Waste Framework

Members Briefings – April 2017

Belfast City Coun

Waste Framework

- Key Drivers
- How are we doing?
- Themes
  - Collections
  - Infrastructure
  - Behaviour Change
  - Technology
- Recommendations
- Outcomes

Managing waste, delivering value, supporting jobs

Recycle 60k tonnes

Service ~ 8M bins pa travelling 1M km = 25 X around earth

Waste/recycling ~ 1,500 jobs in Belfast

Council collects/treats waste = weight of 747 every **DAY**

40% Recycling rate

Potential for an additional 13k jobs in NI – Circular Economy (Renew)

aner City

Live Here - Fit for Purpose Services

Economic Driver

Key Drivers

Legislation

(Environmental Compliance)

Landfill Directive

Revised Waste Framework Directive

Circular Economy Package ?

& Contaminated Land

DOE Waste Mgt. Strategy 2013

Food Waste (NI) Regulations 2015

Money

Treatment

Recycling

Composting

Landfill Diversion/RDF/SF

Landfill

NILAS fines

Improved VfM

Belfast Agenda

Optimisation of Waste to 2025 & Beyond

The Waste Framework

Managing waste, delivering value, supporting jo

A paradigm shift is needed *– to recycle around 20,00 tonnes per annum. This will require different waste co schemes, new infrastructure and changes to our behaviour*

*…**if everyone put the correct items in the correct bin, th Council would save almost £2 million per year and boo recycling rate by a staggering 20% !***

stronger engagement with the public is needed at key stag implementing the Waste Framework; education and promo public recognition, and incentives will be essential but, ultim enforcement may be required.

*We need to create a step change to our recycling perfo (bringing with it efficiencies), and **create environmental, and economic benefits for Belfast.***

*The waste produced in Belfast can be harnessed to produc goods and energy, which could drive local infrastructur economic development. This has been coined as the **Ci Economy** and deals with the leakages of valuable resou waste from the local economy.*

Waste Framework

Collections

Infrastructure

Behavioural Change

Technology

Managing waste, delivering value, supporting jobs

Collection Options

Current Kerbside Schemes

Potential Recycling Rate 40%

3 bin scheme

Inner city

pilots

Lisburn

ables Organics Residual Residual

Advantages	Disadvantages
• In house flexibility to adapt to changing regimes	• Multiple systems = resident confusion & less efficient operations
• 3 bin scheme – simple & familiar	• Limited range of materials available in recycling bin and contamination
• Inner City – wide range of materials	• Will not achieve the required improvemen
	• Legal compliance – likely to be m challengeable

Collections - Potential Approach

Dry Recyclables (weekly)

Food Waste (weekly)

Garden waste (Fortnightly – seasonal)

Non-recyclable waste (fortnightly)

Potenti
Recycli
Rate 42

Advantages	Disadvantages
• City wide – Standardised approach = consistent message/communications	• High Capital Set Up costs – may be mitigated with central Government funds
• Removes legal challenge separate collections	• Scheme Acceptance – public & operationally
• Decreased Contamination	
• Decreased Carbon footprint	
• Cheapest operating costs to deliver compliance	
• Increased Frequency Of Collections	
• Additional Recycling capacity – greater range (glass)	
• Meets Direction of Travel in industry (Quality)	

Infrastructure Options - Recycling

Clean Materials Recycling Facility (MRF)

Advantages	Disadvantages
Reduced risk of gate fee increases	• High capital set up costs
Increased income opportunities	• Operational complexities and associated risks
Job creation	• Size of facility required
Proven technology – standard set up	• Income risk dependant on commodity markets

Bulking Hall for Segregated Recyclables

Advantages	Disadvantages
• Reduced Contracted Treatment Costs/Gate fee	• Capital Set Up costs cheaper than MRF
• Increased Income opportunities	• Operational risks
• Job Creation	• Size of facility requir smaller than MRF
• Proven technology – standard set up	

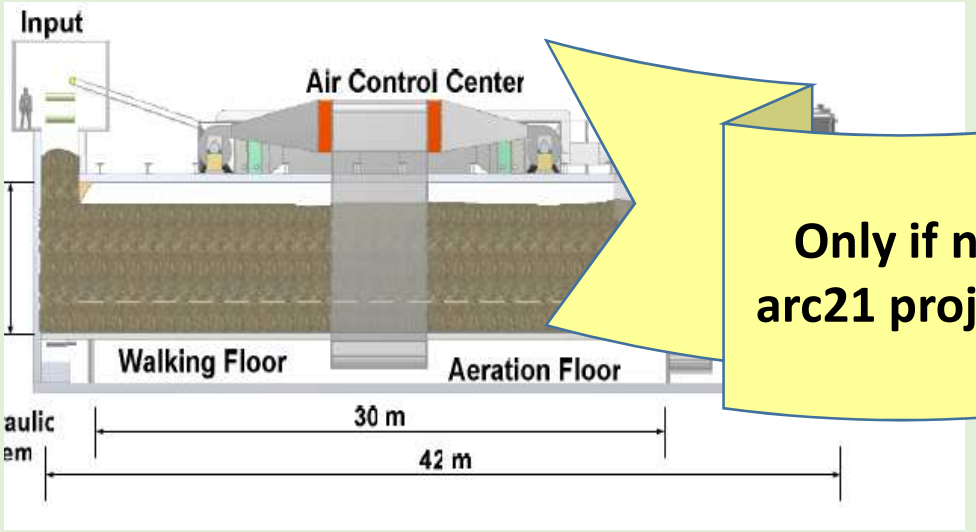
Managing waste, delivering value, supporting jobs

Infrastructure Options - Residual

Dirty Materials Recycling Facility (MRF)

Advantages	Disadvantages
educed Contract/Treatment osts	• High Capital Set Up costs
LAS Compliance	• Operational complexities
b Creation	• Size of facility required
dditional recycling	• Timescale until operation (3-5 Yrs.)
roven technology – standard t up	

Dirty MRF + Drying Halls



Only if no arc21 project

Advantages	Disadvantages
• Reduced contract/Treatment costs	• Very High capital set up costs
• NILAS compliance	• Annual revenue costs
• Job creation	• Operational complexities/unproven
• Potential to use landfill gas generator heat as drying source	• Size of facility required- Very Large
	• Timescale until operational

Managing waste, delivering value, supporting jobs

Behavioural Change

stronger engagement with the public is needed at key stages to complement the options proposed on collections and infrastructure.

o Food Waste Campaign

Potential savings - £50 per tonne

Increased Recycling ~ 1 %

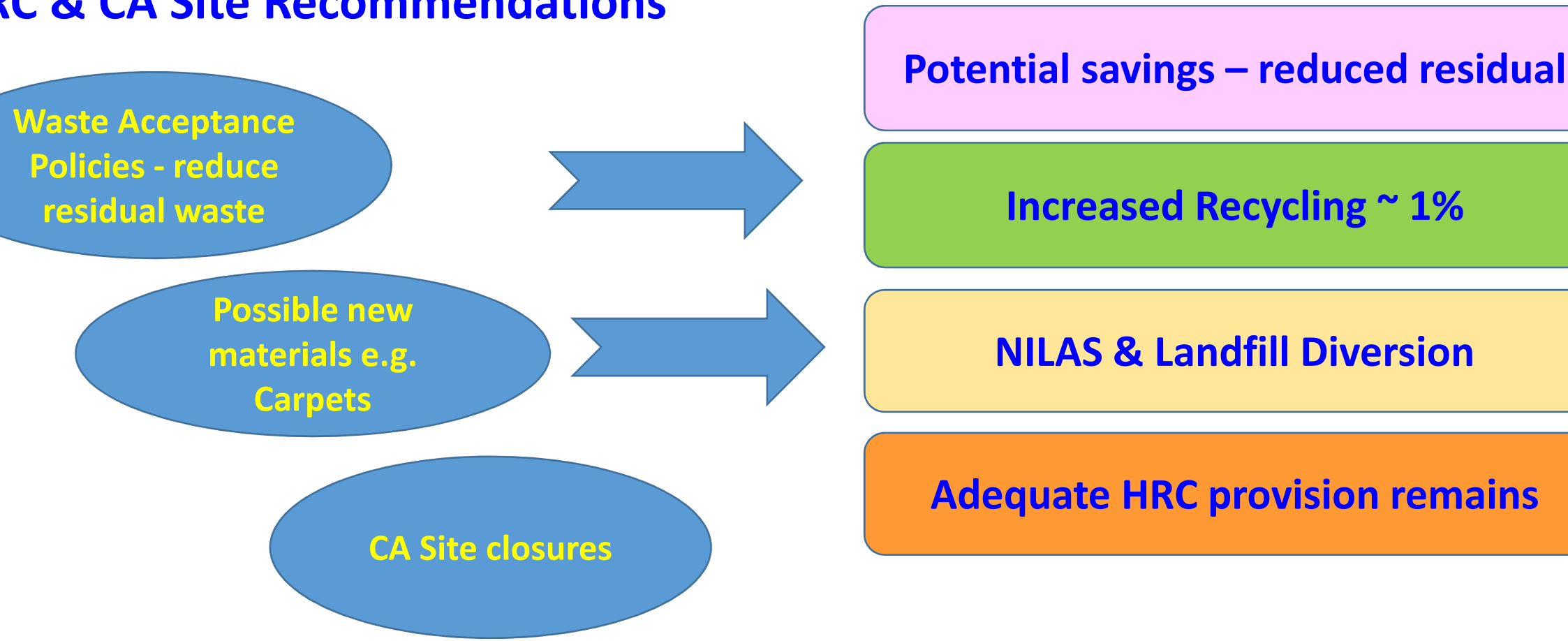
NILAS & Landfill Diversion

Circular Economy – Jobs/AD potentia

Behavioural Change

stronger engagement with the public is needed at key stages to complement the options proposed on collections and infrastructure.

RC & CA Site Recommendations



Behavioural Change

stronger engagement with the public is needed at key stages to complement the options proposed on collections and infrastructure.

elerated Roll-Out of 180 litre Bins

Reduced landfill costs

Increased Recycling ~ est. 2%-3%

NILAS & Landfill Diversion

BUT

Significant initial capital cost (£3M), logistically challenging, bin ownership issues, readiness/public acceptability

Behavioural Change

stronger engagement with the public is needed at key stages to complement the options proposed on collections and infrastructure.

uced Frequency of Residual Collections

irk example – 4 x weekly collections

Potential Significant savings – reduced residual & operational costs

Increased Recycling ~ 2% - 3%

NILAS & Landfill Diversion

Reduced carbon footprint - vehicles

BUT Route optimisation, public acceptability, reputational risk on implementation

Information Technology

Smart City

Innovate UK

Underground Waste Storage

Smart Bins

Internet of Things (IoT)

n-cab Technology

Camera Technology

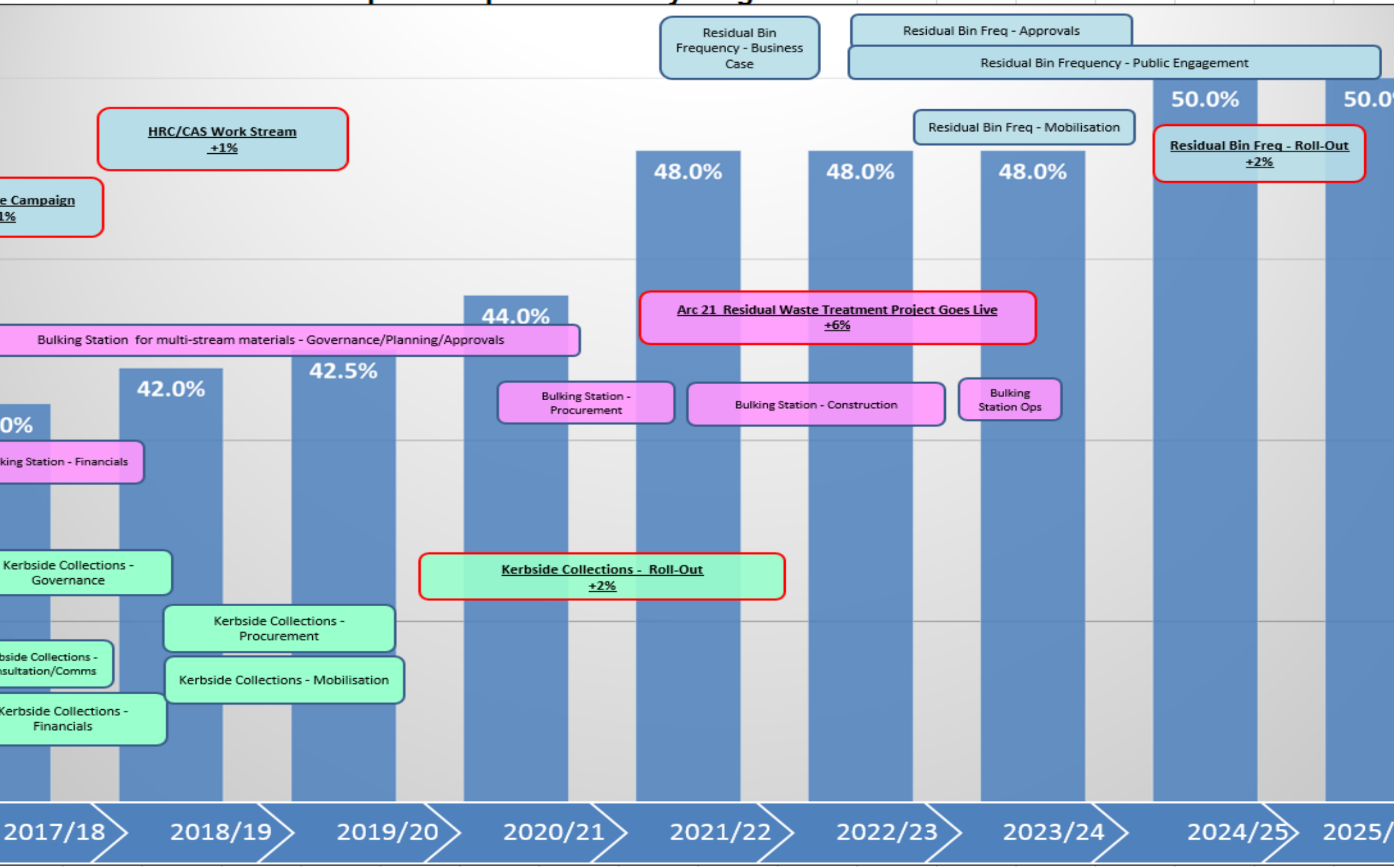
Advanced Analytics

Recommendations

Options	*Ann Net Expenditure 2020 £1,000's*	*Additional Capital Costs*	*Projected Contribution to Recycling Rate*	*Recycling Rate Cumulative Total*
Current Recycling Rate	22,780	nil	nil	40%
Collection Options Multi Stream Kerbside Sort	21,997	9,775	2%	42%
Residual Waste Infrastructure Dirty MRF (est)*	2,500	21m	4%	46%
Recycling Infrastructure Bulking Station (est)	500	5.2m	Nil	46%
Behaviour Change Food Waste – residual bin	Na	NA	1%	47%
HRC Review (incl op Review)	-320	Nil	1%	48%
Reduce the residual waste bin collection frequency	-1,200	Nil	2%	50%
Total				**50%**

Required if no arc21 Solution

Framework - Timeline Proposed Options & Recycling Rate



Outcomes

Cleaner City – Environmentally friendly city

Live Here - Fit for Purpose Services

Economic driver – Resourceful Belfast (Circular Economy)