



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

CURRENT STATE OF CONSTRUCTION WASTE IN THE CITY OF CAPE TOWN

A VAN VUUREN / 16 September 2014

Making progress possible. **Together.**

THE CAPE TOWN WE LOVE



OTHER IMAGES OF OUR CITY

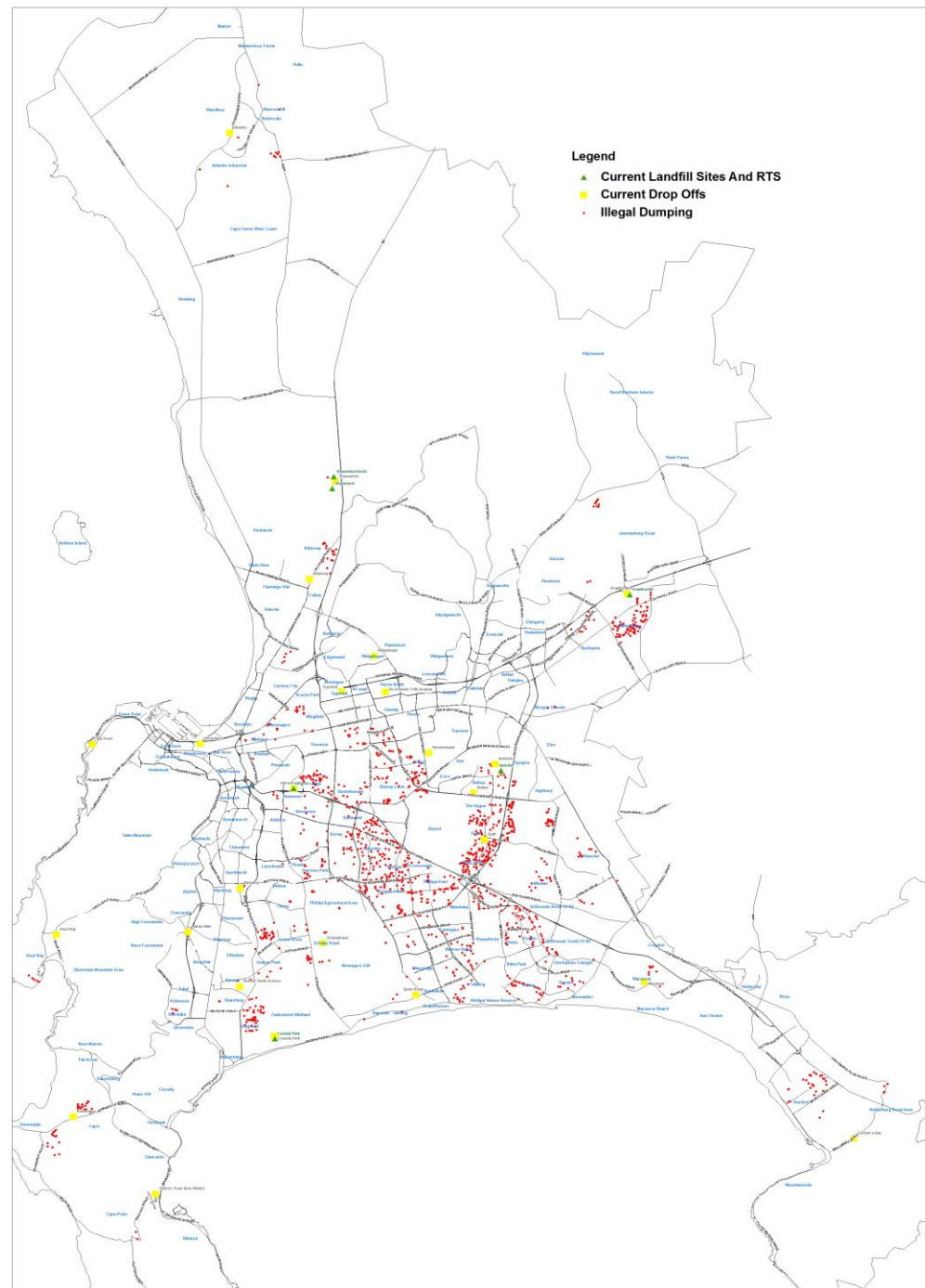




ILLEGAL DUMPING IS A REALITY

During 2013:

- ❑ There were more than 900 reported illegal dumping hotspots
- ❑ The Removal cost exceeded R270m
- ❑ Growth in illegal dumping resulted in unnecessary expenditure
- ❑ Material in general is contaminated limiting:
 - The re-use of crushed aggregates
 - Serious recycling projects
- ❑ Opportunity loss for:
 - Revenue generation
 - Job creation

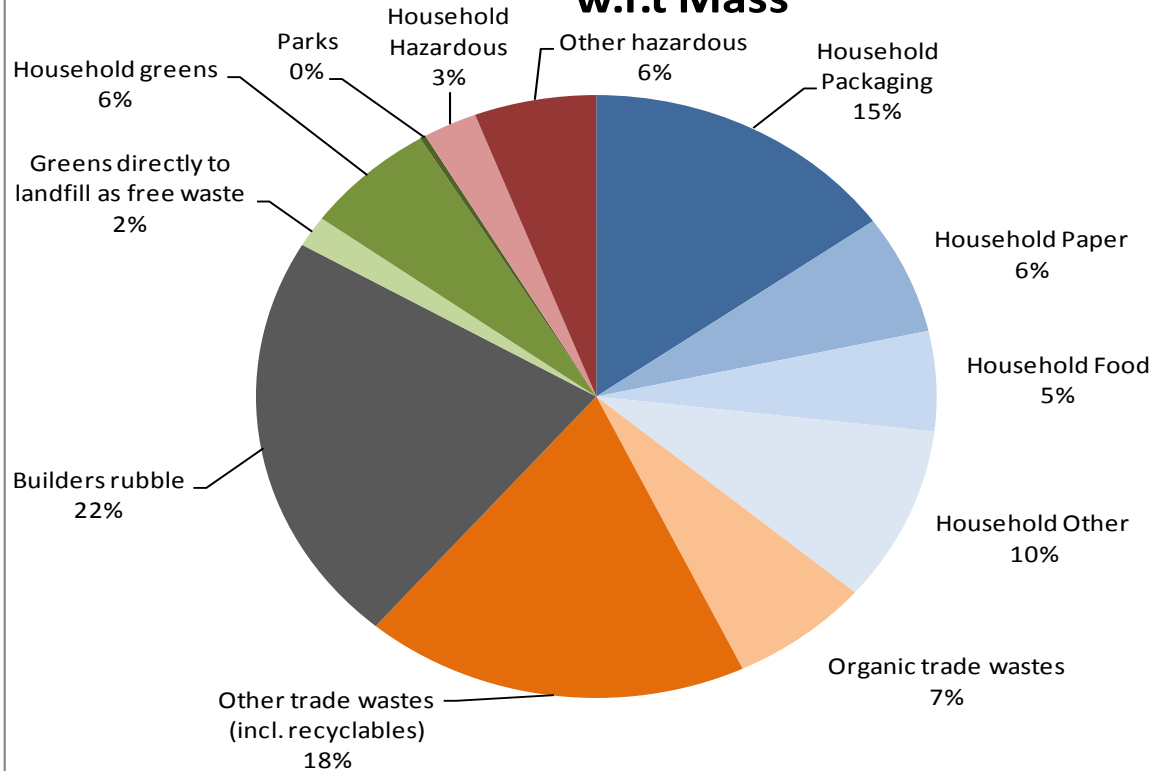


THE CAPE TOWN CHALLENGE

- ❑ CT's total waste: > 2.5m tons/year
- ❑ Approximately 2m tons/year landfilled (City and Private site)

- ❑ Approximately 27% of TOTAL waste stream (by mass) diverted from landfill
- ❑ 18.2 % = Private Sector
- ❑ 8.8 % = CCT

Characterisation of Waste Landfilled w.r.t Mass



- ❑ Builder's Rubble is one of the waste streams with the largest impact on airspace
- ❑ It equals 22% of City's total waste stream (by mass)
- ❑ 185 040 t/year is not diverted from landfill (MSA S78 Report, 2011)

OUR CHALLENGE IS FINDING A SUSTAINABLE SOLUTION

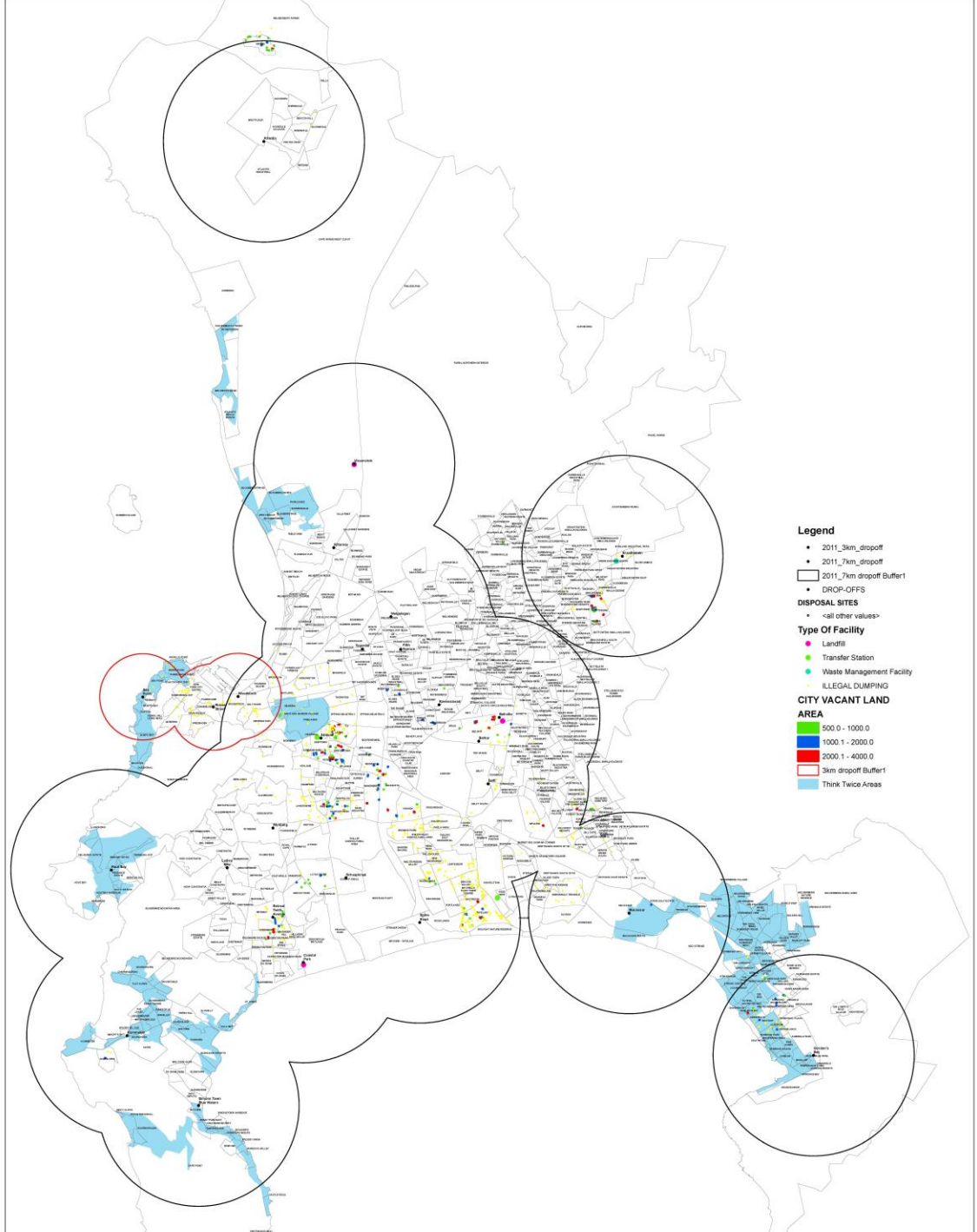
BOTH FOR

- 1. ILLEGAL DUMPING**
- 2. EFFECTIVE RECYCLING AND RE-USE**



DROP-OFF FACILITIES

- No of 25 drop-offs spread at 7km radii from most properties
- From 01 July 2014 **Residents and Business** may dispose clean builder's rubble **free of charge** at drop-off sites
- Max 3 loads x 1.5t carrying capacity vehicles
- Material is transported to landfill



LANDFILL SITES

Currently all available clean material is used for:

- Cover - layers
- Internal road maintenance
- Side-slope cover
- Usage 10 – 13% of total mass



Mixed rubble not suitable

Reinforced concrete not suitable



DISPOSAL FEES

In an effort to reduce illegal dumping the Disposal of Clean Builder's waste was zero-rated effecting a saving of > R330/t

“Building waste” means waste produced through the construction, alteration, repair or demolition of any structure both manmade and natural, and includes rubble, earth, wood , rock, glass, plastic, metals, asphalt, bitumen and bitumen products., insulation materials, concrete, bricks, tiles, ceramics, and gypsum based materials, but excludes garden waste;

“Clean building waste” means waste, excluding *hazardous* waste, generated during the construction, alteration, repair or demolition of any structure either man-made or natural. This includes rubble, earth, rock and wood displaced during the construction, alteration, repair or demolition but excludes garden waste.

ACCREDITATION OF SERVICE PROVIDERS

AT SOURCE MANAGEMENT (Reduction of illegal dumping and at-source streaming)

- Give effect to Integrated Waste Management By-law
 - To manage waste generators and service providers (no dumping)
 - Waste generator responsible for submission of disposal records

- In terms of the IWM By-law a **waste generator** may only use an **accredited service provider**.

“**waste generator**” means a property owner, a household, organisation or business entity, the inhabitants, occupants or employees of which generate waste and includes sorters of waste such as recycling or waste minimisation groups, scrap dealers and buy-back centres;

“**accredited service provider**” means a person or entity accredited by the City in accordance with its guidelines published from time to time and who provides a waste management service in the City and may include, but is not limited to, large and small business, entrepreneurs, community cooperatives, and venture learnerships;

INTEGRATED WASTE MANAGEMENT PLANS

BUILDING PLAN MANAGEMENT (Reduction of illegal dumping and at-source streaming)

- Give effect to Integrated Waste Management By-law
 - Control waste flow through the Building Plan application process
- Building control agreed to implement and control the requirement for Integrated Waste Management Plans
- Currently all applications for Demolition permits require the additional submission of an Integrated Waste Management plan
 - Volumes and type of waste materials
 - On site streaming and stockpiling (Handling and storage)
 - Minimisation
 - On site usage
 - Recycling
- Proof of Disposal
 - At landfill
 - At crushing facilities
- Using an Accredited Service provider

Second phase also commenced, which deals with the development/alteration of larger buildings and complexes



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Thank You

For queries contact (insert name.surname@capetown.gov.za)

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BY- LAW PROVISIONS

When plans are submitted to the City for its approval in terms of the National Building Regulations and Building Standards Act, 1977(Act No. 107 of 1977),

- ❑ The person **MUST** submit simultaneously therewith— an **Integrated Waste Management Plan** setting out:
 - what provision is made for collection and disposal of the building and other waste;
 - what provisions are made to store the waste on their property; or
 - provide a permit to store the waste on the City's property.
- ❑ **Prior to an occupancy certificate or any final approvals being granted:**
 - The BCO shall inspect the property and shall also check if all building waste has been disposed of.
 - The owner of the property will be required to provide the BCO with proof of a weighbridge certificate indicating that the full mass of the building rubble has been disposed at a licenced waste disposal facility.



CITY OF CAPE TOWN INTEGRATED WASTE MANAGEMENT BY-LAW, 2009

(16) Any person who directly or indirectly generates building waste or the owner of the property on which such building waste is generated shall not store such waste in containers provided by the City for residential waste and shall remove and dispose of it at a licenced crushing plant or landfill site or any other licenced building waste disposal facility.

(17) When plans are submitted to the City for its approval in terms of the National Building Regulations and Building Standards Act, 1977(Act No. 107 of 1977), the person submitting same must submit simultaneously therewith—

- (a) an integrated waste management plan setting out what provision is made for collection and disposal of the building and other waste;
- (b) what provisions are made to store the waste on their property; or
- (c) provide a permit to store the waste on the City's property.

CITY OF CAPE TOWN INTEGRATED WASTE MANAGEMENT BY-LAW, 2009

(18) Contaminated building or other waste where the contamination agent is hazardous or dangerous must be deposited at a licenced waste disposal facility for the treatment and disposal of hazardous waste.

(19) The owner of the facility where building rubble is disposed of shall provide a monthly report to the waste management officer of the mass of such waste deposited at such facility.

(20) The waste generator or the owner of the property on which waste is generated who deposits or stores waste on property of the City may be fined for failure to have or produce a permit for such deposit or storage.

(21) When the building control officer inspects the property where building works have been undertaken to check that it has been built in accordance with the approved plans, he or she shall also check if all building waste has been disposed of.

CITY OF CAPE TOWN INTEGRATED WASTE MANAGEMENT BY-LAW, 2009

(22) The owner of the property referred to in subsection (21) will be required to provide the building control officer with proof of a weighbridge certificate that he or she has disposed of the full mass of the building rubble at a licenced waste Disposal facility for that category of waste prior to an occupancy certificate or any final approvals being granted.

WHY BUILDER'S RUBBLE

Waste Diversion Activity	Detail	Calc. Cost Per Tonne	Total Cost/Yr
Builders Rubble	Crushing for recycling	(R50-R75/t)	(R4.2m - R6.2m)
Organic Waste Diversion	Separate collection and composting	R750-R900/t	R74m - R98m
Waste Beneficiation	IWM Facilities, incl MRF's & alt tec facilities, - AD, waste to energy etc.	R1380- R1470/t	R400m - R425m
Co-Mingled Waste	Separate collection of mixed recyclables at source	R1380- R1660/t	R45m - R55m
Household Haz Waste	Diversion from landfill to decrease toxicity of stream	R2900- R3500/t	R47m - R50m

Additional cost for implementation of waste diversion activities = More than 30% add OPEX budget required

KEY CHALLENGES AND RISKS TO CITY

- Receive contaminated materials – material not homogenous, presence of plastics, glass, clay, tiles, steel, wood, organics etc.
- Inconsistency of incoming materials, with wastes coming from different sources and containing different materials (aggregates) in different proportions
- The unreliability of supply (volumes)
- The need for predictable and consistent performance from materials such as
 - Concrete
 - Concrete products
 - Road building materials
- Material management and streaming not practiced

KEY CHALLENGES AND RISKS TO INDUSTRY

- General lack of knowledge
 - on availability of materials
 - and potential re-use
- Recycled materials are considered inferior in quality
- Acceptance by Engineers for use as road building materials (G4/G5 etc)
- Council's acceptance for
 - inclusion in material specifications
 - re-use by internal departments
- Availability of strategic located sites to crush
 - NEMA and EIA Regulations
 - Dust is biggest environmental problem when operating on site

SOURCES OF BUILDING WASTE

Large demolition companies and small builders process waste from:

- The total or partial demolition of buildings and civil infrastructure
- Large construction projects and revitalization of the city centre
- Refurbishment of domestic housing and large-scale low-income housing projects
- The construction of new buildings and civil infrastructure
- Soil and rocks arising from earthworks, civil works and excavating foundations
- Road building waste materials arising from road maintenance activities

Council:

- Collects substantial illegal dumping of builder's rubble at significant environmental impact and an added cost burden to the City
- Road building activities
- Housing developments
- Engineering services

OTHER DEPARTMENTS

Develop a sustainable management plan for the future control and re-use

- Major departments willing to re-use building waste in future capital and maintenance project, SUBJECT to compliance with Council material specifications
- Roads & Stormwater willing to re-use building waste, but primarily road building waste if the material is properly streamered, stockpiled and managed
- Roads & Stormwater willing to amend council aggregate and engineering specifications to include recycled material subject to:
 - Compliance with existing engineering specifications and tests
 - Proper material management processes (streaming, stockpiling, etc.)
 - Removal of all contaminants, solvents, chemicals and clay
 - Additional tests in support of the above
- First combined SWM and Roads & Stormwater pilot project to benchmark proper material management processes at Coastal Park (streaming of road layers, rehabilitation of roads in Muizenberg (de)construction of roads)



AWARENESS AND COMMUNICATION

Develop a communication and awareness strategy, involve and inform the community, planning and other relevant statutory authorities and industry stakeholders about maximum resource recovery

- Developed an awareness program that informs the community and construction industry on the IWM By-law
- Waste Wise Contractors to commence with workshop and roll-out of communication plan on:
 - The benefits of separating and recycling builders rubble waste
 - Market opportunities for builders rubble waste streams
 - The availability and capabilities of recycled products

What we would rather see

