

## 6.0 CONCEPTUAL LEVEL DESCRIPTION OF THE PROPOSED CRRRC

The following conceptual description of what each component of the CRRRC will do was used to complete a comparison of the alternative Sites. A more detailed description was subsequently used to prepare the alternative Site development concepts for the Boundary Road Site and select the preferred alternative concept. This more detailed description is contained in Section 9.0. Additional refinement including stormwater management ponds and geotechnical considerations is provided in Section 10.0 to arrive at the detailed project description, which was then used as the basis for the impact assessment.

### 6.1 Overview

A conceptual description of the following components of the proposed CRRRC as used in the comparison of alternative Sites is provided below:

- Materials Recovery Facility (MRF);
- C&D processing;
- Organics processing;
- Petroleum hydrocarbon (PHC) contaminated soil treatment;
- Surplus soil management;
- Drop-off for separated materials or for separation of materials;
- Leaf and yard materials composting (if there is enough material available); and
- Landfill for disposal of residuals and material not diverted.

### 6.2 Waste Stream

The CRRRC was assumed, and approval is being sought, to accept solid, non-hazardous IC&I and C&D waste and soils at a rate of approximately 1,000 to 1,500 tonnes per day. With a facility open 300 days per year, this is equivalent to annual waste receipts of the order of 300,000 to 450,000 tonnes/year. The maximum assumed receipts of 450,000 tonnes/year was subsequently used for the purpose of the impact assessment.

### 6.3 CRRRC Components

#### 6.3.1 Diversion Facilities

##### 6.3.1.1 *Materials Recovery Facility*

The MRF will process and recover IC&I materials and be designed to handle both mixed materials and source separated loads. The MRF operation will take place within a specifically designed building and will involve removal of loads from the haulage vehicles onto a tipping floor and then placing the materials onto equipment that uses a combination of both automated and manual sorting processes to separate out and recover designated materials according to their composition (plastic, metal, glass, paper, cardboard), with the remainder going to disposal.

### **6.3.1.2 Construction & Demolition Processing Facility**

C&D Processing Facility will be carried out to recover waste materials received from construction and demolition projects, which will typically be received at the Site in roll-off bins. Incoming loads would be segregated initially according to their main material components (mostly concrete, mostly wood (clean or dirty), mostly asphalt, etc.), which can then be further sorted for appropriate processing. For example, metal is recovered directly; wood is often chipped or shredded for composting or made into mulch; asphalt is ground for re-use; and concrete is crushed. The C&D processing will take place within a building. Materials that cannot be recovered will go to disposal.

### **6.3.1.3 Organics Processing**

An organics processing facility will be constructed to remove the organics component from those portions of the IC&I waste stream that contain a sufficient amount of organics. Taggart Miller is proposing the implementation of a unique anaerobic digestion process that takes place within a covered facility and is specifically designed to process the organics contained within the highly variable mixed IC&I waste stream.

The organics processing facility at the CRRRC will also include a compost pad, to be used for composting of leaf and yard waste and for curing of the product from the anaerobic digestion process.

### **6.3.1.4 Petroleum Hydrocarbon Contaminated Soil Treatment**

Treatment of PHC contaminated soils at the CRRRC would occur using lined and covered treatment cells.

### **6.3.1.5 Surplus Soil Management**

The management of surplus uncontaminated soils (or rock) received from construction projects would involve stockpiling of these materials for re-use as daily cover for the landfill component of the CRRRC or for other on-Site uses. There is a need for uncontaminated soils in excess of the excavated soil on-Site to meet the requirements for construction of berms, grade raises, temporary roads, daily and final landfill cover, etc. Uncontaminated soil or rock is comprised of native (undisturbed) earth materials (from undeveloped land) or native earth materials/fill materials that are unimpacted by development or human activity, or altered earth/fill material whose quality meets the applicable table in O. Reg. 153/04 (MOE, 2004). The stockpiling could occur in a designated area and in other unoccupied areas of the Site to suit Site operations.

In addition to PHC contaminated soils, the CRRRC will also receive other types of non-hazardous contaminated soil (or rock). Contaminated soil, with the exception of PHC contaminated soil directed to treatment, will be managed within the landfill, either disposed of as waste or re-used as daily cover.

### **6.3.1.6 Small Load Drop-Off Area**

A typical grade-separated drop-off area to receive recoverable materials for small IC&I and C&D waste generators would be provided.

### **6.3.1.7 Leaf and Yard Waste**

Provision would be made for the acceptance of source separated leaf and yard waste materials, e.g., from landscaping and property maintenance contractors, which could either be co-processed with the organics in the anaerobic digestion process or in an open windrow composting operation.

### **6.3.2 Landfill**

Assuming an average annual diversion rate for the CRRRC of between 30 to 40% of the incoming material from disposal, a typical waste density (0.8 tonnes per cubic metre) and a 4:1 waste to cover ratio, the corresponding landfill air space requirement to support the diversion facilities for a 30 year operating period was initially determined to range from about 8 to 14 million cubic metres. The disposal airspace requirements were progressively refined through the preparation of the alternative Site development concepts (Section 9.0), and finalized during the preparation of the Site development plan in Section 10.0. Through a refinement of the diversion facilities' design and operations as subsequently described in Section 9.0, it was subsequently estimated that a diversion rate of between 43 to 57% may ultimately be achievable.

The landfill will undergo development in phases as described below in project activities.

### **6.3.3 Leachate Management**

Leachate is the liquid that is produced as precipitation enters waste and dissolves constituents from the waste as it passes through it. Management and treatment of leachate generated from the landfill, as well as excess liquor generated from the organics processing, will be required. Leachate management can be accomplished by an on-Site treatment facility for discharge on-Site, an on-Site treatment facility for pre-treatment and discharge off-Site for final treatment, or transportation of leachate off-Site for final treatment.

### **6.3.4 Gas Management**

The proposed CRRRC will require a gas management system for the landfill and organics processing components. These components will require equipment to collect and distribute the gas to an on-Site flare. When in sufficient quantity, it would be sent to a power generation area where the electricity may be used on-Site or connected to the grid if possible.

### **6.3.5 Remaining Site Infrastructure**

The remaining Site infrastructure consists of the Site entrance, weigh scale(s), administration and scale buildings, a maintenance garage, SWM facilities, tire wash station and internal access roads.

## **6.4 Further Details**

Following the assessment of alternative Sites and the selection of the preferred Site for the proposed CRRRC (Section 7.0), the project description for the CRRRC was further refined. These refinements are provided in Section 9.0 for preparation of the alternative Site development concepts. These refinements are provided in Section 9.0, and include details such as expected quantities of materials to be handled at each facility. This enabled building sizes and the landfill capacity to be confirmed. Additional refinement is provided in Section 10.0 to prepare the detailed project description of the preferred Site development concept for use in the impact assessment, which included adding the final details utilizing Site specific information and further analyses (such as geotechnical) and stormwater management requirements.