Climate Change & Street Cleansing Services

DEMAND

RESOURCE

IMPACT

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Lots of Questions and Few Certainties…

“Should we pick the route that uses the least fuel even if it goes through a Clean Air Zone?”

“Public are asking us to use bio-degradable plastic bags but can they work?”

“Bins made from recycled plastic last longer and are cheaper than metal bins, but is it wrong to use them?”

“Would an electric mechanical sweeper last as long or pick up everything my current sweeper does?”

“We want to have street recycling bins but will DRS make it redundant?”

Can we afford to be wrong about these decisions?

Inter-Departmental Priorities

- Most councils centralise various services – risk of “tick-box environmentalism” in silo-approach

- Various other internal players:
  - Fleet Management
  - Asset Management
  - Procurement
  - IT
  - HR

- Their priorities may not be your priorities

- Increased chance of blocking factors e.g. different staff aptitudes, contract needs, hours of work, skill sets, vehicle prioritisation in workshops

Focus on Controllable Items

- Approx 90% of Street Cleansing budget at BMDC is on vehicles and staff
  - ❑90% of staffing budget is front-line
- 10% of budget depots and consumables
- Waste disposal strategically managed along with all other household waste (volume o/s control)
- Facilities are managed by Asset Mgt i.e. improvement of insulation, water use etc. (fixed budget)
- Biggest environmental impacts within direct control
  - Movement of staff and waste (including stipulated start and finish locations for staff)
  - Volume and nature of consumables e.g. PPE, bins, bags, equipment

Delivery Models

- Many delivery models
  - Input v output
  - In-house, external contract
  - Integrated Street Scene, Unintegrated Street Scene, Silo Services
  - Ward-based, local patches, linear routes, staff-discretion, reactive only

- Did your authority chose it's model with impacts on the climate as the priority?

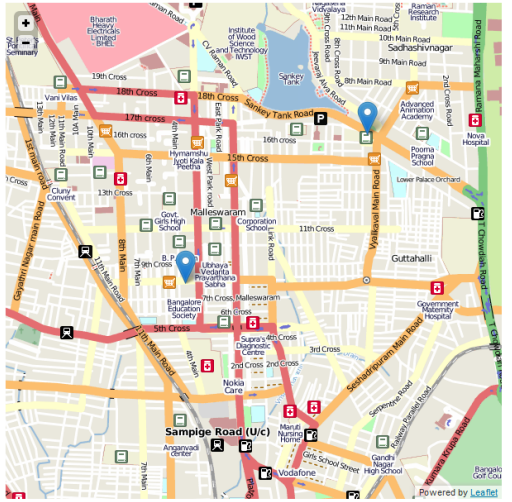
- How were the priorities ordered:
  - Budget > 'politics' > Minimising workforce changes > Frequency desired > Actual demand

- Did Climate Change impacts even get discussed when the model was agreed?

Carbon Footprint of Fleet

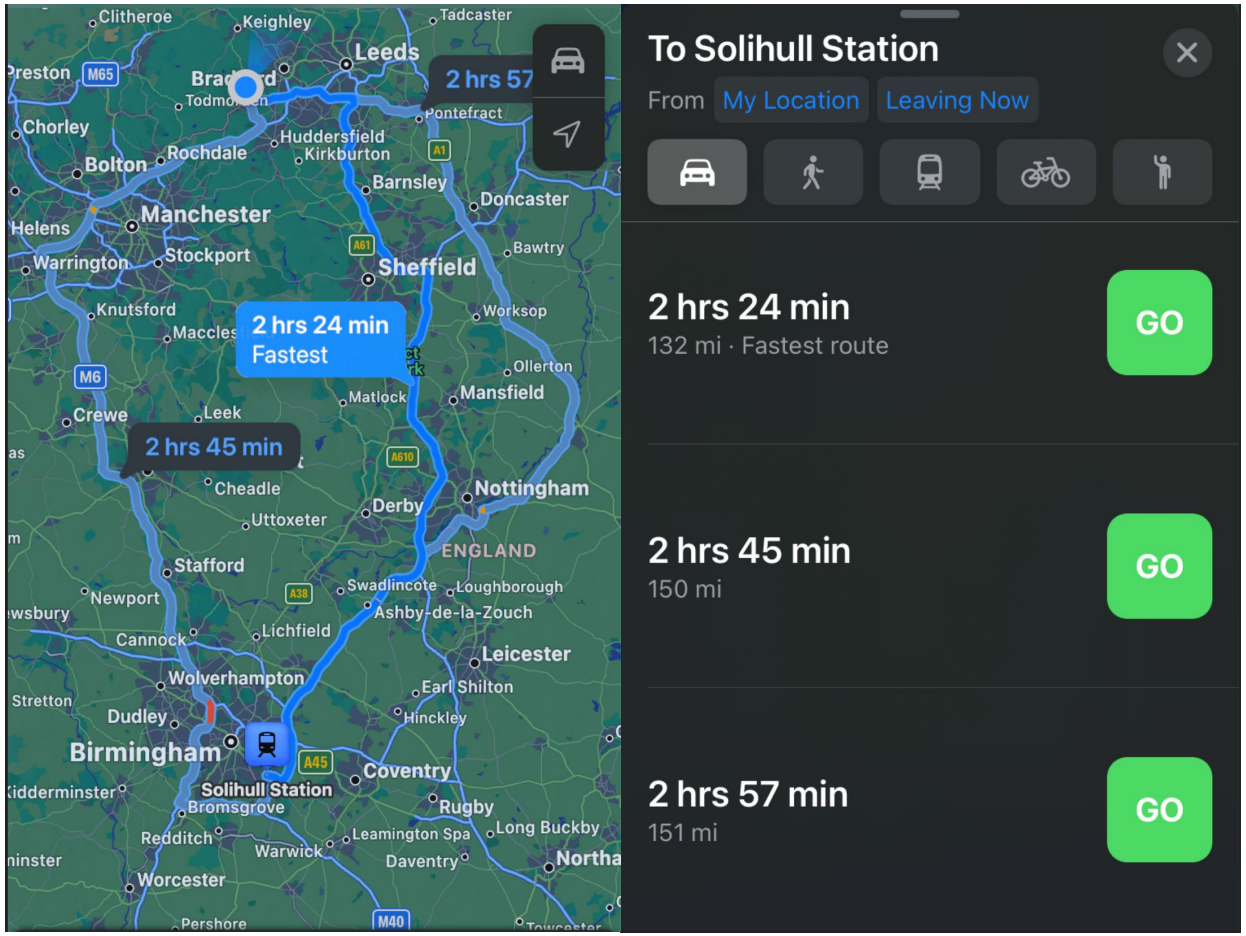
- Traditionally commercial vehicles all diesel powered
- Historic shift to biofuels – still 50% of carbon as regular fuels plus issues about water and farming impacts
- Advances in electric battery technology and other fuels
- Manufacturing footprint: size & lifespan of fleet
- Make / Model: engine performance and emissions
- Consumables and parts
- Less vehicles + less mileage = less footprint

Routed v. Un-Routed



- Aim of reducing fuel use? Routed > Un-Routed
- Minimising human preference as an influencing factor
- Creating a quantifiable measure of impact to evaluate against
- Focus on macro-efficiency not micro-efficiency
- Tipping at optimum points not when full, if multiple tips are likely

Fastest / Shortest / Greenest?



- 14% difference in mileage between shortest and longest routes
- 23% difference in time between quickest and longest routes
- In this example the shortest and fastest are the same - but not always!

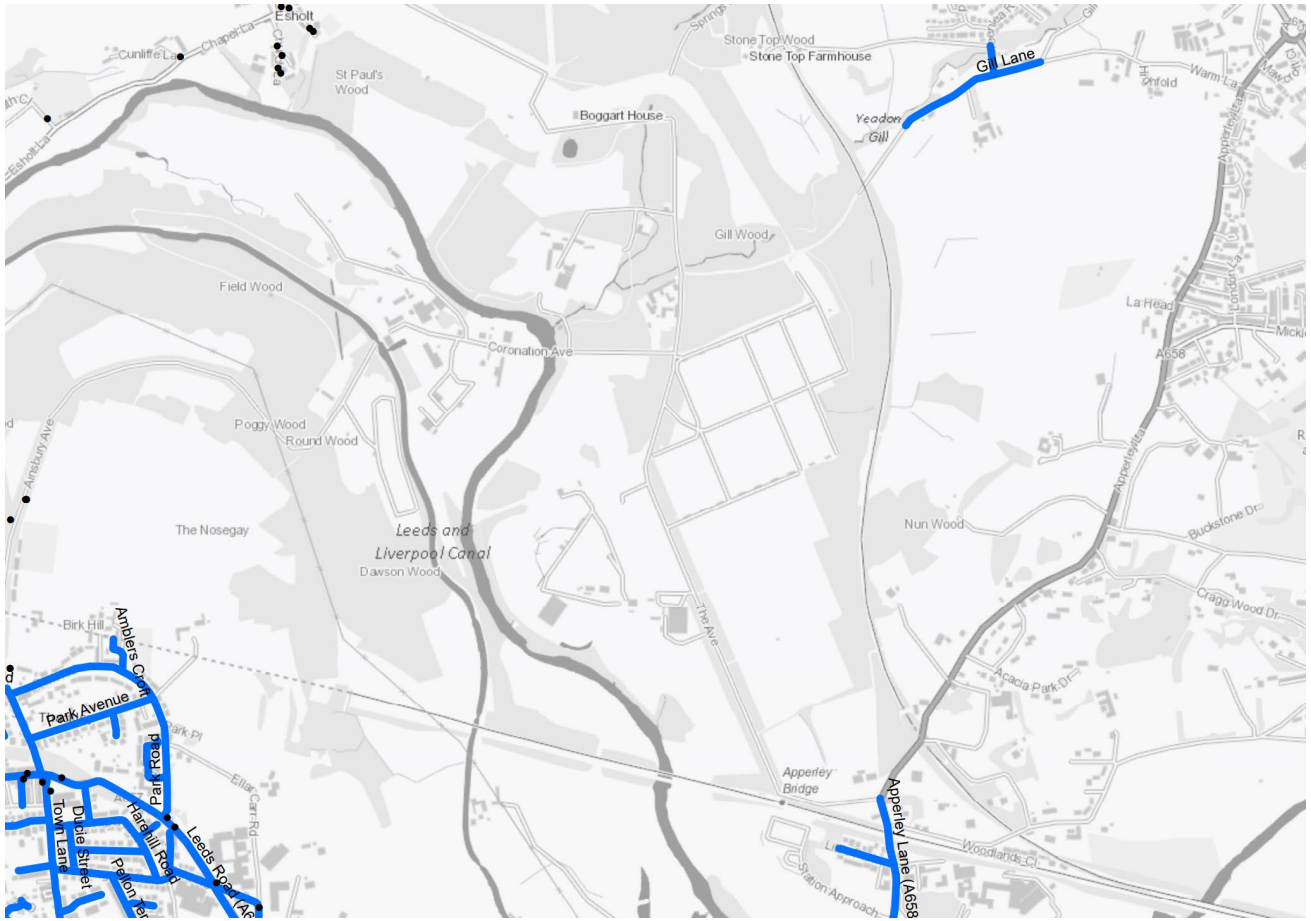
Greenest > Quickest

- The lowest mileage solution is most likely to be the greenest

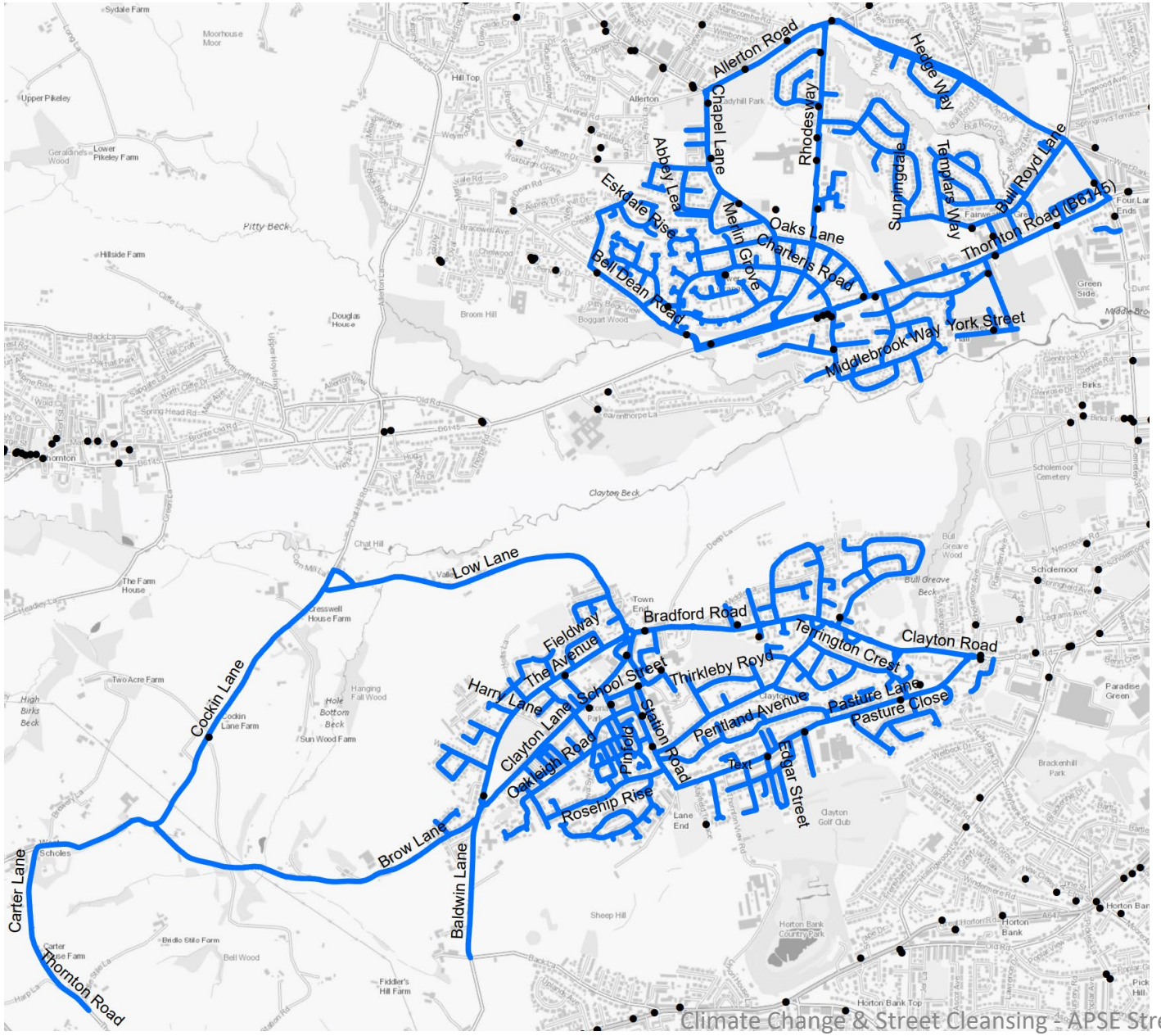
- This will be compromised by the following factors:
  - Idling time in heavy traffic
  - High number of stop-starts
  - Hills / high number of bends
  - Assumed vehicle speed

- Most commercial routing products include ability to prioritise certain variables

Islands



- Illogical District boundaries
- Bradford MDC crews need to travel through Leeds to address isolated streets
- In routing terms these are called “islands”
- Can also occur on long dual carriageways that cross borders increasing downtime on return journeys
- Tricky establishing cross-border agreements



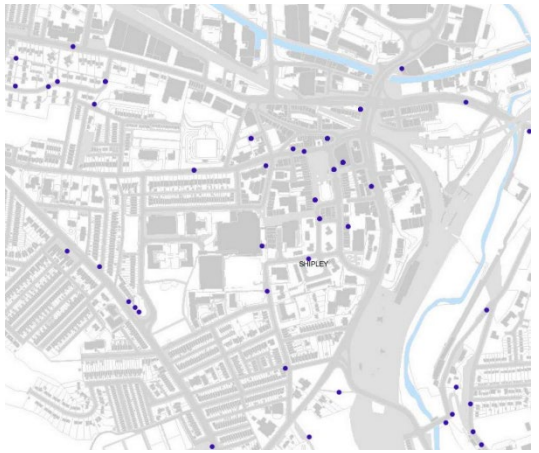
Ward-based Working

- Adopted streets within the Clayton & Fairweather Green Ward in Bradford MDC
- Distinct areas within Ward with no physical relationship
- Need to drive through other Wards
- No staff starting/finishing within the Ward
- Weekly frequencies but some daily need in both halves requiring team to travel

Using Plastic Bags

- BMDC Street Cleansing estimate 1.2m green plastic bags used p/a (48 pallets)
- Do we understand the lifecycle of bio-degradable or compostable bags?
- Several reports critical of biodegradable plastic
- Compostable requires certain conditions
- Understand the downstream process? e.g. BMDC uses a dirty MRF then WTE
- Risk of *'tick-box environmentalism'* whilst increasing cost to service

Litter Bin Estate



- Plastic bins v metal bins: *lifespan and maintenance, manufacturing process, recycling*
- Large estate v small estate: *travelling between bins, different frequencies, replenishment*
- Bags or no bags: *no consumables v operational implications*
- Smart bins v standard bins: *manufacturing impacts v improved understanding and optimisation*
- Smaller estate of bins that are well used, not a large estate of bins sited for appeasement or using up a capital budget
- Data and metrics to build strong evidence-based decision making in siting bins

Alternative Model to Bags

- Use a lightweight container to collect litter whilst picking
- Use liner-only litter bins
- Empty directly in to a transit
- Consideration to lifting and handling and transit accessibility
- Proximity to transit required – increased fleet size?
- Use street based 1100’s or skips rather than transits

Long-Term Planning – Building In Efficiency

- Breaking the cycle of *"waiting for the next budget"* – assume a low-base and plan for long term
- Have a strategy – something the service can be evaluated by, for the full duration
- Long term plan allows alignment of fleet procurement and depot provision
- Use of bins / bags determined by your strategy and fleet provision
- Efficient route planning – not quickest but greenest
- Revaluate staff start & finish locations – manage by output & low-code tech solutions

Long-Term Planning – Building In Efficiency

- Integrated service teams may minimise travelling to some locations e.g. parks & cleansing
- Cross-border agreements for difficult locations
- Formalising local community agreements to reduce travelling e.g. Friends Of groups
- Utilising wheeled bins for litter collection that can be emptied by bin wagons reducing travel
- Sensor-tech at key locations e.g. remote or ones prone to heavy use during good weather
- Maximising proactive cleansing rather than reactive complaints driven process

What’s the BEST way to reduce the impact of Street Cleansing on our climate?

It’s The Same Goal We Always Had!

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- Changing peoples behaviours and preventing litter and fly tipping