**Urbaser Management Co. Interview**

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| **Topic** | **Key Takeaways** |
| Waste Collection | * When and where to go is all issued by the municipality. * Waste collection for areas depends on the location, but is typically collected 1-5 times per week per location for residual waste. Recyclables collection frequency also varies. |
| Union | * There is an agreement with their labor union that lists how many bins a collector can move per day and per week. * 2 months paid vacation. |
| Waste Routing Planning | * Urbaser uses a database created by their IT department to collect all of the collection points from the municipality (ASK). This data from the database is then uploaded into a system called BatchGeo. This system maps out every point around a map and allows them to separate collection areas into districts. Once the districts are assigned by management, they allocate waste vehicles for each district. * Urbaser does not take into account the truck capacity when planning routes. If a truck is full, Amager Bakke is close enough that they can drive back without problem. |
| Waste Routing Planning (Districts, drivers, rules) | * Waste collection is handled in districts for each team. There is a team of 2 for each district and then a large group that makes up 3 districts. These 3 districts consist of 3 teams (6 people) and one variable employee who works while other drivers go on vacation. |
| Waste Routing Execution (navigation, GPS, systems) | * The drivers are the best to plan routes. * All of the drivers know their routes and where to go. Upon request the drivers can receive a map of where all of the collection points are. All of the drivers know how to navigate the city and where everything is so they almost never have any issues navigating to a specific area. * TraffiLog is used back at the office to monitor drivers locations and driving habits. This system uses an accelerometer to track “good” and “bad” drivers in their fleet. * Evolution Collector is used for underground waste collectors as the points are more spaced out. This also tracks the weight of each bin that the crane to lift from each point to have data on lift requirements. * Navigation systems were used in the past to allocate drivers, however they noticed that giving the drivers the freedom of where to go actually made them finish their runs earlier as the incentive was always the ability to go home once you finish for the day. |
| How They Receive Customer Information | * The municipality releases the data of where and when to go and it is sent to Urbaser. * Customer grievances are managed by the municipality and solved by Urbaser. |
| Customer Service | * If collectors cannot collect waste at a specific place, they take a photograph and explain why they could not collect at that point and send it back to the office at Urbaser. Urbaser then forwards this to the municipality who will then forward/contact the customer. Collection issues are dealt with by Urbaser, but managed by the municipality. |

**Waste Collection Company Interview Questions:**

* **What is the frequency for each fraction being collected? Do you schedule what you collect for each day of the week? What system is used to determine which areas are collected and when?**
  + It depends on the location, but 2-4 times a week.
  + The decision is by the property owner/company of how often (for example if the owner wants it more, they can request it/if the company sees the bins are empty for the majority of the time they can decrease the amount of times they visit.
  + Basically, the municipality gives the data of where and when to go which goes into a database made by the company. This database imports all the data into the programs they use such as TraffiLog and Batcho.
  + “They will have a new map for every single day.”
    - They already know where to go, but the maps are available for drivers on new routes.
  + Residual handles residual, recyclables handle recyclables.
    - Meaning thye don’t like to mix the trucks. Drivers who collect a certain fraction generally collect the same fraction (except for crane operators as they get all underground waste).
  + There is an agreement with local union of how many bins workers can take per day and per week.
* **Can you provide us with route maps for your current collection? How were the routes set up and modified throughout time?**
  + Batcho,
    - Online system, maps out everywhere
    - “The drivers are the best to plan the routes”
    - They just show where to go.
    - When they tried using GPS, it took 1-2 hours longer everyday to follow that route.
    - If they don’t know the route, they will get a paper that list every address as well as a map where everything is.
    - The system does not take into account weight because it says it on the truck and ARC is close so it’s really not trouble to drop it.
    - Their IT department created a database where they can put all of the addresses in. Then when that’s in there they can upload it to Batcho they can route plan.
  + How many bins, how many men, and how many trucks
  + Tony Oddison-Going to use the system so we could see next week?
* **When planning routes, what factors affect your planning software? Do you take into account parameters such as traffic, truck compartment limitations, and seasonal variations?**
  + They obviously will assign a specific truck for different fractions (such as a crane needed to collect underground or multiple containers in a truck for different fractions of waste.
  + Not traffic, but in the past they used A LOT of data to determine before.
* **What labor laws did you pay particular attention to when planning routes?**
  + How many bins their labor can actually collect as said by their union.
  + It’s an agreement with the union.
* **Can you explain the management of shifts and when each route is allowed to begin?**
  + Same route every time.
  + The “loose workers” have to know 3 different districts.
  + Vacation Group of 7 people. 2 for one district. 2 for one district. 2 for one district. And one loose worker.
    - 2 primary workers for each district
    - Every 3 districts are made up of 7 people.
  + Municipality determines red routes (routes than can be driven on one hour early).
* **Do you track the trucks via their tracking devices throughout the day? How do you use this information?**
  + Traffilog
    - Logs them and how they drive
    - Uses an accelerometer. Analyzes changes in acceleration.
    - The system will also show the top 10 worst drivers.
    - It goes by how often you drive. The average.
    - So if you drive bad for 1 km, it will look terrible.
    - Takes in to account braking, hard brakes, hard turns
    - They can pull up a map and it will show where they drove, and signs of where they made mistakes.
    - It will show when they use bio gas power and when they use electric power.
  + What symbols mean on driver map:
  + green=not moving
  + blue=driving
  + red=car has done something in the last minutes (using compactor).
  + white=turned off.
* **Why are GPS navigation systems not used in your collection routes?**
  + The best for planning the routes is for them to drive.
  + GPS application is offered to drivers on crane/ mobilsueg cars. Mobile app used on company phones (Evolution Collector).
    - Evolution Collector
    - Bins are not in districts and are thus farther away from each other (hard to navigate)
    - They don’t want to do this, but underground waste is still relatively new so they want to organize it better.
* **What system is used to communicate between company and customer? How are difficulties with collection managed?**
  + The drivers send an email and photo of how they can’t reach waste back to management who then forwards it to the municipality. Situations are handled by the municipality.
  + **Ask** (<- name of the system used) system is used to show people where their waste was and how they can’t access it.
  + Urbaser uses it and the municipality manages it. Urbaser will get the addresses from this.
  + Customers can go on the municipality website to see where they are.
    - They can see when their waste is collected and the next time they will be coming on the municipality website. If they want to see photos of where/why it wasn't collected they will be posted on the website.
* **What is used to power the truck attachments such as compactor/lift? Do you have any data on how much power is used for the attachments on each truck? If electric powered, what charging methods are used for the attachments on your waste vehicle?** 
  + No data on energy consumption.
  + They don’t need to come back to charge. Once it’s dead, they'll just switch to engine power.
  + They have to do 75% of your collection using electric power with the attachments. It’s what their contract states.
    - Sometimes the drivers won't do this and use the actual engine power.
* **What are some issues that you encounter in waste collection? What are some areas that you believe could be improved in the waste collection process?**
  + Earlier or later time to collect waste. It would make it easier.
  + 7am-6PM rush hour traffic is annoying.
  + In the past it was 3:30AM-10PM
    - The change came about in ~2004.
* **What are your procedures for instructing a new driver and train them on a different route?**
  + They’ll print out a map and a list of the addresses. They almost always have them travel on the route for a while too before they end up driving as well so they know the route.
  + In rare circumstances, they will just get the map and go, but either way it is never really a driver because all of the drivers know how to navigate the city well and if they have issues they can always call back. Time is not necessarily the biggest priority for them as they can work within the window no matter what.
  + It’s best for the drivers to plan. They’ll do it the fastest.

**Additional remarks:**

-The two shifts are necessary. Two shifts are imperative.

-If there were no laws,

-3 shifts.

-More advantageous to save money.

-Sounds like they are able to do this by assigning less days worked for the week overall so it could be 3-4 days worked...

-monday, there is a lot more waste. It is for 3 days including extra waste from weekend waste.

-You would need 240 cars for Copenhagen..

-Total capacity for collection trucks is 26 tons.

-Mercedes Econic-3 Axle.

-Waste capacity is 10 tons.

-Biowaste and residual waste can be used together, but everything else, yes it would have to be sanitized.

-They almost never have to switch the cars like that.

**Contacts:**

**Thomas Nissen**

[**t.nissen@renonorden.dk**](mailto:t.nissen@renonorden.dk)

**Rene Mikkelsen**

[**rmi@renonorden.dk**](mailto:rmi@renonorden.dk)

**+4541892206**