the existing balance is adequate to fund the outlays through a 20 year projected period.

APPENDIX A

PLANNING LEVEL STORMWATER MANAGEMENT SYSTEM IMPROVEMENT

September 22, 2008

Bob McMillan
Metro
Solid Waste & Recycling
600 N.E. Grand Avenue
Portland, OR 97232

Re: Renewal and Replacement Account Study
Planning-Level Stormwater Management System Improvements

Dear Bob:

URS is pleased to submit this letter report summarizing planning-level improvements to the stormwater management system at Metro Central Transfer Station as part of the Renewal and Replacement Account Study.

Summary

The Metro Central Transfer Station operates under a 1200-Z Industrial Stormwater Discharge General Permit issued by Oregon Department of Environmental Quality (DEQ). Recent samples taken by City of Portland staff indicate that the transfer station's stormwater management system is not always treating runoff adequately to meet the permit's benchmarks for two parameters: oil and grease, and total suspended solids. Metro is proactively planning to implement improvements to the stormwater system to meet the permit benchmarks. Metro has asked URS to develop a planning-level cost for stormwater system improvements that would be included in their current Renewal and Replacement Account Study process. This will allow Metro to set aside funds to design and construct improvements to the transfer station stormwater system.

Background

The City of Portland's Bureau of Environmental Services' Industrial Stormwater unit oversees the permit program within the city for DEQ. The permit requires sampling and analysis of stormwater runoff from the site to determine if Metro Central's stormwater management system is adequately treating stormwater such that it meets the permit's benchmarks for several parameters, including oil and grease (O&G) and total suspended solids (TSS). Allied Waste operates the transfer station under contract with Metro. Samples taken by Allied show that the site's stormwater has been meeting the permit benchmarks; however, samples taken by City staff indicate that the benchmarks are being exceeded at times.

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Existing Storm System

The Metro Central Transfer Station includes a stormwater management system that was designed and constructed in 1990. The stormwater system collects runoff from the transfer station roof and paved surfaces, and connects to the City's public system downstream from the property. Runoff is treated via catch basin insert filters and a treatment facility consisting of a 72-inch diameter manhole separated into two chambers by a reinforced concrete partition. The first chamber drains into the second chamber through a down-turned elbow located near the bottom of the structure, thus serving as a separation device for floatables such as oil and grease and trash. Sedimentation likely occurs in this first chamber, although influent may resuspend settled solids if turbulent conditions exist in the first chamber during higher flow events. Higher flows are conveyed into the second chamber via a larger down-turned elbow located higher on the separator wall.

A gate valve was also installed in the manhole upstream from the treatment manhole to allow the transfer station operator to shut down the storm system and prevent discharge from leaving the site in the event of a spill.

Operational Challenges and Impacts to Stormwater Quality

Metro and the transfer station operator also implement best management practices (BMP's) to prevent runoff from contacting the solid waste. These include frequent clean-up of the transfer station floor to minimize the amount of material that escapes the building footprint. However, daily operations create a set of challenging circumstances that can impact stormwater quality. The high volume of vehicle traffic and wet-weather conditions combine to "track" some material from the transfer station floor onto the adjacent exterior paved surfaces, which then enters the stormwater collection system. Also, the vehicle wash-down area normally drains to the sanitary sewer system. At times, debris that accumulates in this area can block the collection trench drains, leading to periodic overflow of this wash-down water into the adjacent storm system. It is suspected that cleaning agents are emulsifying hydrocarbons and preventing them from being trapped by catch basin and manhole separation chambers. Finally, the number of vehicle turning movements leaves a noticeable amount of tire rubber residue on the pavement, which gets flushed into the storm system with the next rainfall. Those conditions can lead to elevated levels of some parameters in the transfer station runoff that at times exceed the permit benchmarks.

Approach

Stormwater management system improvements would likely be considered a maintenance activity. In completing this evaluation, it is assumed that the City of Portland Bureau of Environmental Services would not require that the site stormwater system be designed to meet the requirements of the City's 2008 Stormwater Management Manual. The improvements proposed herein are similar to those that would be required by the manual, but the level of implementation could be reduced if the 1200-Z benchmarks are met by more lower-technology, maintenance-based improvements.

It should be noted that routine maintenance is paramount in effective stormwater management for two reasons. First, "good housekeeping" practices can minimize the amount of pollutants that are introduced to the storm system. Second, treatment systems function optimally when regularly maintained such that they sustain their capacity to capture pollutants.

It is likely that a combination of BMP's and structural treatment devices would be required to significantly improve water quality conditions at the Metro Central Transfer Station. This planning-level evaluation assumed that Metro would follow a phased-in approach to implement improvements to the stormwater management system. Less costly improvements are initially proposed for Phase I, followed by additional measures in Phases II and III to determine which minimum set of improvements is required to meet Metro's stormwater treatment objectives. The identified improvements largely pertain to the removal of suspended solids and oil and grease, which are the two primary parameters of concern based on analytical results per conversations with Metro staff. The balance of the permit benchmark parameters would be considered in selecting and designing BMP's in an alternatives analysis prior to the design phase.

The following text summarizes the improvements proposed for each of the three phases. See attached Figure 1 for an overview of the site the proposed planning-level stormwater management system improvements.

Phase I

Phase I would include a new storm pipe installed along the load-out bay doors to isolate pavement runoff in this area from roof runoff. This will minimize the volume of runoff that contacts the solid waste that is tracked out from the transfer station floor. This new storm pipe would drain to a settling vault or other structural settling device to remove suspended solids.

Phase I also includes a modification to the vehicle wash area. The berm could be raised to reduce the amount of washdown water that escapes the wash area, and a second trench drain could be installed with a screen to minimize clogging of the trench drain itself. This should allow the washdown water to continue to drain to the sanitary sewer in the event that the primary trench drain is obstructed by the accumulation of trash and debris. The designer would need to determine the maximum height that the berm could be raised to maintain the necessary clearance to allow vehicles to raise their beds. The designer would also need survey information of the washdown area pavement to verify drainage patterns.

Catch basin inserts with oil adsorbing properties would be installed in all catch basins as part of Phase I. Existing catch basin inserts would be replaced as frequently as needed to maintain filtration capability.

Phase II (if necessary)

Phase II improvements would be implemented if Phase I improvements do not sufficiently achieve the stormwater quality treatment objectives at the transfer station. The feasibility of implementing

proposed Phase II improvements must be further evaluated as these would be vegetated and landscaped features that would occupy a significant portion of the existing landscaped areas along the east property boundary. First, Metro would need to agree to the landscaping changes. Second, the status of the adjacent property to the east, a former Superfund site, must be verified to determine if there is residual contamination in the subsurface soils such that infiltration of runoff would be prohibited. If infiltration is not allowed, surface stormwater features such as a pond or a swale might still be able to be implemented if they are lined with an impermeable membrane. Third, site grading in these landscaped areas must be evaluated to verify that an excavated pond and bioswale could flow by gravity to connect to the existing storm system to the south.

If necessary, Phase II would include the design and construction of a stormwater pre-settling and treatment pond. Discharge from the pond would flow through a vegetated bioswale, which would drain south toward NW 61st Avenue. Vegetated facilities would provide enhanced surface and subsurface settling and filtration capability to remove additional suspended solids. Metals are often attached to suspended solids, so metals removal would also be enhanced. Oil and grease removal would be improved due to *in situ* microbacterial activity in the surface soils. If these facilities could be constructed without impermeable liners, stormwater flows would also be reduced through infiltration. If these facilities were constructed with liners, perforated underdrain pipes would be designed to convey subsurface flow back into the storm system.

Phase III (if necessary)

If Phase I and Phase II improvements are not sufficient to meet the permitted discharge benchmarks, Phase III improvements may be necessary. These would include the construction of a stormwater treatment vault with filtration cartridges. The vault would require a minimum vertical drop between the vault inlet and vault outlet of 2.3 feet. To accomplish this, the storm drain pipes upstream from the vault would need to be raised. This would require replacement of each segment with a larger diameter pipe at a flatter slope to convey the design flows and provide the necessary drop at the vault. A preliminary assessment of the pipe profiles indicates that approximately 600 feet of pipe would need to be replaced and upsized. Also, a high flow bypass manhole would be needed to direct water quality treatment flows into the vault and allow higher conveyance-magnitude storm flows to bypass the vault and be conveyed to the downstream system.

Planning-Level Costs

Planning-level costs, and associated assumptions and notes, for each phase are included in the attached table.

Future Tasks

This evaluation addresses planning-level stormwater management improvements for the Metro Central Transfer Station. As such, future tasks would include an alternatives analysis to examine a number of more detailed options for improving stormwater treatment at the transfer station,

followed by final design to develop plans, specifications, and construction cost estimate for the preferred alternative.

Please call me at 503-948-7286 with any questions you might have.

Sincerely,

URS Corporation

Krystal S.Y. Li, P.E.
Project Manager

Rod Lundberg, P.E.
Project Engineer

Metro Recovery and Replacement Account

Metro Central Transfer Station

Stormwater Management Improvements

9/17/2008

Conceptual Cost Estimate

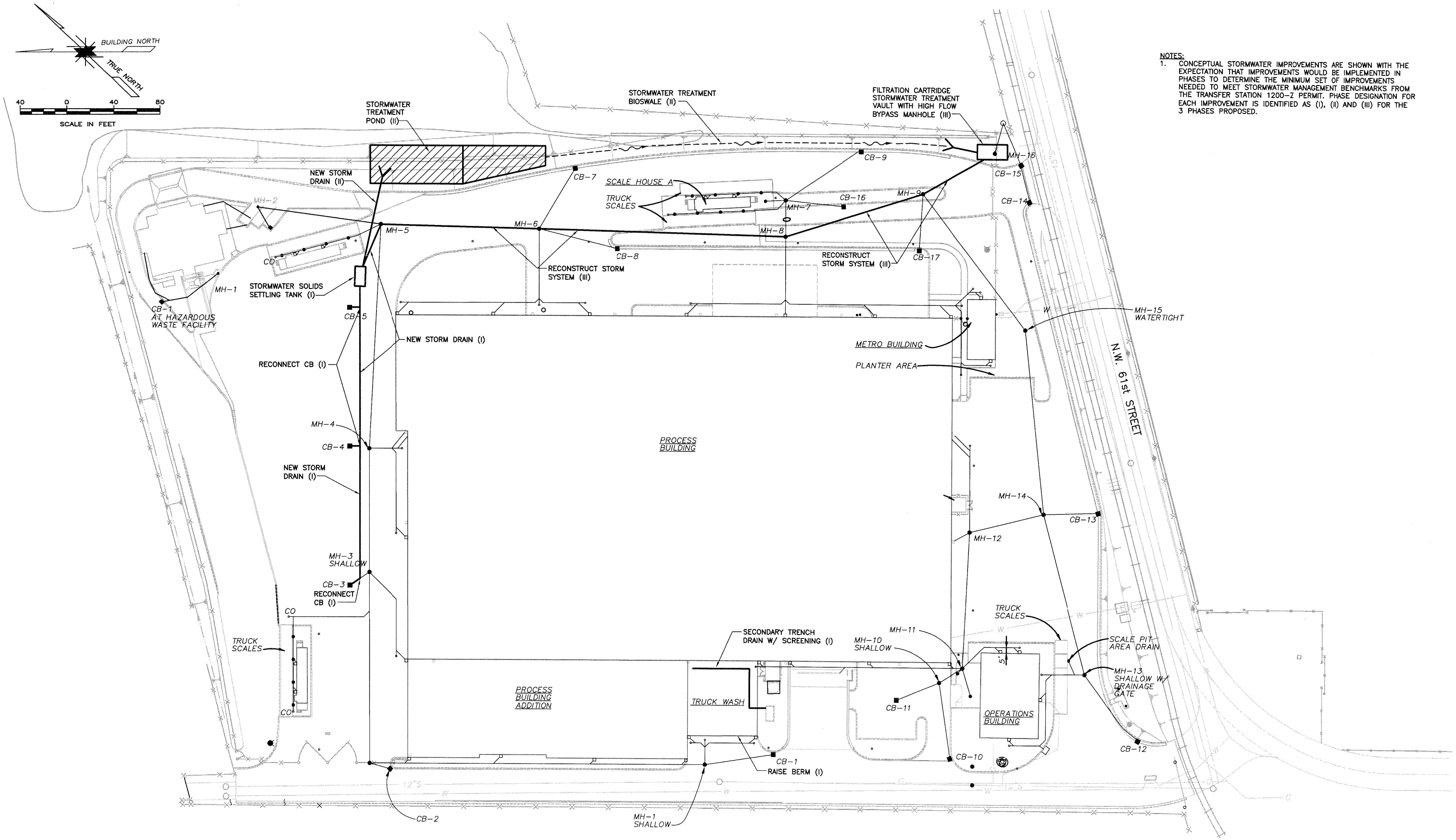
	Quantity	Unit	Unit Price	Cost	Notes
Phase I					
Parallel Storm Pipe for North/West Pavement	350	LF	$100	$35,000	See Cost Item Note 1, below.
Catch Basin Reconnection	3	EA	$1,000	$3,000	See Cost Item Note 2, below.
Solids Settling Tank	1	LS	$50,000	$50,000	See Cost Item Note 3, below.
Raise Truck Wash Berm	1	LS	$10,000	$10,000	See Cost Item Note 2, below.
Secondary Truck Wash Trench Drain with Screen	50	LF	$150	$7,500	See Cost Item Note 2, below.
Catch Basin Oil Sorbent Inserts	20	EA	$200	$4,000	See Cost Item Note 2, below.
			Phase I Sub-Total	$110,000	
Phase II (if necessary)					
Stormwater Treatment Pond	1	LS	$75,000	$75,000	See Cost Item Note 4, below.
Stormwater Treatment Bioswale	300	LF	$80	$24,000	See Cost Item Note 5, below.
			Phase II Sub-Total	$99,000	
Phase III (if necessary)					
Reconstruct Storm System	600	LF	$250	$150,000	See Cost Item Note 6, below.
High Flow Bypass Manhole	1	LS	$20,000	$20,000	See Cost Item Note 7, below.
Stormfilter Treatment Vault	1	LS	$172,500	$172,500	See Cost Item Note 8, below.
			Phase III Sub-Total	$343,000	
			Total Cost Sub-Total	$552,000	
			Engineering and Administration (25%)	$138,000	
			Contingency (30%)	$166,000	
			Total Planning-Level Stormwater Improvements Cost	$856,000	
			Annual Operations and Maintenance	$20,000	(concept-level estimate)

Cost Item Notes

1. Assumed 12" pipe at 3' - 6' depth.
2. Reasonable estimate based on staff judgment.
3. Assumed pre-cast 24,000 gal. tank equal to water quality storm volume from pavement areas north and west of load-out bay doors.
4. Estimate based on gross earthwork ($60,000) and nominal plantings ($15,000).
5. Based on $10/sf (half of $20/sf for vegetated street planters due to reduced structural elements) and an assumed width of 8 feet.
6. Stormfilter vault needs minimum drop between inlet and outlet. Assume upstream pipes can be raised, upsized, and flattened as needed to convey equivalent capacity. Replacement pipe diameters range from 21" - 27" with a 9' - 12' installed depth.
7. Bypass manhole needed to convey high storm flows around treatment vault.
8. Based on manufacturer's quote of $115,000 for a 11'x30' panel vault with 69 low-head filter cartridges, increased by 50% for installation.

General Notes

1. Verify that all catch basins are non-flow-through.
2. Complete solids settling analysis to assist in identifying solids settling alternatives.
3. Verify truck wash berm raise possible based on grades and vehicle clearances required.
4. Recommend dump floor isolation of trucks from waste to minimize tracking of waste pulp outside building.
5. Research tire rubber particle characteristics and removal options (ie, would they settle with sufficient time).
6. Verify subsurface conditions of adjacent properties - Superfund status. Vegetated facilities may need to be lined if allowed.



NOTES:

1. CONCEPTUAL STORMWATER IMPROVEMENTS ARE SHOWN WITH THE EXPECTATION THAT IMPROVEMENTS WOULD BE IMPLEMENTED IN PHASES TO DETERMINE THE MINIMUM SET OF IMPROVEMENTS NEEDED TO MEET STORMWATER MANAGEMENT BENCHMARKS FROM THE TRANSFER STATION 1200-Z PERMIT. PHASE DESIGNATION FOR EACH IMPROVEMENT IS IDENTIFIED AS (I), (II) AND (III) FOR THE 3 PHASES PROPOSED.

No.	DATE	BY	REVISION
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WARNING
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IF BAR DOES NOT MEASURE 1" AT FULL SIZE, THEN SCALES ON DRAWING NOT TO SCALE.

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METRO CENTRAL TRANSFER STATION

R & R ACCOUNT
CONCEPTUAL STORMWATER IMPROVEMENTS

DRAWING NUMBER: FIGURE 1
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APPENDIX B

REPORT SCHEDULES

Schedule 1	R and R Equipment List
Schedule 2	Outlays Schedule
Schedule 3	St. John's Landfill Closure Account Projected Cash Flow Schedule

2008 Metro Replacement and Renewal Account
Schedule 1 - R and R Equipment List

2001 Equip ID		Year Installed	Estimated Life Span	Mfg Suggested Life Span	Next Scheduled Replacement	Replacement Cost in 2001	Replacement Cost in 2005	Replacement Cost in 2008.
1.1.1	Water Supply System							
1.1.2	Sewer							
1.1.2.1	Sanitary System							
1.1.2.2	Storm Drain System	1991	19	25	2010	--	--	865,000
1.1.3	Electrical	1991	25	25	2016	--	--	100,000
1.1.3.3	Stand-by Power Generator (CAT 3406)	1991	20	20	2012	25,000	40,000	64,000
1.1.4	Fire System	1991	25	15	2016	--	--	40,000
1.1.5	Utilities - Extraordinary Repair	2001	20	20	2021	Not Identified	567	21,380
.								
1.2								**1,090,380**
1.2.1	Main Transfer Station	1991				--	--	
1.2.1.2	*Translucent Roof*	*2003*	*25*	*25*	*2028*	--	*1,800,000*	2,085,000
1.2.1.5	Ventilation System - Extraordinary Repair	Various	20	20	2022	100,000	113,400	120,000
1.2.1.3	Metal Wall System	1991	20	20	2011	109,000	123,606	144,000
1.2.1.4	Concrete Floor Repair	1991	11	15	2002	110,000	124,740	145,000
1.2.1.7	*Bay 3 Concrete Floor Repair*	*2005*	*10*	*10*	*2015*	*Not Identified*	*88,000*	102,000
1.2.1.8	*Bay 2 Concrete Floor Repair*	*2000*	*10*	*5*	*2010*			*37,600*
1.2.1.6	Rollup Doors	1991	20	20	2011	33,000	50,000	60,000
1.2.2	Scalehouses				--	--	--	--
1.2.2.1	Scalehouse "A"	1991			--	--	--	--
1.2.2.1.1	Scale #1	1991	15	20	2009	*20,000*	30,000	140,000
1.2.2.1.2	Scale #2	1991	15	20	2010	*20,000*	40,000	140,000
1.2.2.2	Scalehouse "B"	1991			--	--	--	--
1.2.2.2.1	Scale #3	2006	15	20	2021	*20,000*	40,000	140,000
1.2.2.2.3	Radiation Detector	1997	15	15	2012	25,000	28,350	30,000
1.2.2.3	Scalehouse "C"	1991			--	--	--	--
1.2.2.3.1	Scale #4	1997	15	20	2012	*20,000*	40,000	140,000
1.2.2.4	Scale #5 - Transfer Trailer Scale	2008	15	20	2028	*20,000*	40,000	140,000
1.2.2.5	Heat Pumps (2) - Scale Houses		15	15	2010			20,000
1.2.2.6	Computer Network	2001	5	5	2006	67,000	75,978	80,000
1.2.3	HHW Building				--		--	--
1.2.3.1	Ventilation System - Extraordinary Repair	1993	16	15	2009	100,000	125,000	140,000
1.2.3.1.1	Scrubber	Good	15	15	2009			75,000
1.2.4	Truck Wash Facilities	1991	19	20	2010			300,000
1.2.5	Support Buildings							--
1.2.6	Buildings - Extraordinary Repairs	2001	20	20	2021	69,327	78,617	80,772
.							--	
1.4							--	**4,119,372**
1.4.1	Roadways - Pavement Repairs	1991	5	5	2011	100,000	113,400	30,000
1.5							--	**30,000**

2008 Metro Replacement and Renewal Account
Schedule 1 - R and R Equipment List

2001 Equip ID		Year Installed	Estimated Life Span	Mfg Suggested Life Span	Next Scheduled Replacement	Replacement Cost in 2001	Replacement Cost in 2005	Replacement Cost in 2008.
1.5.1	Transfer Operation						--	
1.5.1.1	Compactors						--	
1.5.1.1.1	SSI #1 (Re-Built in 2008)	2008	8	10	2016	750,000	1,000,000	400,000
1.5.1.1.1.1	Feed Conveyor - SSI #1	*2003*	15	15	*2018*	243,000	275,562	500,000
1.5.1.1.2	SSI #2 (Re-Built in 2007)	2007	8	10	2015	750,000	1,000,000	400,000
1.5.1.1.2.1	*Feed Conveyor - SSI #2 (replace)*	*2005*	15	15	*2020*	243,000	275,562	400,000
1.5.1.1.3	SSI #3 (Minor work in 2003)	2003	8	10	2009	750,000	1,000,000	400,000
1.5.1.1.3.1	*Feed Conveyor - SSI #3 (replace)*	*2005*	10	15	*2019*	243,000	275,562	500,000
1.5.1.1.3.2	Compactor Extraordinary Repair	2000	5	5	2008	350,000	396,900	260,000
1.5.1.2	Processing Equipment						--	--
1.5.1.2.1	*Wood Processing Line (To be modified 2005)*						--	--
1.5.1.2.1.1	SSI Shredder - Slow Speed	1991	20	15	2011	552,000	625,968	600,000
1.5.1.2.1.2	Duraquip Shredder - High Speed	1991	20	10	2012	221,000	250,614	300,000
1.5.1.2.1.3	Conveyors - Wood Line	2007	15	15	2022	143,000	162,162	500,000
1.5.1.2.1.4	Magnetic Separator - Wood Line	1991	20	15	2006	44,000	49,896	50,000
1.5.1.2.1.5	Trailer Load Paddle System	1995	15	15	2010	20,000	22,680	40,000
1.5.1.2.2	Baler Line						--	--
1.5.1.2.2.1	Baler (Rebuilt in 2001)	2001	15	15	2016	189,000	250,000	300,000
1.5.1.2.2.2	Conveyor -Baler	1991	20	20	2011	143,000	175,000	200,000
1.5.1.3	Compressor And Motor	2006	15	15	2021			1
1.5.2	HHW Operation							
1.5.2.1	Crusher	1995	15	15	2010	13,000	14,742	17,000
1.5.2.4	Air Compressor - Breathing	1996	20	20	2016	23,000	26,082	30,000
1.5.3	Primary Equipment - Extraordinary Repair	2001	15	15	2016	94,480	107,140	97,940
.								
1.6								**4,994,941**
1.6.1	Transfer Operation							
1.6.1.2	Grapple	1999	15	15	2014	210,000	238,140	300,000
1.6.2	HHW Operation							
1.6.2.1	Forklift	1993	20	15	2013	30,000	34,020	40,000
1.6.2.2	Forklift	1999	15	15	2014	30,000	34,020	40,000
1.6.2.3	Event Trailer - 48' Towable	1993	20	20	2013	10,000	11,340	12,000
1.6.2.4	16' Equipment Trailer	2000	20	20	2020	12,000	13,608	14,000
1.6.2.5	Van Truck	2000	15	15	2015	35,000	39,690	50,000
1.6.2.6	Pickup Truck - F350	1995	15	15	2010	30,000	34,020	35,000
1.6.2.7	Pickup Truck - Ford Ranger	1992	15	10	2007	20,000	22,680	25,000
1.6.3	Mobile Equipment - Extraordinary Repair	2001	15	15	2016	7,540	8,550	10,320
.								
1.8								**526,320**
1.8.5	Lighting - For New system as in Master Plan	1991	24	25	2015	*100,000*	113,400	155,400
1.8.5.1	*Repair of Lighting System by BFI in 2005*							
.								

2008 Metro Replacement and Renewal Account
Schedule 1 - R and R Equipment List

2001 Equip ID		Year Installed	Estimated Life Span	Mfg Suggested Life Span	Next Scheduled Replacement	Replacement Cost in 2001	Replacement Cost in 2005	Replacement Cost in 2008.
2.1								**155,400**
2.1.1	Water							
2.1.2	Sewer							
2.1.2.1	Sanitary Sewer	1983					--	--
2.1.2.1.1	Lift Pump	1993	15	15	2008	Removed 2002	0	1
2.1.2.1.2	Lift Pump	1995	15	15	2010	Removed 2002	0	1
2.1.2.1.3	Lift Pump	1997	20	15	2017	10,000	11,340	13,000
2.1.2.1.4	Lift Pump	1999	20	15	2019	10,000	11,340	13,000
2.1.2.2	Storm Drainage System	1983			--	--	--	--
2.1.2.2.1	Lift Pump	1993	20	15	2013	10,000	11,340	13,000
2.1.2.2.2	Lift Pump	1995	20	15	2015	10,000	11,340	13,000
2.1.2.2.3	Lift Pump	1997	20	15	2017	10,000	11,340	13,000
2.1.2.2.4	Lift Pump	1999	20	15	2019	10,000	11,340	13,000
2.1.3	Electrical							
2.1.3.1	*Site Lighting*	*1983*	*20*	*20*	*2003*	*Not Identified*	*50,000*	*75,000*
2.1.3.2	*1200A Power Supply/Distribution /MCC*	*1999*	*25*	*25*	*2024*	*Not Identified*	*50,000*	*30,000*
2.1.3.2.1	*600A Electrical SWBD - Electrical Room/office*	*1983*	*29*	*25*	*2012*			*65,000*
2.1.3.3	250kW Backup Generator	1996	21	21	2017	25,000	40,000	60,000
2.1.4	Fire System							
2.1.5	Utilities - Extraordinary Repair	2001	20	20	2021	2,100	2,381	30,800
.								
2.2								**338,802**
2.2.1	Commercial Building	1983						
2.2.1.1	Metal Roof	1993	20	20	2013	250,000	283,500	*329,000*
2.2.1.2	Wall System	1983	30	20	2013	166,000	188,244	*218,000*
2.2.1.2.1	*Push Wall Repair*	*2004*	*30*	*20*	*2024*	*Not Identified*	*200,000*	*232,000*
2.2.1.3	Concrete Floor Repair	1983	25	20	2008	45,000	50,000	*174,000*
2.2.1.3.1								
2.2.1.5	Ventilation System - Extraordinary Repair	1993	17	15	2010	110,000	124,740	140,000
2.2.1.7	Dust Suppression System	1998	15	10	2013	55,000	62,370	*73,000*
2.2.1.9	Lighting	1992	18	10	2010	32,000	36,288	75,000
2.2.8	Public Building	2000					--	--
2.2.8.1	Metal Roof	2000	20	20	2020	135,000	153,090	*178,000*
2.2.8.2	Metal Wall System	2000	20	20	2020	80,000	90,720	*106,000*
2.2.8.3	Concrete Floor Repair	2000	20	20	2020	50,000	56,700	*66,000*
2.2.8.5	Ventilation System - Extraordinary Repair	2007	15	15	2022	25,000	28,350	32,000
2.2.2	Scales							
2.2.2.1	Scalehouse "A" (#2)	1983						
2.2.2.1.1	Scale #2 - Entrance	1983	20	20	2009	40,000	45,360	140,000
2.2.2.1.2	Scale #3 - Exit	1983	20	20	2010	40,000	45,360	140,000
2.2.2.2	Scalehouse "B" (#1)	1983			--	--	--	--
2.2.2.2.1	Scale #1 - Upgraded to Commercial 2001	2002	20	20	2022	40,000	45,360	140,000
2.2.2.2.3	Radiation Detector	1997	15	15	2012	17,000	19,278	22,000
2.2.2.3	Scalehouse "C" (#3)							
2.2.2.3.1	Scale #4	1998	20	20	2017	40,000	45,360	140,000
2.2.2.4	Scale #5 - Transfer Trailer Scale	2000	20	20	2020	40,000	45,360	140,000
2.2.2.6	Computer Network	2001	5	5	2006	67,000	75,978	80,000
2.2.2.7	Heat Pumps (3) - Scale Houses		15	15	2010			30,000
2.2.3	HHW Building							

2008 Metro Replacement and Renewal Account
Schedule 1 - R and R Equipment List

2001 Equip ID		Year Installed	Estimated Life Span	Mfg Suggested Life Span	Next Scheduled Replacement	Replacement Cost in 2001	Replacement Cost in 2005	Replacement Cost in 2008.
2.2.3.1	Ventilation System - Extraordinary Repair	1992	25	25	2017	110,000	124,740	*145,000*
2.2.3.3	Roof	1999	15	20	2014	60,000	68,040	*79,000*
2.2.4	*Maintenance Building (Old Latex Building)*							
2.2.4.1	Ventilation System - Extraordinary Repair	1999	25	25	2024	110,000	124,740	*145,000*
2.2.4.2	Metal Roof and Siding	1999	20	20	2019	55,000	62,370	*73,000*
2.2.6	Support Buildings							
2.2.6.1	HHW Trailer (Locker room/Breakroom)	1996	25	25	2021	33,000	37,422	*44,000*
2.2.7	Buildings - Extraordinary Repairs	2001	20	20	2021	40,267	45,663	58,820
.								
2.4								**2,999,820**
2.4.1	Roadways - Pavement Repair	2001	5	20	2009	100,000	113,400	30,000
2.4.2	Retaining Wall	1983	20	20	2003	52,000	100,000	100,000
2.4.4	*Compactor Bridge Asphalt Deck*	*1990*	*50*	*50*	*2040*	*Not Identified*	*30,000*	*35,000*
2.5								**165,000**
2.5.1	Transfer Operation							
2.5.1.1	Compactors							
2.5.1.1.1	SSI #1	1999	8	10	2010	750,000	1,000,000	400,000
2.5.1.1.2	SSI #2	1999	8	13	2011	750,000	1,000,000	400,000
2.5.1.1.2.1	Compactor Extraordinary Repair	1999	5	5	2009	350,000	396,900	80,000
2.5.1.2	Processing Equipment							
2.5.1.2.1	Walking Floor Conveyor	1991	25	15	2016	110,000	124,740	120,000
2.5.1.2.2	Wheel Crusher	2000	3	3	2003	13,000	14,742	10,000
2.5.2	HHW Operation							
2.5.2.4	Air Compressor - Breathing	1996	20	20	2016	28,000	31,752	36,000
2.5.2.8	Compactor	1992	20	20	2012	11,000	12,474	14,000
2.5.3								
2.5.3.1								
2.5.4	Primary Equipment - Extraordinary Repair	2001	15	15	2016	51,612	58,528	21,200
.								
2.6								**1,081,200**
2.6.1	HHW Operation							
2.6.1.1	Fork Lift	1994	15	15	2009	30,000	34,020	35,000
2.6.1.2	Fork Lift	1996	15	15	2011	30,000	34,020	35,000
2.6.1.3	Fork Lift	1999	15	15	2014	30,000	34,020	35,000
2.6.1.4	Van Truck	2000	15	15	2015	35,000	39,690	40,000
2.6.1.5	Pickup Truck - Chevy 3500 Crew cab, 4wd 6.5L Turbo Diesel	1997	15	10	2012			66,000
2.6.1.6	16' Equipment Trailer	2000	20	20	2020	12,000	13,608	14,000
2.6.1.7	Mobile Equipment - Extraordinary Repair	2001	15	15	2016	3,140	3,561	4,500
.								
.								**229,500**
3								
3.1	Latex Equipment		15	15	2010			20,000
								20,000
2.0%								
	Average Life Span (all assets)		17.34					
								15,750,735

2008 Metro Replacement and Renewal Account
Schedule 2 - Outlays Schedule

2008 R&R Equipment List (based off of 1997 Eq List, fitted to outline structure setup by D.E Rate of Return 3%

2001 Equip ID			Mfg Suggested Life Span	Next Scheduled Replacement	Replacement Cost in 2008	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014	FY 2014-2015	FY 2015-2016	FY 2016-2017	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022	FY 2022 - 2023	FY 2023 - 2024	FY 2024 - 2025
	Metro Central																					
1.1		**Status of Utilities**																				
1.1.1	t	Water Supply System																				
1.1.2	t	Sewer																				
1.1.2.1	t	Sanitary System																				
1.1.2.2	t	Storm Drain System	25	2010	865,000			917,679														
1.1.3	t	Electrical	25	2016	100,000									126,677								
1.1.3.3		Stand-by Power Generator (CAT 3406)	20	2012	64,000					72,033												
1.1.4	t	Fire System	15	2016	40,000									50,671								
1.1.5		Utilities - Extraordinary Repair	20	2021	21,380														31,397			
.					**Utilities Subtotal**	0	0	917,679	0	72,033	0	0	0	177,348	0	0	0	0	31,397	0	0	0
1.2		**Buildings**																				
1.2.1	t	Main Transfer Station			--																	
1.2.1.2		Translucent Roof	25	2028	2,085,000																	
1.2.1.5		Ventilation System - Extraordinary Repair	20	2022	120,000															181,511		
1.2.1.3		Metal Wall System	20	2011	144,000				157,353													
1.2.1.4		Concrete Floor Repair	15	2002	145,000										189,192							
1.2.1.6		Rollup Doors	20	2011	60,000				65,564													
1.2.1.7		Bay 3 Concrete Floor Repair	10	2015	102,000								125,447									
1.2.1.8		*Bay 2 Concrete Floor Repair*	10	2010	37,600			39,890										53,609				
1.2.2	t	Scalehouses		--	--																	
1.2.2.1	**t**	Scalehouse "A"		--	--																	
1.2.2.1.1		Scale #1	20	2009	140,000		144,200															
1.2.2.1.2		Scale #2	20	2010	140,000			148,526														
1.2.2.2	**t**	Scalehouse "B"		--	--																	
1.2.2.2.1		Scale #3	20	2021	140,000														205,595			
1.2.2.2.3		Radiation Detector	15	2012	30,000					33,765												
1.2.2.3	**t**	Scalehouse "C"		--	--																	
1.2.2.3.1		Scale #4	20	2012	140,000					157,571												
1.2.2.4		Scale #5 - Transfer Trailer Scale	20	2028	140,000																	
1.2.2.5		Heat Pumps (2) - Scale Houses	15	2010	20,000			21,218														
1.2.2.6		**Computer Network**	5	2006	80,000				87,418					101,342					117,483			
1.2.3	t	HHW Building		--	--																	
1.2.3.1		Ventilation System - Extraordinary Repair	15	2009	140,000		144,200															224,659
1.2.3.1.1		Scrubber	15	2009	75,000		77,250															120,353
1.2.4	t	Truck Wash Facilities	20	2010	300,000			318,270														
1.2.5	t	Support Buildings			--																	
1.2.6		Buildings - Extraordinary Repairs	20	2021	80,772														118,616			
.					**Buildings Subtotal**	0	365,650	527,904	310,334	191,336	0	0	125,447	101,342	189,192	0	0	53,609	441,694	181,511	0	345,012
1.4		**Site Conditions**			--																	
1.4.1		**Roadways - Pavement Repairs**	5	2011	30,000				32,782					38,003					44,056			
.					**Site Conditions Subtotal**	0	0	0	32,782	0	0	0	0	38,003	0	0	0	0	44,056	0	0	0
1.5		**Primary Equipment**			--																	
1.5.1	t	Transfer Operation			--																	
1.5.1.1	t	Compactors			--																	
1.5.1.1.1		SSI #1 (Re-Built in 2008)	10	2016	400,000									506,708								
1.5.1.1.1.1		Feed Conveyor - SSI #1	15	2018	500,000											671,958						
1.5.1.1.2		SSI #2 (Re-Built in 2007)	10	2015	400,000								491,950									
1.5.1.1.2.1		Feed Conveyor - SSI #2	15	2020	400,000													570,304				
1.5.1.1.3		SSI #3 (Re-Built in 2003)	10	2009	400,000		412,000										553,694					
1.5.1.1.3.1		Feed Conveyor - SSI #3	15	2019	500,000												692,117					
1.5.1.1.3.2		Compactor Extraordinary Repair	5	2008	260,000	260,000					301,411					349,418					405,072	
1.5.1.2	t	Processing Equipment			--																	
1.5.1.2.1	t	Wood Processing Line			--																	
1.5.1.2.1.1		SSI Shredder - Slow Speed	15	2011	600,000				655,636													
1.5.1.2.1.2		Duraquip Shredder - High Speed	10	2012	300,000					337,653										453,777		
1.5.1.2.1.3		Conveyors - Wood Line	15	2022	500,000															756,295		
1.5.1.2.1.4		Magnetic Separator - Wood Line	15	2006	50,000														73,427			
1.5.1.2.1.5		Trailer Load Paddle System	15	2010	40,000			42,436														
1.5.1.2.2	t	Baler Line			--																	
1.5.1.2.2.1		Baler (Rebuilt in 2001)	15	2016	300,000									380,031								
1.5.1.2.2.2		Conveyor -Baler	20	2011	200,000				218,545													
1.5.1.3		Compressor And Motor	15	2021	1														1			

2008 Metro Replacement and Renewal Account
Schedule 2 - Outlays Schedule

2001 Equip ID			Mfg Suggested Life Span	Next Scheduled Replacement	Replacement Cost in 2008	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014	FY 2014-2015	FY 2015-2016	FY 2016-2017	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022	FY 2022 - 2023	FY 2023 - 2024	FY 2024 - 2025
1.5.2	t	HHW Operation																				
1.5.2.1		Crusher	15	2010	17,000			18,035														
1.5.2.4		Air Compressor - Breathing	20	2016	30,000									38,003								
1.5.3		Primary Equipment - Extraordinary Repair	15	2016	97,940									124,067								
.					**Primary Equipment Subtotal**	260,000	412,000	60,471	874,182	337,653	301,411	0	491,950	1,048,810	0	1,021,376	1,245,810	570,304	73,428	1,210,072	405,072	0
1.6		**Mobile Equipment**																				
1.6.1	t	Transfer Operation																				
1.6.1.2		Grapple	15	2014	300,000							358,216										
1.6.2	t	HHW Operation																				
1.6.2.1		Forklift	15	2013	40,000						46,371											
1.6.2.2		Forklift	15	2014	40,000							47,762										
1.6.2.3		Event Trailer - 48' Towable	20	2013	12,000						13,911											
1.6.2.4		16' Equipment Trailer	20	2020	14,000													19,961				
1.6.2.5		Van Truck	15	2015	50,000								61,494									
1.6.2.6		Pickup Truck - F350	15	2010	35,000			37,132														
1.6.2.7		Pickup Truck - Ford Ranger	10	2007	25,000										32,619							
1.6.3		Mobile Equipment - Extraordinary Repair	15	2016	10,320									13,073								
.					**Mobile Equipment Subtotal**	0	0	37,132	0	0	60,282	405,978	61,494	13,073	32,619	0	0	19,961	0	0	0	0
1.8		**One Time Expenses**																				
1.8.5		**Lighting - For New system as in Master Plan**	25	2015	155,400								191,122									
					One Time Expenses Subtotal	0	0	0	0	0	0	0	191,122	0	0	0	0	0	0	0	0	0
.	**Metro South**																					
2.1		**Status of Utilities**																				
2.1.1	**t**	Water																				
2.1.2	**t**	Sewer																				
2.1.2.1	t	Sanitary Sewer			--																	
2.1.2.1.1		Lift Pump	15	2008	1	1															2	
2.1.2.1.2		Lift Pump	15	2010	1			1														
2.1.2.1.3		Lift Pump	15	2017	13,000										16,962							
2.1.2.1.4		Lift Pump	15	2019	13,000												17,995					
2.1.2.2	t	Storm Drainage System		--	--																	
2.1.2.2.1		Lift Pump	15	2013	13,000						15,071											
2.1.2.2.2		Lift Pump	15	2015	13,000								15,988									
2.1.2.2.3		Lift Pump	15	2017	13,000										16,962							
2.1.2.2.4		Lift Pump	15	2019	13,000												17,995					
2.1.3	t	Electrical																				
2.1.3.1	t	Lighting	20	2003	75,000																116,848	
2.1.3.2	t	1200A Power Supply/Distribution/MCC	25	2024	30,000																	48,141
2.1.3.2.1		600A Electrical SWBD - Electrical Room/office	25	2012	65,000					73,158												
2.1.3.3		250kW Backup Generator	21	2017	60,000										78,286							
2.1.4	t	Fire System																				
2.1.5		**Utilities - Extraordinary Repair**	20	2021	30,800														45,231			
.					**Utilities Subtotal**	1	0	1	0	73,158	15,071	0	15,988	0	112,210	0	35,990	0	45,231	0	116,849	48,141

2008 Metro Replacement and Renewal Account
Schedule 2 - Outlays Schedule

2001 Equip ID			Mfg Suggested Life Span	Next Scheduled Replacement	Replacement Cost in 2008	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014	FY 2014-2015	FY 2015-2016	FY 2016-2017	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022	FY 2022 - 2023	FY 2023 - 2024	FY 2024 - 2025
2.2		**Buildings**																				
2.2.1	t	Commercial Building																				
2.2.1.1		Metal Roof	20	2013	329,000						381,401											
2.2.1.2		Metal Wall System	20	2013	218,000						252,722											
2.2.1.2.1		Push Wall Repair	20	2024	232,000																	372,292
2.2.1.3		Concrete Floor Repair	20	2008	174,000	174,000																
2.2.1.3.1		Concrete Floor Repair (west area)																				
2.2.1.5		Ventilation System - Extraordinary Repair	15	2010	140,000			148,526														
2.2.1.7		Dust Suppression System	10	2013	73,000						84,627										113,732	
2.2.1.9		Lighting	10	2010	75,000			79,568										106,932				
2.2.8	t	Public Building			--																	
2.2.8.1		Metal Roof	20	2020	178,000													253,785				
2.2.8.2		Metal Wall System	20	2020	106,000													151,131				
2.2.8.3		Concrete Floor Repair	20	2020	66,000													94,100				
2.2.8.5		Ventilation System - Extraordinary Repair	15	2022	32,000															48,403		
2.2.2	t	Scales																				
2.2.2.1	t	Scalehouse "A" (#2)																				
2.2.2.1.1		Scale #2 - Entrance	20	2009	140,000		144,200															
2.2.2.1.2		Scale #3 - Exit	20	2010	140,000			148,526														
2.2.2.2	t	Scalehouse "B" (#1)		--	--																	
2.2.2.2.1		Scale #1 - Upgraded to Commercial 2001	20	2022	140,000															211,763		
2.2.2.2.3		Radiation Detector	15	2012	22,000					24,761												
2.2.2.3	t	Scalehouse "C" (#3)																				
2.2.2.3.1		Scale #4	20	2017	140,000										182,668							
2.2.2.4		Scale #5 - Transfer Trailer Scale	20	2020	140,000													199,607				
2.2.2.6		**Computer Network**	5	2006	80,000				87,418					101,342					117,483			
2.2.2.7		Heat Pumps (3) - Scale Houses	15	2010	30,000			31,827														
2.2.3	t	HHW Building																				
2.2.3.1		Ventilation System - Extraordinary Repair	25	2017	145,000										189,192							
2.2.3.3		Roof	20	2014	79,000							94,330										
2.2.4	t	Maintenance Building (Old Latex Building)																				
2.2.4.1		Ventilation System - Extraordinary Repair	25	2024	145,000																	232,682
2.2.4.2		Metal Roof and Siding	20	2019	73,000												101,049					
2.2.6	t	Support Buildings																				
2.2.6.1		HHW Trailer (Locker room/Breakroom)	25	2021	44,000														64,615			
2.2.7		**Buildings - Extraordinary Repairs**	20	2021	58,820														86,379			
.					**Buildings Subtotal**	174,000	144,200	408,447	87,418	24,761	718,750	94,330	0	101,342	371,860	0	101,049	805,555	268,477	260,165	113,732	604,974
2.4		**Site Conditions**																				
2.4.1		**Roadways - Pavement Repair**	20	2009	30,000		30,900															
2.4.2		**Retaining Wall**	20	2003	100,000																155,797	
2.4.4		Compactor Bridge Asphalt Deck	50	2040	35,000																	
.					**Site Conditions Subtotal**	0	30,900	0	0	0	0	0	0	0	0	0	0	0	0	0	155,797	0

2008 Metro Replacement and Renewal Account
Schedule 2 - Outlays Schedule

2001 Equip ID			Mfg Suggested Life Span	Next Scheduled Replacement	Replacement Cost in 2008	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014	FY 2014-2015	FY 2015-2016	FY 2016-2017	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022	FY 2022 - 2023	FY 2023 - 2024	FY 2024 - 2025
2.5		**Primary Equipment**																				
2.5.1	t	Transfer Operation																				
2.5.1.1	t	Compactors																				
2.5.1.1.1		SSI #1	10	2010	400,000			424,360										570,304				
2.5.1.1.2		SSI #2	13	2011	400,000				437,091													641,883
2.5.1.1.2.1		Compactor - Extraordinary Repairs	5	2009	80,000		82,400					95,524					110,739					128,377
2.5.1.2	t	Processing Equipment																				
2.5.1.2.1		**Walking Floor Conveyor**	15	2016	120,000									152,012								
2.5.1.2.2		**Wheel Crusher**	3	2003	10,000		10,300			11,255			12,299			13,439			14,685			
2.5.2	t	HHW Operation																				
2.5.2.4		Air Compressor - Breathing	20	2016	36,000									45,604								
2.5.2.8		Compactor	20	2012	14,000					15,757												
2.5.4		Primary Equipment - Extraordinary Repair	15	2016	21,200									26,856								
.					**Primary Equipment Subtotal**	0	92,700	424,360	437,091	27,012	0	95,524	12,299	224,472	0	13,439	110,739	570,304	14,685	0	0	770,259
2.6		**Mobile Equipment**																				
2.6.1	t	HHW Operation																				
2.6.1.1		Fork Lift	15	2009	35,000		36,050															56,165
2.6.1.2		Fork Lift	15	2011	35,000				38,245													
2.6.1.3		Fork Lift	15	2014	35,000							41,792										
2.6.1.4		Van Truck	15	2015	40,000								49,195									
2.6.1.5		Pickup Truck - Chevy 3500 Crew cab, 4wd 6.5L Turbo Diesel	10	2012	66,000					74,284										99,831		
2.6.1.6		16' Equipment Trailer	20	2020	14,000													19,961				
2.6.1.7		Mobile Equipment - Extraordinary Repair	15	2016	4,500									5,700								
.					**Mobile Equipment Subtotal**	0	36,050	0	38,245	74,284	0	41,792	49,195	5,700	0	0	0	19,961	0	99,831	0	56,165
3		**Latex Building**																				
3.1		Latex Equipment	15	2010	20,000			21,218														
.					**Latex Subtotal**	0	0	21,218	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Metro Central Summary

Utilities Subtotal	0	0	917,679	0	72,033	0	0	0	177,348	0	0	0	0	31,397	0	0	0
Buildings Subtotal	0	365,650	527,904	310,334	191,336	0	0	125,447	101,342	189,192	0	0	53,609	441,694	181,511	0	345,012
Site Conditions Subtotal	0	0	0	32,782	0	0	0	0	38,003	0	0	0	0	44,056	0	0	0
Primary Equipment Subtotal	260,000	412,000	60,471	874,182	337,653	301,411	0	491,950	1,048,810	0	1,021,376	1,245,810	570,304	73,428	1,210,072	405,072	0
Mobile Equipment Subtotal	0	0	37,132	0	0	60,282	405,978	61,494	13,073	32,619	0	0	19,961	0	0	0	0
One Time Expenses Sul	0	0	0	0	0	0	0	191,122	0	0	0	0	0	0	0	0	0
Total Metro Central Outlays	260,000	777,650	1,543,185	1,217,298	601,022	361,694	405,978	870,013	1,378,575	221,811	1,021,376	1,245,810	643,874	590,575	1,391,583	405,072	345,012

Metro South Summary

Utilities Subtotal	1	0	1	0	73,158	15,071	0	15,988	0	112,210	0	35,990	0	45,231	0	116,849	48,141
Buildings Subtotal	174,000	144,200	408,447	87,418	24,761	718,750	94,330	0	101,342	371,860	0	101,049	805,555	268,477	260,165	113,732	604,974
Site Conditions Subtotal	0	30,900	0	0	0	0	0	0	0	0	0	0	0	0	0	155,797	0
Primary Equipment Subtotal	0	92,700	424,360	437,091	27,012	0	95,524	12,299	224,472	0	13,439	110,739	570,304	14,685	0	0	770,259
Mobile Equipment Subtotal	0	36,050	0	38,245	74,284	0	41,792	49,195	5,700	0	0	0	19,961	0	99,831	0	56,165
Total Metro South Outlays	174,001	303,850	832,808	562,754	199,215	733,820	231,646	77,482	331,514	484,071	13,439	247,778	1,395,820	328,394	359,996	386,377	1,479,539

Latex Paint Processing

	0	0	21,218	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total Outlays Combined (Central + South + Paint)	**434,001**	**1,081,500**	**2,397,211**	**1,780,052**	**800,237**	**1,095,514**	**637,624**	**947,495**	**1,710,089**	**705,882**	**1,034,816**	**1,493,588**	**2,039,694**	**918,969**	**1,751,579**	**791,449**	**1,824,551**

2008 Metro Replacement and Renewal Account
Schedule 3 - St. John's Landfill Closure Account
Projected Cash Flow Schedule

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Assumptions	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Annual Interest Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Construction Cost Inflation Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%

Fund Flow	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Beginning Balance	$7,537,905	$7,044,418	$7,106,299	$7,195,339	$7,315,587	$7,447,501	$6,558,253	$6,159,842	$5,865,898	$5,763,727	$5,646,142	$5,512,549	$5,362,321	$5,194,791	$5,009,257	$4,804,977	$4,581,168	$4,337,010	$4,071,637	$3,784,144	$3,473,581
plus: Additional Revenues Needed					78,578																
plus: Interest	200,478	143,034	272,180	386,956	327,894	223,425	196,748	184,795	175,977	172,912	169,384	165,376	160,870	155,844	150,278	144,149	137,435	130,110	122,149	113,524	104,207
plus: LF Gas Sale Revenues	91,172	80,355	32,908	36,954	48,243	47,278	46,333	45,406	44,498	41,828	39,318	36,959	34,742	32,657	30,698	28,856	27,124	25,497	23,967	22,529	19,826
less: Materials, Services, and Testing	(67,165)	(48,214)	(175,871)	(277,763)	(223,619)	(226,600)	(233,398)	(240,400)	(247,612)	(255,040)	(262,692)	(270,572)	(278,689)	(287,050)	(295,662)	(304,531)	(313,667)	(323,077)	(332,770)	(342,753)	(353,035)
less: Landfill R&R Expenditures	(717,972)	(113,294)	(40,177)	(25,899)	(99,182)	(933,352)	(408,093)	(283,745)	(75,034)	(77,285)	(79,603)	(81,992)	(84,451)	(86,985)	(89,594)	(92,282)	(95,051)	(97,902)	(100,839)	(103,864)	(106,980)
Ending Balance	$7,044,418	$7,106,299	$7,195,339	$7,315,587	$7,447,501	$6,558,253	$6,159,842	$5,865,898	$5,763,727	$5,646,142	$5,512,549	$5,362,321	$5,194,791	$5,009,257	$4,804,977	$4,581,168	$4,337,010	$4,071,637	$3,784,144	$3,473,581	$3,137,598

R&R Construction Cost		Project Cost in					1.00	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30	1.34	1.38	1.43	1.47	1.51	1.56	1.60
Year		2008	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
2004	04 / 05 Outlay	$113,294	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	05 / 06 Outlay	$40,177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	06 / 07 Outlay	$25,899	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	07 / 08 Outlay	$99,182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	08 / 09 Outlay	$530,800	0	0	0	0	530,800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	09 / 10 Outlay	$906,167	0	0	0	0	0	933,352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	10 / 11 Outlay	$384,667	0	0	0	0	0	0	408,093	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	11 / 12 Outlay	$259,667	0	0	0	0	0	0	0	283,745	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	12 / 13 Outlay	$66,667	0	0	0	0	0	0	0	0	75,034	0	0	0	0	0	0	0	0	0	0	0	0
2013	13 / 14 Outlay	$66,667	0	0	0	0	0	0	0	0	0	77,285	0	0	0	0	0	0	0	0	0	0	0
2014	14 / 15 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	79,603	0	0	0	0	0	0	0	0	0	0
2015	15 / 16 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	0	81,992	0	0	0	0	0	0	0	0	0
2016	16 / 17 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	0	0	84,451	0	0	0	0	0	0	0	0
2017	17 / 18 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	0	0	0	86,985	0	0	0	0	0	0	0
2018	18 / 19 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89,594	0	0	0	0	0	0
2019	19 / 20 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92,282	0	0	0	0	0
2020	20 / 21 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95,051	0	0	0	0
2021	21 / 22 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97,902	0	0	0
2022	22 / 23 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100,839	0	0
2023	23 / 24 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103,864	0
2024	24 / 25 Outlay	$66,667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106,980
	Total Landfill R&R Exp	$3,226,519	$0	$0	$0	$0	$530,800	$933,352	$408,093	$283,745	$75,034	$77,285	$79,603	$81,992	$84,451	$86,985	$89,594	$92,282	$95,051	$97,902	$100,839	$103,864	$106,980

Summary of Outlay Derivation	**URS**	**Net 2010-24**	**2008 CIP**	**2009**	**2010**	**2011**	**2012**
Dyke Repair	$730,000	0	$146,000	$584,000			
R&R Final Cover Liner	772,000	0	193,000	193,000	193,000	193,000	
Flare Station Retrofit	250,000	0	62,500	62,500	125,000		
Contingency	1,000,000	1,000,000					
Total	$2,752,000	$1,000,000	$401,500	839,500	318,000	193,000	0
		$66,667		Annual Outlay			