Region of Peel
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Request for Delegation

FOR OFFICE USE ONLY

MEETING DATE YYYY/MM/DD	MEETING NAME
2022/06/23	REGIONAL COUNCIL

DATE SUBMITTED YYYY/MM/DD
2022/06/08

Attention: Regional Clerk
Regional Municipality of Peel
10 Peel Centre Drive, Suite A
Brampton, ON L6T 4B9
Phone: 905-791-7800 ext. 4582
E-mail: council@peelregion.ca

NAME OF INDIVIDUAL(S)
Rea Lingo

POSITION(S)/TITLE(S)
Resident

NAME OF ORGANIZATION(S)

E-MAIL	TELEPHONE NUMBER	EXTENSION
[redacted]	[redacted]	

INDIVIDUAL(S) OR ORGANIZATION(S) ADDRESS
[redacted]

REASON(S) FOR DELEGATION REQUEST (SUBJECT MATTER TO BE DISCUSSED)
Vacuume Waste, we are running out of space to dump garbage, we need to make it convenient for residents to recycle and dispose of their waste. Cost comparisum of using Vacuume Waste compared to standard waste pick up

A formal presentation will accompany my delegation ☐ Yes ☐ No

Presentation format: ☐ PowerPoint File (.ppt) ☐ Adobe File or Equivalent (.pdf)
☐ Picture File (.jpg) ☐ Video File (.avi,.mpg) ☐ Other

Additional printed information/materials will be distributed with my delegation : ☑ Yes ☐ No ☐ Attached

Note:
Delegates are requested to provide an electronic copy of all background material / presentations to the Clerk's Division if possible 72 hours, but not less than 24 hours, prior to the meeting start time. Delegation requests and/or materials received after 9:30 a.m. on the Wednesday prior to the meeting will not be provided to Members.

Delegation requests received less than 72 hours prior to the meeting start time that relate to an item listed on the agenda will be added to the agenda only upon the approval of Council or Committee at the meeting.

Delegates should make every effort to ensure their presentation material is prepared in an accessible format. Once the above information is received in the Clerk's Division, you will be contacted by Legislative Services staff to confirm your placement on the appropriate agenda.

In accordance with Procedure By-law 56-2019, as amended, delegates appearing before Regional Council or Committee are requested to limit their remarks to 5 minutes and 10 minutes respectively (approximately 5/10 slides). Delegations may only appear once on the same matter within a one-year period, unless a recommendation pertaining to the same matter is included on the agenda within the one-year period and only to provide additional or new information.

Please save the form to your personal device, then complete and submit via email attachment to council@peelregion.ca

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Notice with Respect to the Collection of Personal Information

(Municipal Freedom of Information and Protection of Privacy Act)

Personal information contained on this form is authorized under Section 5.4 of the Region of Peel Procedure By-law 56-2019, as amended, for the purpose of contacting individuals and/or organizations requesting an opportunity to appear as a delegation before Regional Council or a Committee of Council. The completed Delegation Request Form will be redacted and published with the public agenda. The Procedure By-law is a requirement of Section 238(2) of the Municipal Act, 2001, as amended. Please note that all meetings are open to the public except where permitted to be closed to the public under legislated authority. All Regional Council and Committee meetings are live streamed via the internet and meeting videos are posted and available for viewing subsequent to those meetings. Questions about collection may be directed to the Manager of Legislative Services, 10 Peel Centre Drive, Suite A, 5th floor, Brampton, ON L6T 4B9, (905) 791-7800 ext. 4462.

Please save the form to your personal device, then complete and submit via email attachment to council@peelregion.ca

No development in the U.K. had ever installed this kind of system," says Whyte.

That's why, back in 2008, Whyte ended up as part of a Brent borough delegation to Stockholm to see the proposed system in action. Two key findings convinced them to approve it for Wembley. One, the system improved the overall appeal of the neighborhoods where it operated: cleaner streets, fewer odors, and no curbside collection bins or trucks. Two, it made a pronounced impact upon recycling rates, particularly in mid-rise and high-rise residential buildings. Indeed, Sweden's wider adoption of vacuum waste is one reason why the country sends only 1 percent of its household waste to landfill.

Twelve years on, Wembley Park's automated waste collection system serves a mixture of residential, retail, and hotel properties with more than two and a half miles of underground tubes. It has the capacity to handle nearly 6,000 metric tons of waste and recycling per year — and its recycling rate is double the U.K. average. This is no small contribution to the fight against climate change, since plastic production accounts for some 3.8 percent of global carbon emissions, and recycling is the best way to curb them. And recycling is just one of vacuum collection's sustainability benefits: it also reduces the substantial methane gases generated from landfill, as well as

the carbon emissions from garbage trucks, the worst climate offenders in any municipal fleet.

But beyond Wembley, vacuum waste "hasn't really taken off here in the U.K.," says Whyte. "It's unfortunate, because it has worked really well here." The U.K. is not alone in this regard; North America has also been averse to pneumatic waste collection. But as its advantages in sustainability and urban design have become clearer, vacuum waste seems to be a technology whose time may finally have come.

From trash cans to vacuum tubes

Throughout urban history, the main issue with waste has been how best to get rid of it. Cities of centuries past tried every scheme they could imagine: burying it, burning it, dumping it into waterways, piling it up outside city gates, feeding it to swine, the works. Nothing stuck until 1875, when the British Public Health Act mandated that every home had to put its waste into a "movable receptacle" for civic authorities to collect — the invention of what Britons call the dust bin, and others the garbage can.

Nearly 150 years later, the basics of the collection system remain unchanged, save for the fact that waste collectors now drive heavy-duty trucks instead of horse-drawn carts. And as cities have densified, so has the trash. High-rises require ever-larger dumpster bins and collection areas. Recyclables and compostables are difficult to separate in high-rises as tenants often dump all their trash into a single chute,

leading to cross-contamination of waste streams. Recycling rates in tall buildings are generally much lower than in single-family homes (one recent U.K. study found them to be 50 percent lower).

As a result of this overflow, sidewalks that could accommodate benches, patios, trees, and street life must instead make room for the endless flow of trash. "Rising densities mean more trash getting piled up on the same amount of curb space," says Juliette Spertus, a New York City architect and researcher. "As a result, we have to prioritize waste on the curb, especially food waste, because restaurants have collection all the time."

Spertus — who curated the 2010 exhibit Fast Trash about New York's lone vacuum-waste system on Roosevelt Island, which was installed in the 1975 and is still in operation — says it's not just the sidewalks that suffer. "Buildings in New York City, their staff and residents, spend outrageous amounts of time handling waste," she says. "They are always sorting trash, managing compactors, and shuttling bags and bins. On Roosevelt Island, building supers spend no time on this stuff. It's just not an issue."

Both the Roosevelt Island and Wembley Park systems were built by the Swedish firm Envac, whose founder, Olof Hallström, is credited as the inventor of pneumatic waste collection. His firm was initially in the business of installing central dust vacuum systems. In the late 1950s, Sweden's Solleftea hospital asked Hallström if it was possible to vacuum up all the trash as well as the dust. The idea wasn't that far-

fetched. Beginning in the 1850s, the major cities of Europe all installed networks of pneumatic tubes to shuttle mail and other messages between downtown buildings and offices. Berlin's *Rohrpost* network featured nearly 250 miles of tubing at its peak; Paris' *poste pneumatique*, the world's most extensive, had over 290 miles.

By the 1950s, pneumatic post had been displaced by telephones and mail trucks. But Hallström believed the technology could still have a future in trash. He designed the system himself, and it was installed at Solleftea hospital in 1961. Four years later, the Stockholm-area municipality of Sundyberg installed Hallström's system in a municipal housing development — its first use in a residential setting.

At Wembley Park, waste is transported underground via three separate chutes to a local collection center for pick-up and removal, reducing contamination of waste streams as well as truck traffic. (Credit: Envac)

How it works

A typical vacuum waste network starts in the garbage-chute room of a residential high-rise. Typically, that chute leads to a dumpster bin in the building's bowels. In pneumatic systems, the chute connects to an

underground pipe that leads directly to a neighborhood waste collection center.

Early pneumatic systems featured a single chute. Today there are multiple inlets, one for each waste stream. Wembley Park's pneumatic collection has separate inlets for three waste streams: non-recyclable waste, dry mixed recyclables, and organics. The ease of this system has doubled recycling rates and collected five times more organic material, compared to U.K. national averages.

As residents deposit waste down their respective chutes, it comes to rest atop a valve that opens into the main underground pipe, called the trunk line. The valves are opened one at a time, allowing each stream to flow separately through the trunk line to the collection center. Each stream's valve is opened on a regular basis, whether daily or bi-weekly. In other words, vacuum waste systems still operate on a collection schedule, but residents never need to worry about missing the truck.

The system's pneumatic tubes are powered by large vacuum pumps located in the collection center. The pumps are powerful enough to transport waste at speeds of up to 40 miles per hour. That requires a lot of electricity, but the pumps don't operate continuously; rather, they run only as the system's valves are opened. Wembley Park's vacuum waste system consumes 300 kilowatt hours of electricity daily. That's about one-tenth of a kilowatt-hour per day for each residence served by the system, roughly equivalent to the consumption of a 100-watt incandescent lightbulb for 70 minutes.

Once the waste arrives at the collection center, a final set of valves directs each waste stream into separate containers. Once full, they're transported by trucks for final disposal. In Wembley Park's case, recyclables go to a materials recovery facility, non-recyclables to a waste-to-energy plant, and organics to a digester. Nothing goes to a landfill.

As a final benefit, the system dramatically reduces truck traffic (and related diesel emissions), because trucks now pick up waste from the collection center instead of combing the entire neighborhood. In Wembley Park, truck movements for waste collection have been reduced by 90 percent, saving more than 400 tons per year in carbon dioxide emissions. That figure is expected to rise to nearly 700 tons per year once the redevelopment is complete.

Higher upfront costs, but many benefits

Given their advantages in both curbside cleanliness and sustainability, vacuum waste systems have been surprisingly slow to catch on. Pneumatic collection runs counter to the age-old norms of curbside collection in more ways than one, and old habits are hard to break.

One of the most common criticisms of vacuum collection has always been that, as fixed infrastructure, pneumatic collection is inflexible to changing waste management needs, such as the adoption of recycling programs. But the higher recycling rates in Wembley Park (and in Sweden) suggest that pneumatic collection has adapted better to

recycling than traditional collection and its proliferation of color-coded bins.

In addition to vacuum waste's undeserved reputation for inflexibility, it is also frequently criticized for being expensive. According to Benjamin Miller, New York City's former director of policy planning for waste management, this is partially true. "Vacuum waste systems require an extra layer of planning, and they require significant upfront capital investment," he explains. The infrastructure typically needs to be installed, and the collection center built, before a single resident moves in. "That raises new questions about who pays for what."

In Wembley Park, the numbers crunched favorably for everyone. According to a 2011 report prepared by Brent Council, the up-front capital costs for the Envac system amounted to more than $16 million. Once built, however, its operation has come at substantial savings: that same Brent Council study pegged the operational cost of the Envac system at under $275,000 per year, compared to the nearly $900,000 annual cost of curbside collection. To make the finances work, the borough and the developer arrived at a unique arrangement: the developer would pay for the system's construction and operation, while the borough would pay for part of the collection service.

"The borough is responsible for residential waste, but businesses arrange their own disposal at their own cost," explains Whyte. "The challenge of the vacuum system is that it collects waste from residents,

hotels, restaurants, and other businesses all at once. We had to agree on a formula for determining what fraction of waste was residential."

The borough reaps some savings from the system's higher recycling rates. "For Brent, there are financial and sustainability benefits to the arrangement," says Whyte. The developer, meanwhile, reaps substantial economies of space from the system, because it eliminates the need for bins, dumpsters, and sorting and storage areas in the bowels of Wembley Park's buildings. At one site, the 295-unit Landsby development, the vacuum collection system resulted in an additional 2,000 square feet of retail space.

Estimates suggest that, once Wembley Park is complete, the pneumatic waste system will have saved a total of approximately 30,000 square feet — areas that can instead be repurposed as retail, office, residential, or common space.

The world's waste awaits

While vacuum waste collection is still rare compared to curbside pickup, its adoption may be on the rise. Norway's second-largest city, Bergen, is installing one of the world's largest vacuum waste systems, with nearly 5 miles of underground pipe. In 2018, Singapore changed its development requirements so any project of 500 apartments or more must collect waste and recycling via vacuum tubes, and gave itself the authority to designate whole districts as pneumatic waste collection zones.

North America remains a laggard, but some promising projects are underway. In New York, Benjamin Miller and Juliette Spertus have teamed up to create Closed Loops, an organization whose objective is to bring pneumatic waste collection to the city. The two met while working together on a pneumatic waste collection research project at the City University of New York. “We’ve been working together ever since, trying to catalyze these kinds of projects,” says Spertus.

Spain

Spain votes 'no' to manual waste collections, says Envac

Written by: Editorial staff | Published: 01 February 2016

Comment on this article

Traditional methods of waste collection could soon become a thing of the past in Spain after a survey revealed that 86.1% of people preferred using Envac, an underground automated vacuum waste collection system as opposed to relying on manual collection methods using waste collection vehicles.

Envac said the findings also revealed that 89.3% of respondents would urge their local authority to consider installing their system if they moved to an area where it was not in place and 89.9% of people believe that Envac contributes to creating cleaner spaces and 'more pleasant' urban environments.

This compared with 85.4% of respondents who felt that traditional waste collection methods are responsible for traffic problems.

The survey, which included 2,151 respondents across Santander, Alcobendas, Majadahonda, Vitoria, Zaragoza and Seville, polled existing users of the Envac system.

The survey also revealed how:

- 94.5% of respondents approve of the Envac system
- Almost 80% of people believe that Envac is less polluting and emits less carbon emissions than traditional methods of waste collection
- 86.4% felt Envac was more convenient to use than traditional methods of depositing waste
- When users were asked why they approved the system 39.7% claimed that it was easy to use, 33.4% felt that it was clean and 11.1% cited that it was because the system is odour-free.

Carlos Bernad, president of Envac South Europe & Americas, said: "These findings are indicative of changing global perceptions when it comes to waste collection. In order to bring waste collection into the 21st century and align it with most other modern day services, we must accept that manual

methods of collection are out-dated, heavily polluting and do not add any value to the urban realm. Envac's automated underground system not only reduces carbon emissions by up to 90%, but it is also a vehicle for cities to futureproof their waste collection strategy, eliminate unsightly and often overfull bins and create environments where people genuinely want to live and work. We welcome these findings and believe that this is a major step towards modernising the waste collection landscape not only in Spain, but also worldwide."

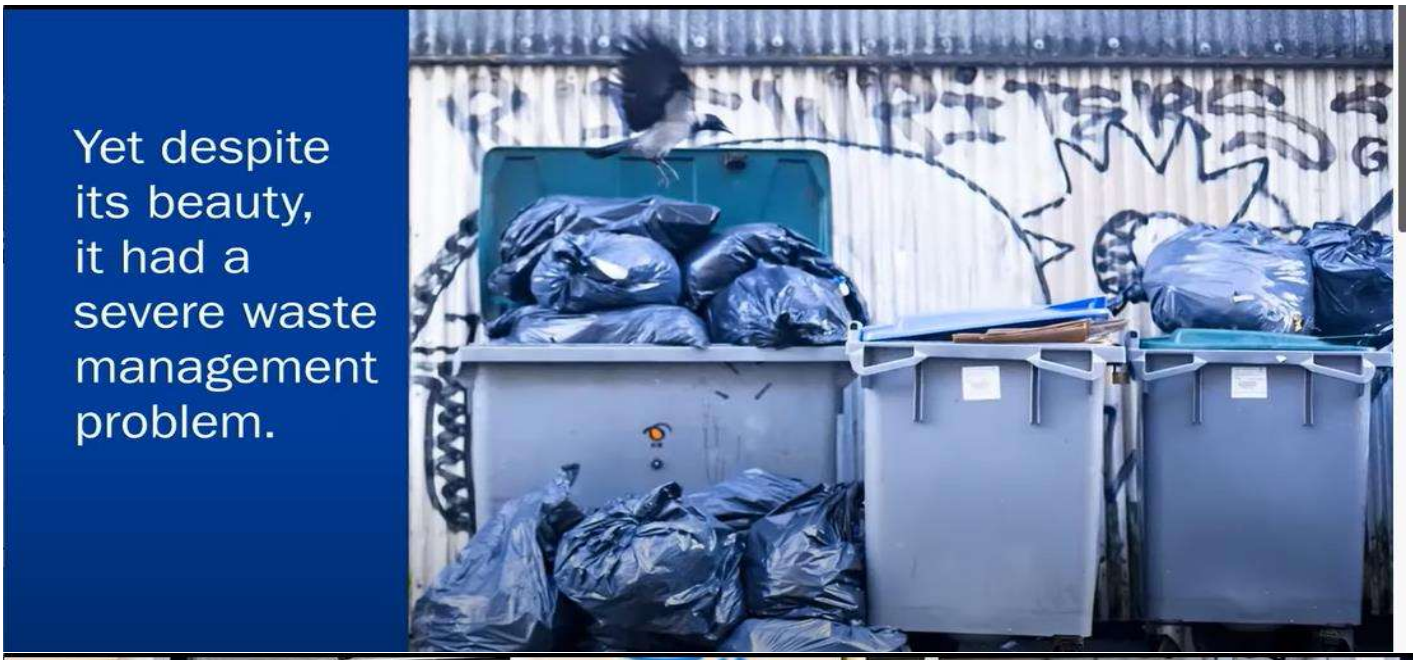
Norway


Underground Refuse - A Better Waste Collection Method
HOW BERGEN SOLVED IT'S ESCALATING WASTE PROBLEM
Play (k)
0:07 / 3:56
Scroll for details


What made us decide to install a vacuum waste collection system
What made us decide to install a vacuum waste collection system


VOLD
BERGEN
was that early in 2000 we saw how traditional waste handling

THE CHALLENGE


Yet despite its beauty, it had a severe waste management problem.


Play (k)
0:40 / 3:56


We needed to limit the need for heavy vehicle movements
Play (k)
We needed to limit the need for heavy vehicle movements.
0:43 / 3:56


We needed to minimize the risk of fires
We needed to minimize the risk of fires.
0:47 / 3:56


We needed to reduce damage coursed by pests, like rats
Play (k)
And we needed to reduce damage caused by pests, like rats.


HE SOLUTION


Bergen decided to relocate its waste handling infrastructure...
Play (k)
1:02 / 3:56

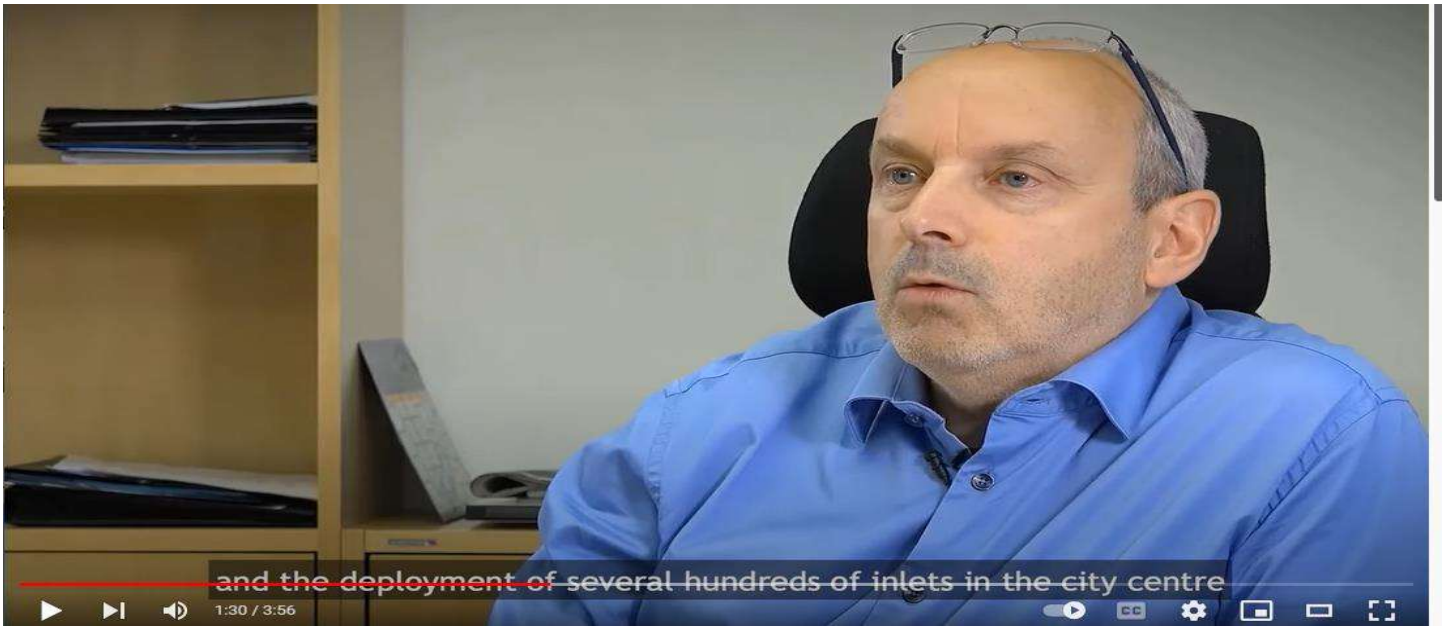

...alongside the rest of the city's utilities: underground
Play (k)
1:05 / 3:56


Play (k)
It is a very large and difficult issue to manage,
1:09 / 3:56


After a long and thorough process
and after a long and thorough process
1:16 / 3:56


To invest in vacuum waste collection
Play (k)
to invest in vacuum waste collection.
1:22 / 3:56


Sone
The design of the waste inlets


and the deployment of several hundreds of inlets in the city centre
1:30 / 3:56


Papir
Drikkekartong
Plastemballasje
has been very demanding!
1:32 / 3:56

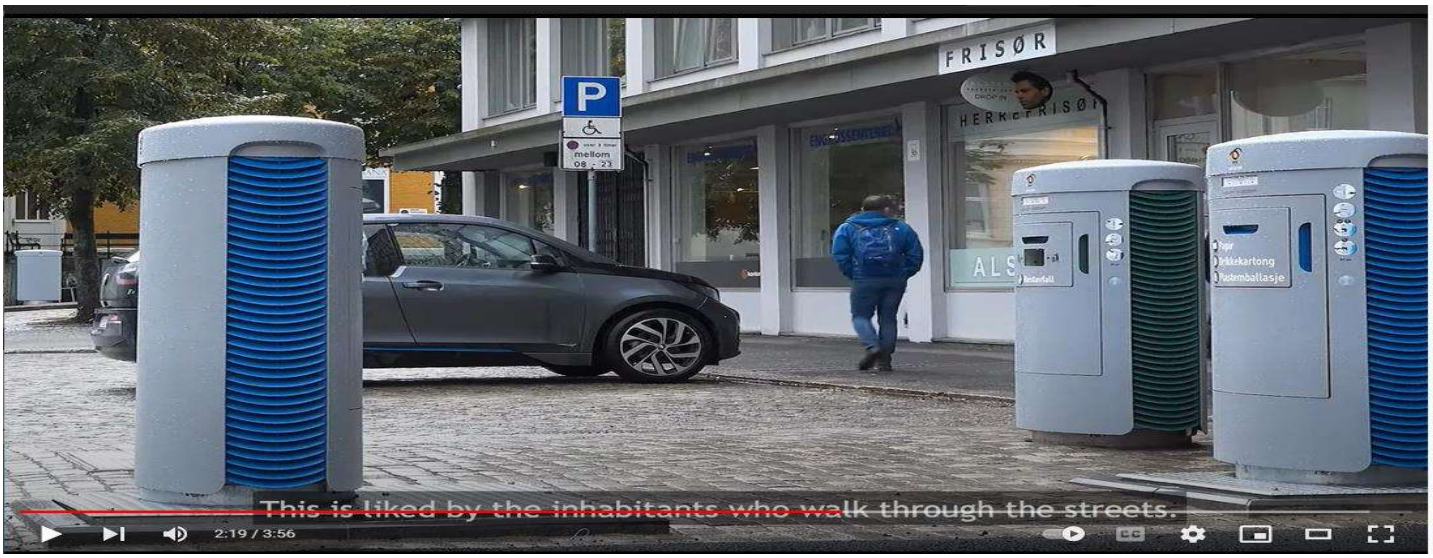

Papir
Drikkekartong
Plastemballasje
Therefore, we had to develop both a new design - the Bergen line - with Envac
1:34 / 3:56

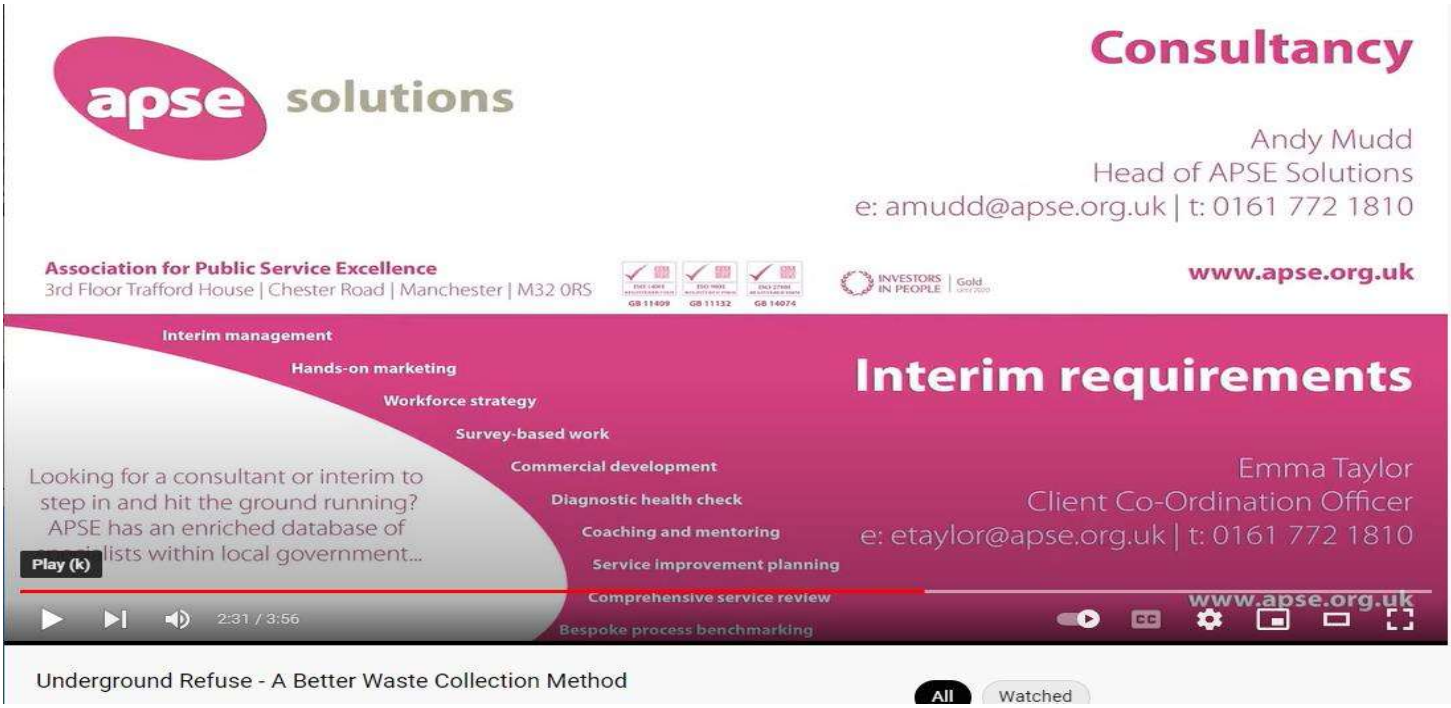

RESIDUAL WASTE
PAPER & PLASTIC
SELF EMPTYING LITTERBIN
CARDBOARD
GLASS & METAL
Play (k)
and new guidelines for the deployment of waste inlets in the city centre.
1:45 / 3:56


Restavfall
LARS-PETTER JØRGENSEN
OPERATIONAL MANAGER, BIR NETT AS
Play (k)
they hold the RFID to the inlet and the inlet door opens.
1:55 / 3:56

THE RESULT


Play (k)
The immediate effect is that the streets are cleaner
2:11 / 3:56



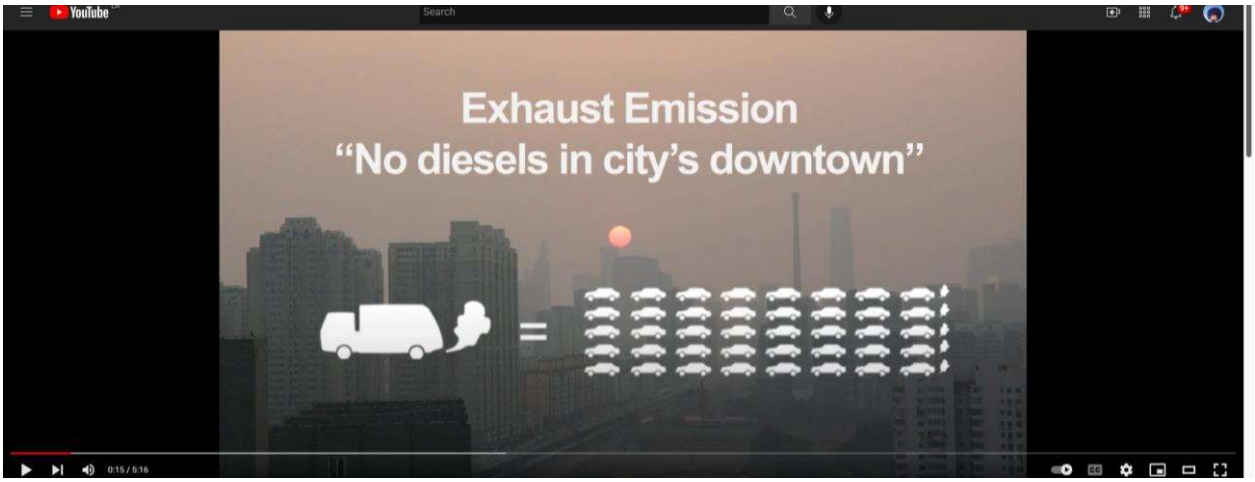


Underground Refuse - A Better Waste Collection Method

All Watched

Final


YouTube
Search
MetroTaifun
Automatic Solid Waste Collection
Total Collection System
For Areas Connected with Metro Network
0:01 / 5:16


YouTube
Search
Exhaust Emission
“No diesels in city’s downtown”
=
0:15 / 5:16