A Waste Transfer Station is a facility where waste from multiple sources is consolidated into high volume vehicles for transport to a regional waste disposal site.
BENEFITS

- It reduces the cost of hauling waste to the regional landfill facility.
- It allows for screening, sorting and recycling waste.
- It frees collection vehicles & crews from transporting waste in small quantities to a distant disposal site.
- It allows more collections per day
- Larger purpose built articulated transfer trucks (or trains) are able to transport waste over long distances at cheaper cost per ton than a 12m$^3$ or 15m$^3$ rear end loader.
- This will reduce traffic impact and air emissions due to the smaller number of units on the road.
• Availability of facilities at regional waste disposal sites for specialised bulk waste vehicles;
• Subsidies for recycling;
• Opportunities for co-operation;
• Potential savings on landfill airspace due to increased resource recovery;
• Reduced reliance on small landfills that are non-compliant with environmental standards; and
• Environmental costs associated with transporting waste long distance.
Transfer Station may improve level of service to community.

However, a transfer station may also be considered a noxious facility with social impacts. For example:

- Noxious Smells
- Pollution
- Increased Traffic
- Possibility of scavengers

Concept of General Public Good vs NIMBY mentality: Not In My Back Yard.
A TRANSFER STATION EXISTS PRIMARILY TO REDUCE THE COSTS OF TRANSPORT BETWEEN A SERVICE AREA AND THE REGIONAL LANDFILL SITE....
The following assumptions were used to create this sample comparison:

Construction and operating costs of a transfer station (per ton): R25.00
Cost per ton per kilometer – collection vehicle: R1.71
Cost per ton per kilometer – transfer vehicle: R1.02
SITE SELECTION

Things to be taken into consideration when deciding to go ahead with setting up a transfer station:

- Data on current volumes that would pass through the station;
- Projections of future volumes;
- Classification of the waste stream (percentage of general waste, recyclable waste, building rubble, hazardous waste); and
- Potential markets for recyclable material.
## Examples of site selection criteria

<table>
<thead>
<tr>
<th>Planning</th>
<th>Technical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate Zoning</td>
<td>Integration with existing and future waste network</td>
</tr>
<tr>
<td>Land Ownership</td>
<td>Opportunities for regional cooperation</td>
</tr>
<tr>
<td>Available Buffers</td>
<td>Centrality (optimal cost distance or geographic centroid)</td>
</tr>
<tr>
<td>Not in an environmentally sensitive area</td>
<td>Accessibility</td>
</tr>
<tr>
<td></td>
<td>Existing services and utilities</td>
</tr>
<tr>
<td></td>
<td>Minimum size of required areas</td>
</tr>
</tbody>
</table>
### Examples of site selection criteria

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Geology</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Groundwater</td>
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<td></td>
<td>Surface Water</td>
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<tr>
<td></td>
<td>Ecology</td>
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<td></td>
<td>Visibility</td>
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<td></td>
<td>Traffic</td>
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<td></td>
<td>Topography</td>
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<tr>
<td></td>
<td>Noise</td>
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<tr>
<td></td>
<td>Dust</td>
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<tr>
<td></td>
<td>Odour (wind direction)</td>
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<tr>
<td>Community and Social</td>
<td>Social Impacts</td>
</tr>
<tr>
<td></td>
<td>Environmental Impacts</td>
</tr>
</tbody>
</table>
Additional things to take into consideration when designing a transfer station:-

• Will there be access to the general public or only the collection vehicles?

• How will the waste be transported?

• What type of technologies will be used?

• Will it incorporate a material recovery programme and form a vehicle maintenance and storage depot?
EXISTING TRANSFER STATIONS

Large Transfer Stations: 300 to 2000 tonnes per day:

Athlone Transfer Station:

- Rail transport
- Immense R&D cost (to be avoided)
- 800 tonnes per day
- Beautiful gardens
- Information centre with display
- Weighbridge
- Tipping on floor
- 3 receiving bays
- Hopper and conveyor
- Compaction plant
- ISO containers
- Gantry lifting gear
- Loads cells on lifting equipment
- No provision for recycling
- Recycling tender and retrofit
- Completely enclosed
- Air conditioning
- Spraying of odour control chemicals
- Leachate management
**EXISTING TRANSFER STATIONS**

**Small Transfer Station: 50 to 300 tonnes per day**

**Hermanus Transfer Station:**

Small transfer station  
Located in Industrial area at Kleinmonde  
Adjacent to Walker Bay recycling company  
Road transport  
No weighbridge  
Tipping directly into bays  
3 receiving bays  
No compaction  
Std open waste RORO containers  
Truck operated lifting  
No formal provision for recycling  
Partially enclosed  
Chipping of garden waste
Based on Cost Exercise IWMP:

<table>
<thead>
<tr>
<th>Transfer Station Type</th>
<th>Volume Per Day</th>
<th>Capital Cost Min</th>
<th>Capital Cost Max</th>
<th>Capital Recovery Period (20 years)</th>
<th>Rands Per Ton Min</th>
<th>Rands Per Ton Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garden Refuse (0-25 tons)</td>
<td>25</td>
<td>2,000,000.00</td>
<td>5,000,000.00</td>
<td>7,300</td>
<td>10.96</td>
<td>27.40</td>
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<tr>
<td>(50 - 150) Coega</td>
<td>150</td>
<td>12,000,000.00</td>
<td>25,000,000.00</td>
<td>7,300</td>
<td>10.96</td>
<td>22.83</td>
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<tr>
<td>East London (150 - 300)</td>
<td>300</td>
<td>25,000,000.00</td>
<td>40,000,000.00</td>
<td>7,300</td>
<td>11.42</td>
<td>18.26</td>
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<td>300 - 2000 (Athlone)</td>
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<td>40,000,000.00</td>
<td>70,000,000.00</td>
<td>7,300</td>
<td>5.48</td>
<td>9.59</td>
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</tbody>
</table>

Current Cost Estimates (August 2007)
BUFFALO CITY CENTRAL WASTE TRANSFER STATIONS

- BCM Regional Waste Disposal site 35 km from CBD
- System of Waste Transfer Stations (WTS) to minimise costs
- Central WTS > 300 tonnes per day
- Opportunity to screen incoming waste & recover materials in a MRF
- Concept of WTS evolved into a Waste Hub that includes:
  - WTS
  - MRF
  - Drop-off points
  - Administration offices
  - Vehicle services depot
  - Elements of a BBC
  - Recycling industries
  - Composting operations
BUFFALO CITY CENTRAL
WASTE TRANSFER STATIONS

Site Identification, Selection & Ranking

- Access to road and rail infrastructure
- Size of the site
- Distance by road from waste generation centroid
- Distance from regional waste site
- Existing infrastructure
- Distance to sensitive environments
- Ownership and zoning
- Adaptability to use a WTS
Additional Drivers of the System

- Job creation
- SMME development
- Political pressure
- Closure of existing illegal sites
- Cost of clean-up of illegal sites
Environmental Management

- Environmental Impact Assessment
- Environmental Management Plan – construction & operation
- Environmental requirements that influence a design of a transfer station: Odour; Litter; Stormwater & Leachate Control; Noise; H&S; Vermin; Visual
Key Challenges

- Land acquisition
- Environmental Impact Assessment - NIMBY
- Budget
- Time
ARCUS GIBB Waste Management Services Profile

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Thank You