



# Freight Environment Review System (FERS)

Presented by Stuart Greenshields &  
Ellie Gould  
30<sup>th</sup> November 2010



# Agenda

- Welcome
- Introducing FERS – Stuart Greenshields
- Introducing the software – Ellie Gould
- Questions



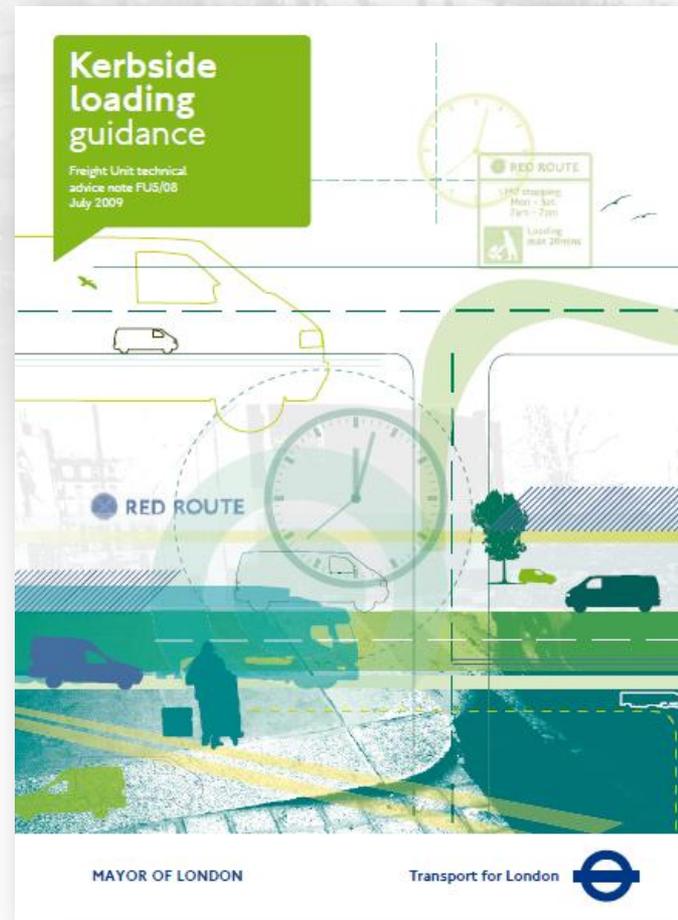
## Understanding our environment

*All truths are easy to understand  
once they are discovered; the  
point is to discover them.*

Galileo Galilei

# History - Kerbside Loading Guidance

- Revealed
  - a need for audit
  - organisational need for consistent freight appraisal
  - a range of common problems
  - no common manner of addressing issues across London (including the Boroughs)
  - a wide range of important factors in freight – some of which were not understood.
- Led to development of FERS



# About FERS

## Freight Environment Review System



### What is FERS?

- FERS is an acronym for **F**reight **E**nvironment **R**eview **S**ystem
- Based upon PERS (Pedestrian Environment Review System).
- Systematic method of assessing the freight environment.
- Audit-based assessment of infrastructure, and how infrastructure is used.
- Developed by TRL for TfL's Freight and Fleet Team.

# Understanding FERS

## Freight Environment Review System

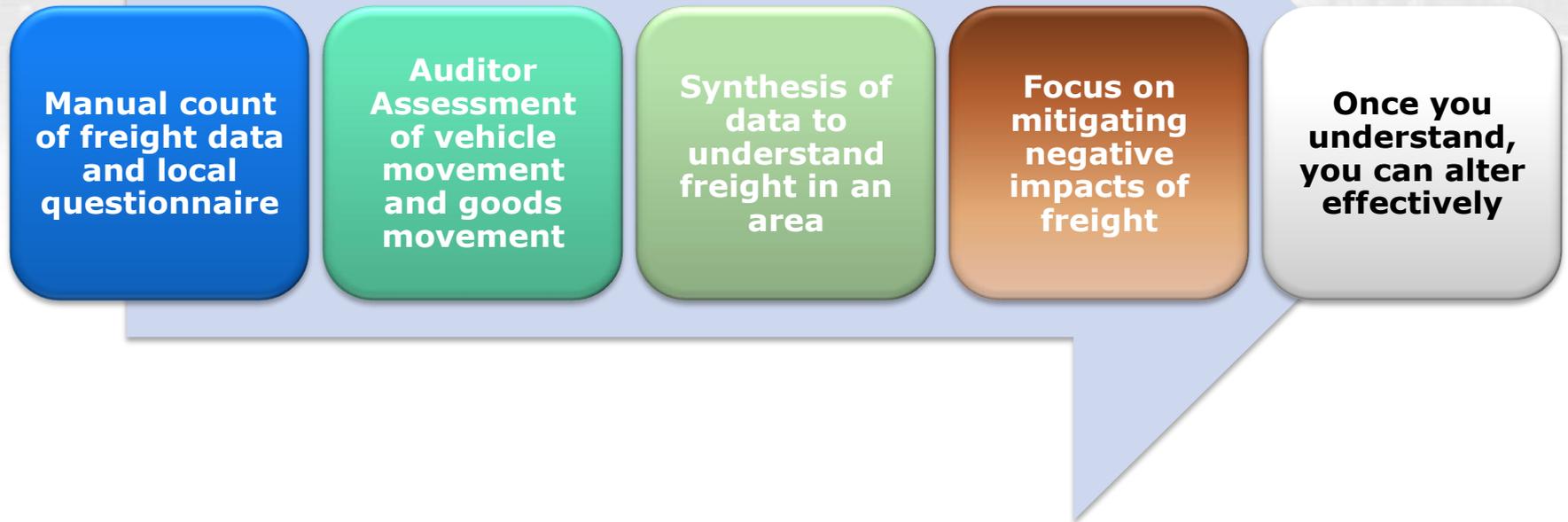


**FERS highlights issues, leaving local engineers, planners, and designers to determine the best resolution**

### What is the purpose of FERS?

- To understand what is happening and what might happen
- To mitigate the impact of Freight
- To provide better for business
- To ensure the legality of signing
- To target investment with evidence
- To compare relative performance
- To see things from a variety of viewpoints

# The FERS methodology



# Understanding FERS



## ■ Street Sections

- The carriageway where freight vehicles move.



## ■ Loading spaces

- The parts of carriageway where freight vehicles stop and the land where goods are conveyed out of the vehicle to the delivery address doorway.



## ■ Specialist Industries

- Types of business that have special needs, including public houses and banks.

## ■ Dataset

- Manual Count data and questionnaires. At a bare minimum this involves stopping location and delivery entrance location, but can be expanded to suit local needs.

# Audit Forms



Street Section Assessment Form					Page 1	
Location:						
Place Name:				Place Reference:		
Auditor:		Date:		Time:		
Contextual description of area:						
Parameter	Checklist Factors	Checklist			Overall Score +3 to -3	Comments
		+ve	-/+	-ve		
Traffic Congestion from Loading Activities	Moving in the street					
	Junction Effect					
	Waiting or circling to access loading spaces					
Safety from moving freight vehicles	Cycle Path Interaction					
	Physical measures to protect footway users					
	Turning freight vehicles					
	Pedestrian crossing interaction					
Infrastructure Damage	Pedestrian/cyclist flows (quantitative)					
	Camelgeway and footway surface damage					
	Vertical Object strikes					
	Kerbstone corner run-overs					
Context suitability						
Comments:						



Specialist Industries - Brewery					Page 1	
Location:						
Premises Name:				Premises Reference:		
Auditor:		Date:		Time:		
Contextual description of area:						
Parameter	Checklist Factors	Checklist			Overall Score +3 to -3	Comments
		+ve	-/+	-ve		
Brewery	Loading time duration restrictions					
	Presence of street furniture					
	Route from loading area to the premises					
	Available space around the loading area					
Comments:						



# Understanding FERS

Parameter	Checklist
Cooking provision	Type suitable for 2
	Suitable for parties
	Suitable for parties
	Suitable for parties
Decision from the double line	Health issues
	Health issues
	Health issues
	Health issues

Parameter	Checklist	Score	Comments
Cooking provision	Type suitable for 2		
Decision from the double line	Health issues		
	Health issues		
	Health issues		
	Health issues		

Factor	Checklist Factors	Checklist
provision	Suitable for parties	
	Suitable for parties	
	Suitable for parties	
	Suitable for parties	

Factor	Checklist Factors	Checklist	Score	Comments
provision	Suitable for parties			
	Suitable for parties			
	Suitable for parties			
	Suitable for parties			

Checklist	Overall Score		
	+ve	=0	-ve

Checklist	Overall Score	Comments

Comments	

Checklist	Overall Score	Comments

## FERS audit components

- Parameters
  - The key components
- Checklist Factors
  - Not exclusive, you can add others
- Scores
  - Likert scale, -3 to +3
- Comments
  - Explain and justify, arguably the most important part of the audit.

# Understanding FERS

## Writing on forms

**Link Assessment Form** Page 1 of 2

Location: Nandorville

Link Name: South Side of Lake Hill from Reservoir Link Ref: L46

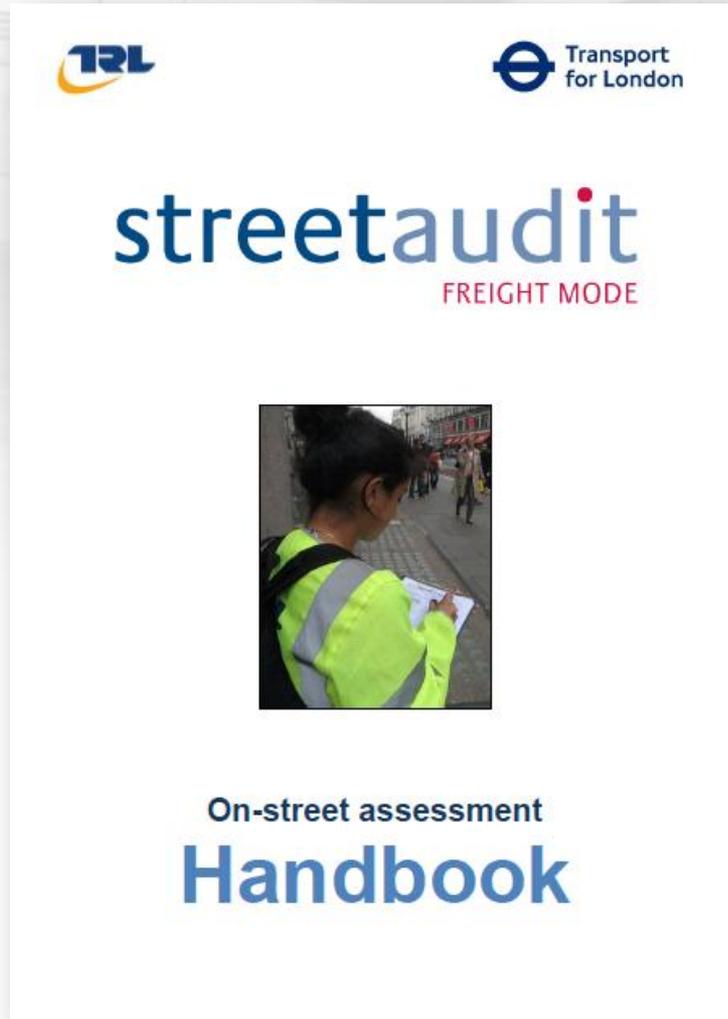
Author: SK Date: 30/8/07 Time: 15:00

(Landscape) Wimbledon Park Road

Parameter	Checklist Factors	Checklist			Overall Score (-3 to +3)	Comments
		Yes	No	NA		
Effective width	Width for pedestrian flow	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+1	There is suitable width for pedestrian flow. <del>It is</del> Owing to the footway
	Weather accessibility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	All sections accessible with	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Separation from traffic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Dropped kerbs	Clearance for obstructions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+1	DK's are located where necessary on the link. Suitable kerbs across Wellington Road.
	Pedestrian congestion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Located on sharp bends	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Adequate capacity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Level drop-off/ramp	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Gradient of drop	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Consistency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Frequency of dropped kerbs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Gradient	Steepness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-1	There is a slight up hill gradient on the westernmost section of the link.
	Obstacles	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Foot paths	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Obstructions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Frequency of dropped kerbs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Obstructions	Presence of obstructions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-1	There are some bollards which help to delineate the cycle path and the footway and these are in the centre of the footway + cause disruption to getting through as they are ahead of the link edge.
	Location of green	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Overhead obstructions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Spacing of bollards	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Surface markings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Signage reduction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Permeability	Frequency of crossing points	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-2	It is very difficult to cross the A3 owing to a lack of formal crossing, barriers and the limited reservation. The starting of the link is the only point where crossing is possible. Lower than the average way with the road.
	Partial conceptual barriers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Traffic flow	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Dropped kerbs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Pedestrian barriers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Signage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

- Remember the purpose – this is the key finding
- Details count – write what the reporter needs to know
- Don't forget to reference
- Score based on what you find, not your first impression
- Make comments legible!
- Comment on each checklist factor if possible.

# Understanding FERS



- FERS Handbook – essential reading for auditors
- Understanding FERS methodology
- Planning audits
- Understanding the parameters
- How to score
- Included in software as a PDF

# What is revealed by the audit?

## Audit

- Suitability of infrastructure for present freight load
- Suitability of infrastructure for future plans

## Manual Count

- Relative importance of infrastructure – more movements = more importance
- Form of movements in the area – understanding suitability for area

**Fundamentally information which can allow evidence-based decision making**

# Understanding Freight Issues

**Reasons for damage? – Why can such freight damage be avoided?**



# Understanding Freight Issues

**Reasons for conflict? – what are the impacts on other users?**

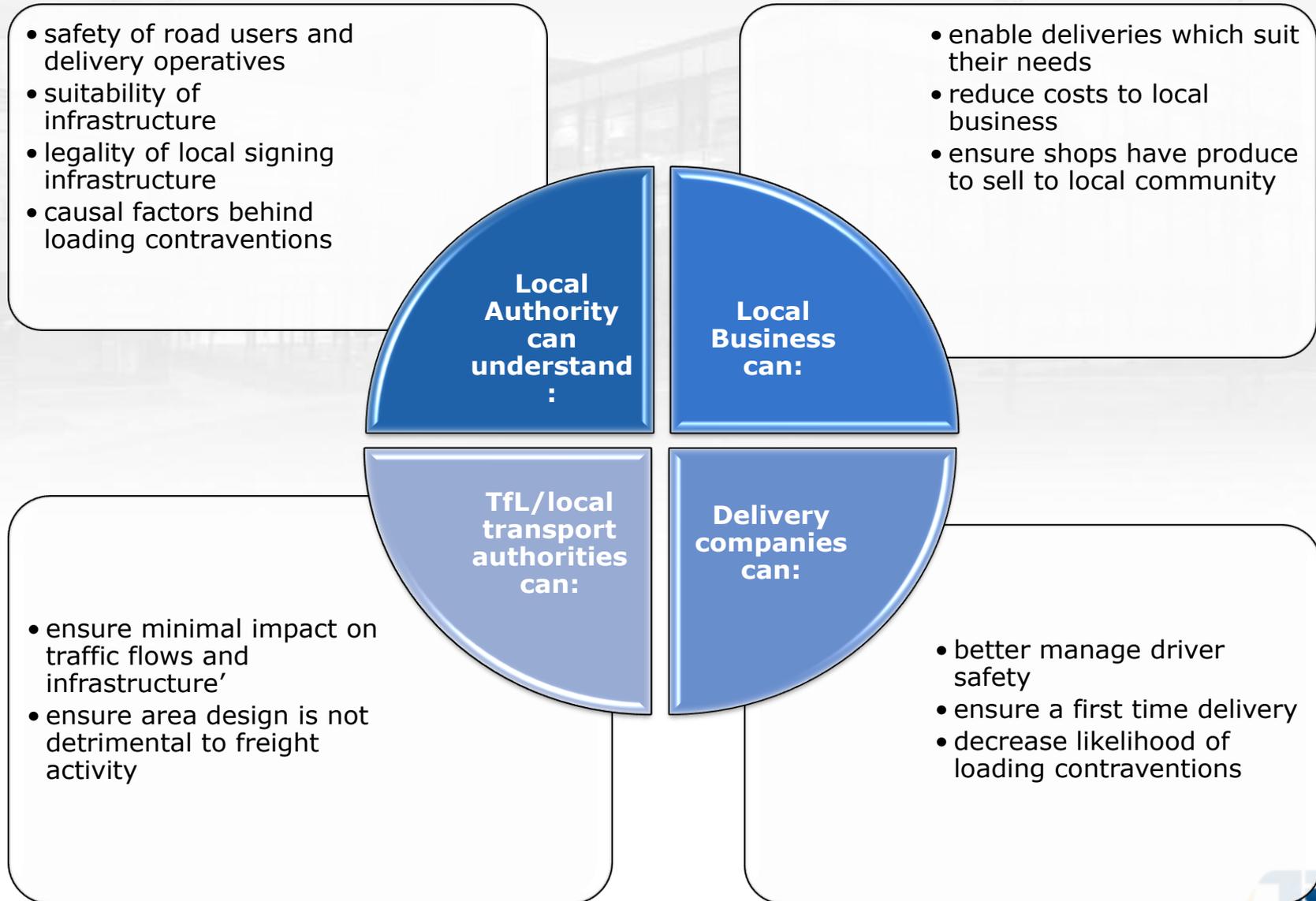


# Understanding Freight Issues

## Reasons for congestion? What is the impact upon targets?



# Benefits to different parties

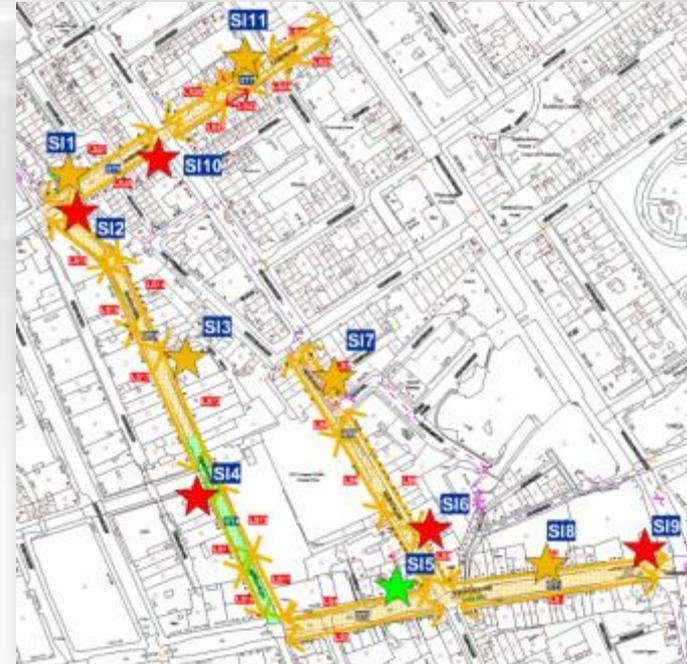


# Oxford Street Case Study

- Works on Oxford Street relating to Crossrail
- Requirement that eastbound buses along Oxford Street were diverted along Newman Street and Goodge Street
- Exit to Rathbone Place and the entrance to Hanway Place was closed at their junctions with Oxford Street.
- Purpose of the study was to understand:
  - the impact of these temporary changes on freight activity in the area, and
  - the potential impact this might have in turn on the bus diversion.
- A FERS audit was undertaken in the area and a full report provided to TfL.

# Mapping and interpreting the results - infrastructure

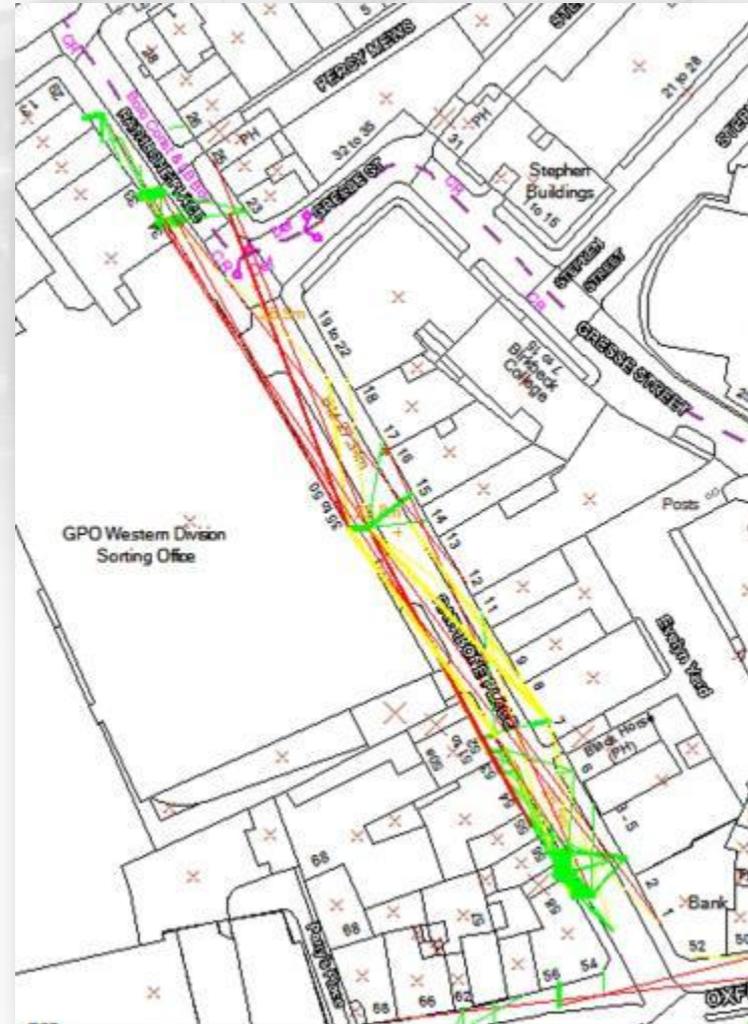
- Mapping the audit
  - Draw coloured areas on maps (areas are the spaces and streets, colours are the RAG)
  - Allow for the quick identification of key issue areas.
- Alternative scenarios can be cross-compared.



# Mapping and interpreting the results

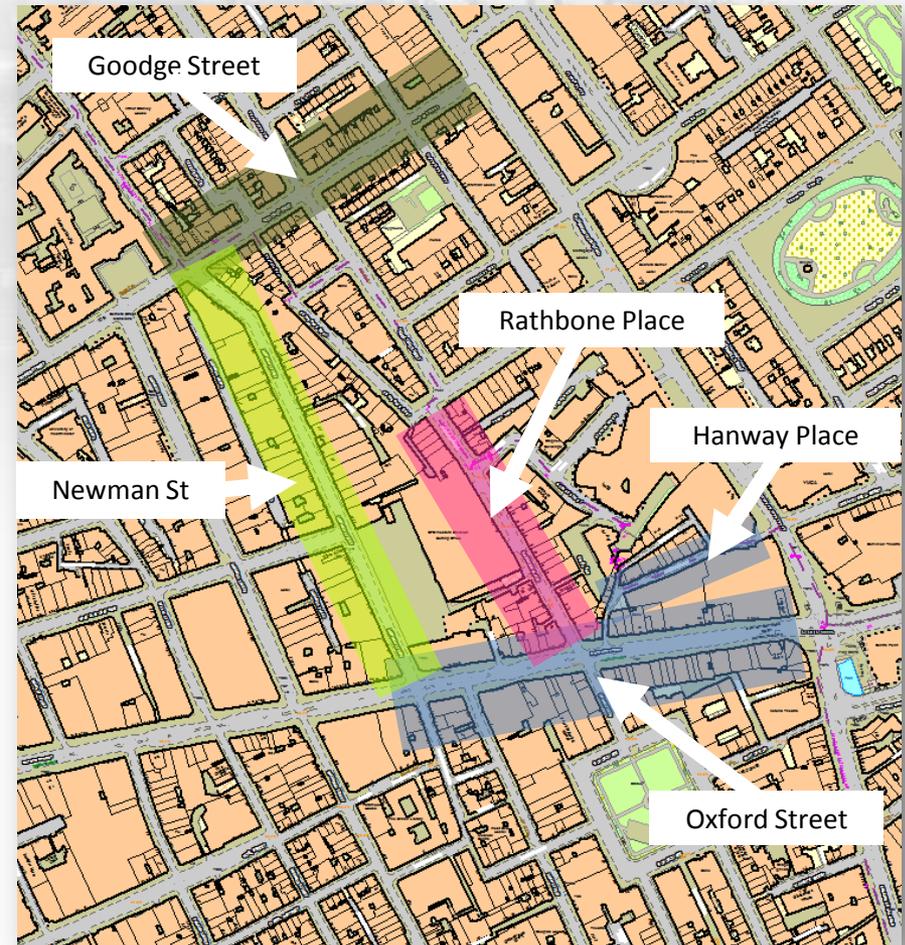
## - usage

- Mapping the dataset
  - Shows where vehicles stop
  - Shows where goods are delivered to
  - Indicates direct route between
  - Allows approximate distance of goods travel (out of vehicle) to be estimated
  - Shows commodity type
  - Multitude of other useful data including vehicle type and stopping duration.
- Using the dataset
  - Cross reference with other maps to determine priorities for action
  - Properly understanding activity.



# Results of Oxford Street East Freight Survey

- KEY: Identified location and timing of direct and indirect issues during bus diversion which allowed for the suggestion of alternatives:
  - Late morning freight peak will be an issue as it corresponds to bus peak
  - Slight movement of loading capacity needed on Newman Street and Godge Street (i.e. across street)
  - Additional capacity required on north of Godge Street, west of Newman Street, and south of Oxford Street with appropriate local signage
  - Temporary and highly managed loading spaces required on Rathbone Place and Hanway Place to handle road closure with appropriate local signage
  - Traffic management required on Rathbone Place to handle road closure with significant signage on advance roads
  - Liaison required with Post Office sorting office on Rathbone Place to allow use of vehicle park
  - Special loading dispensations required for cash in transit and brewery on Oxford Street
  - Prior promotion of this activity required to local businesses and freight operators



# Using FERS in your local authority area

- To evaluate existing or new areas for freight provision
- Developers can be asked to undertake FERS audits to demonstrate the freight provision of new developments
- Can be easily undertaken by staff or consultants
- Useful for those reading FERS reports to have an understanding of the tool
- Training course available (and recommended)
- Full instructional manuals and audit forms available
- Software available to accelerate use of tool

A man in a grey suit is seen from behind, writing on a whiteboard. In the foreground, the backs of three other people's heads are visible, suggesting a meeting or presentation. The whiteboard has the text 'streetaudit' and 'FREIGHT MODE' written on it.

# streetaudit

FREIGHT MODE

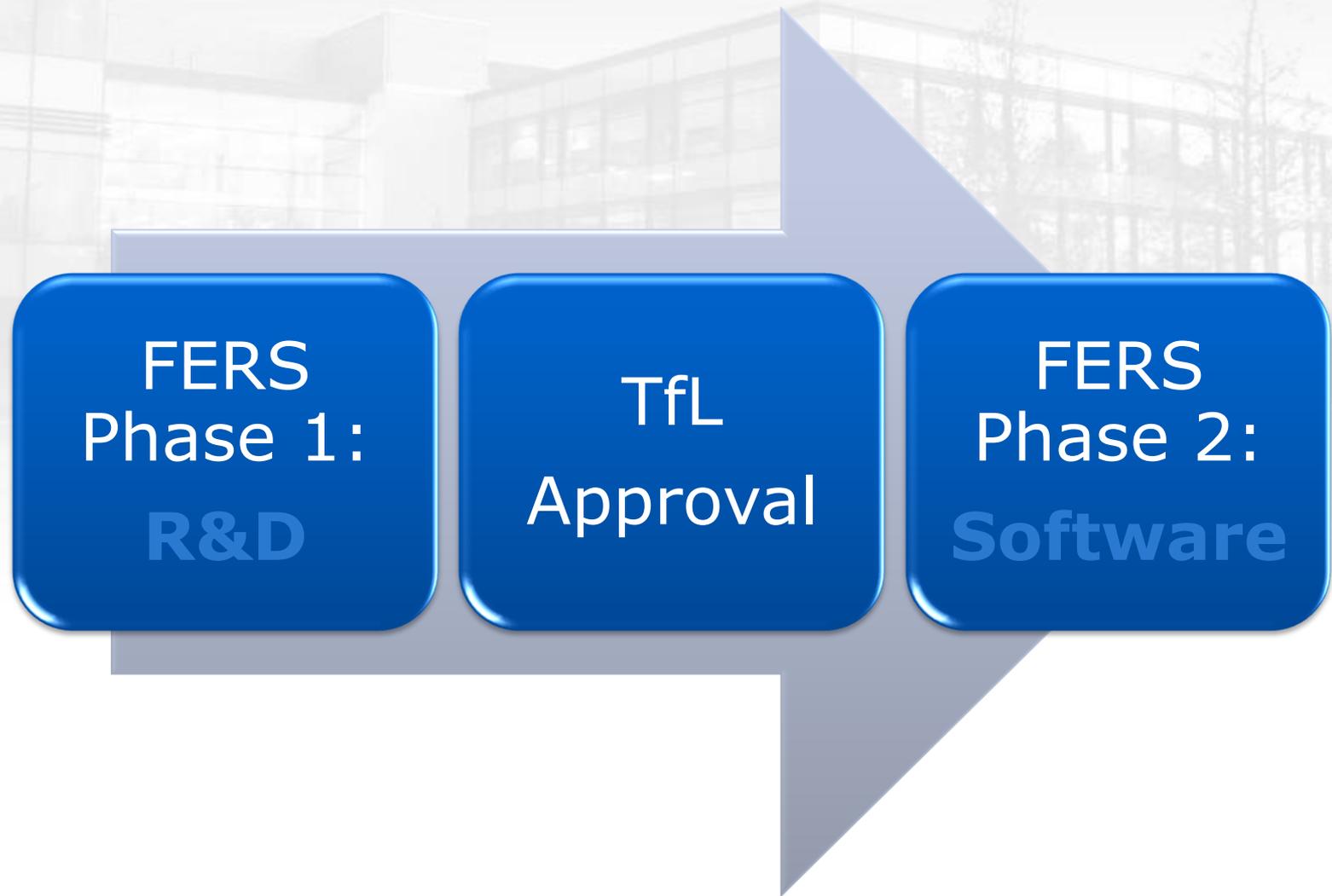
## Introducing the FERS Software

Presented by Ellie Gould

30<sup>th</sup> November 2010

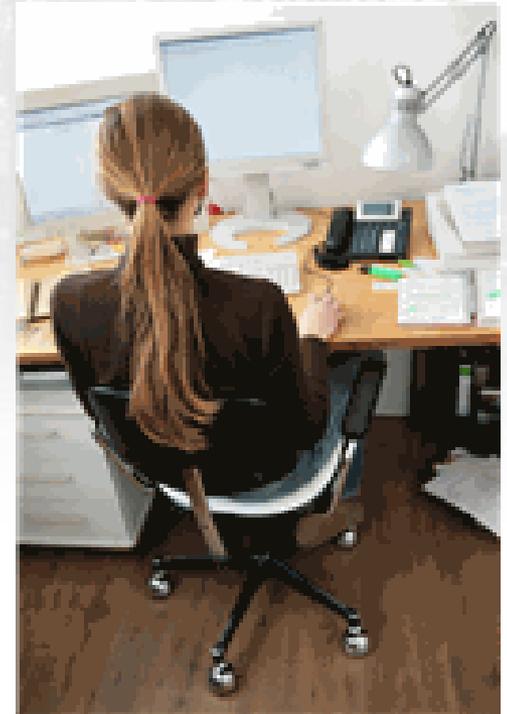


# The Life of FERS



# Why does FERS need a software package?

- We collect a lot of **data** on site
- We need to ensure that **value** is gained from resource-intensive data collection
- **Whole audit** resource
- The software is used for **storage**
- **Manipulation** and **analysis** of the results is far easier
- In built **graphing** and **mapping** tools
- **Export** of results to other packages



# Streetaudit maths

PERS

+

FERS

+

\*ERS

=

streetaudit

# Introducing the software



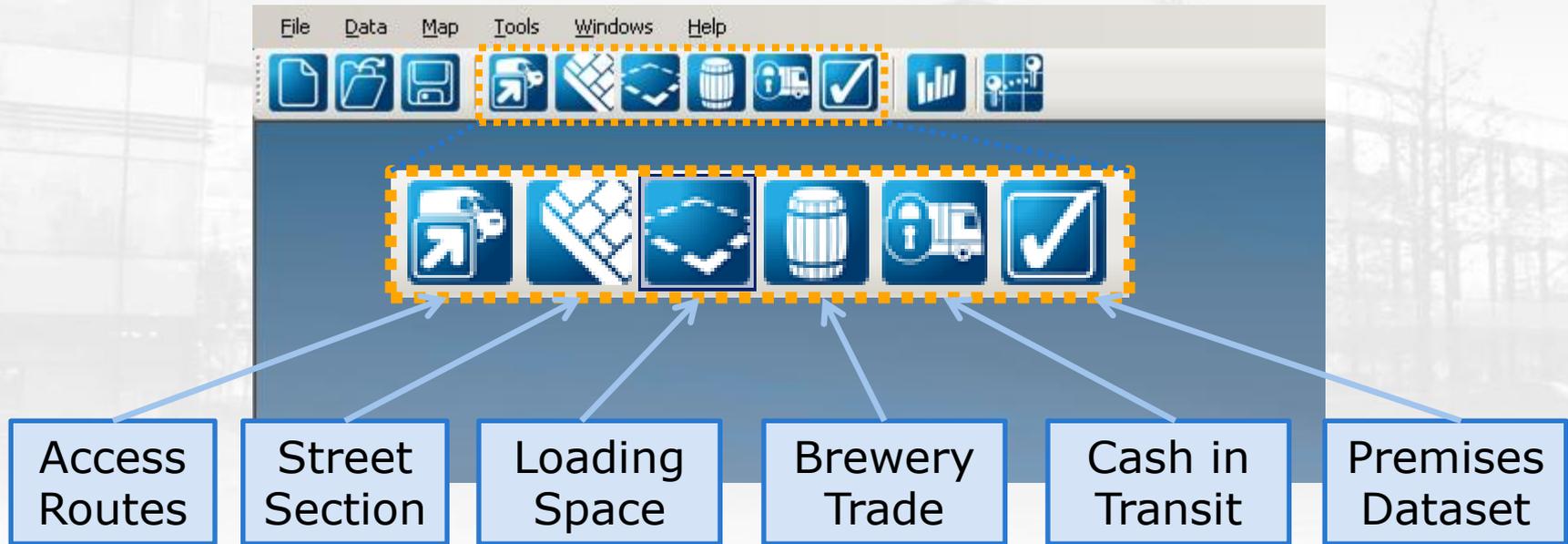
# Main Screen – choosing a mode



- Desktop isn't cluttered
  - One icon serves for all modes
  - It can be expanded to accommodate additional modes



# Opening Data Areas



- Data entry areas match on street forms for ease
- Easy to interpret icons ensure efficient navigation around screen

# Entering FERS Data – Street Section

*Background information*

Street Name: High Street

Time/Date of Survey: 00:00 1/03/10 | Reviewer: Mr. SG | ID Code: ST1

Location Description: South London study

Context: very high traffic flows

Other Comments:

Parameters | Photos

Priority	N/A	Score	Comment	Total Score	% of Max Score	RAG
Neutral	<input type="checkbox"/>	2	Permeability is consistent and generally excellent, with a short	4	67	●
	<input type="checkbox"/>	-1	Freight vehicles are frequent and large, and some manouvre	-4	-33	●
	<input type="checkbox"/>	-2	Lots of evidence of vehicle strikes to infrastructure, most likely	-6	-67	●

Overall Score: -6 | -22

*RAG rating*

*Parameters*

*Score*

*Comment*

*Overall Score*

# Other Data Areas

Premises

Data | Sort | Navigate

Premises Name: Speedy Takeaway

Time/Date of Survey: 00:00 1/03/10 | Reviewer: Mr. SF | ID Code: P1

Business Name: Speedy Takeaway

Building Name/Number:

Premises

Business Type(s)

- Restaurant/Bar/Pub
- Residential
- Newsagent
- Fast Food
- Hospital
- Clother/Shoes
- Supermarket
- Office
- GroceryShop
- Bank
- Retail
- Other

Type of commodity

- Beer Barrels
- Stationary
- Bottles
- Waste Collection
- Cash
- Misc Boxes/Package
- Clothes
- Industrial
- Food
- Other

Handling methods for deliveries

Timing during day of deliveries or

Typical vehicle size

- Car Sized
- >Car, <3.5 Tonne
- >3.5 Tonne, <10 Tonne
- >7.5 Tonne, <18 Tonne
- Other (Scooter)

Delivery/Despatch

- Delivered
- Despatched

Typical number of deliveries per week: 0

Does your business have it's own loading space?

Are all deliveries from the private loading space?

Do you know where vehicles coming to your premises can stop?

Do you know the timing restrictions?

*Premises Dataset*

*Loading Space*

Space

Data | Sort | Navigate

Space Name: Outside 12 High Street

Time/Date of Survey: 00:00 1/03/10 | Reviewer: Mrs. AB | ID Code: SP1

Location Description: South London Study

Context:

Other Comments:

Parameters | Photos | Spaces

Priority	N/A	Score	Comment	Total Score	% of Max Score	RAG
Loading Spaces	<input type="checkbox"/>	3	The loading space seems to more than match observed	12	100	●
Timings	<input type="checkbox"/>	-2	The timings of the space are such that	-6	-67	●
Loading Signage	<input type="checkbox"/>	-1	Signage at the space is confusing, and not well located	-4	-33	●
Traffic Congestion From Loading	<input type="checkbox"/>	1	Traffic congestion does not appear to be problematic except	2	33	●
Footway User Conflict	<input type="checkbox"/>	-1	There is a degree of			
Safety From Moving Freight	<input type="checkbox"/>	2	There is good safety			
Infrastructure Damage from Freight	<input type="checkbox"/>	1	There is evidence of			
Barriers	<input type="checkbox"/>	0	There are some nota			
Driver Health And Safety	<input type="checkbox"/>	-2	Driver health and saf			

Cash In Transit

Data | Sort | Navigate

Cash In Transit Name: Halifax Bank

Time/Date of Survey: 00:00 1/03/10 | Reviewer: Mrs. AB | ID Code: C1

Location Description: 123 High Street

Context:

Other Comments:

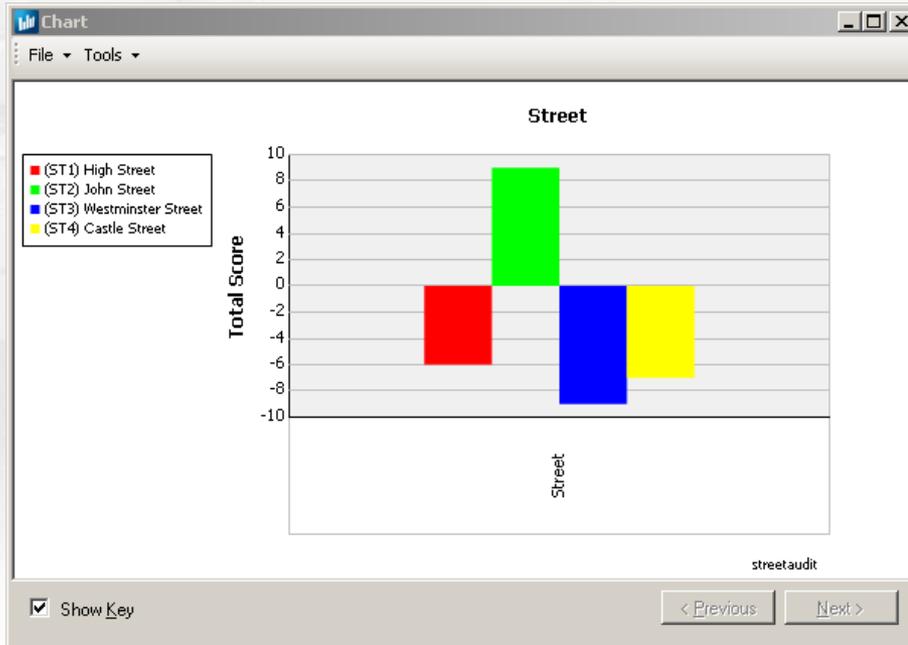
Parameters | Photos

Priority	N/A	Score	Comment	Total Score	% of Max Score	RAG
Cash In Transit	<input type="checkbox"/>	-1	The cash in transit delivery cannot be undertaken effectively	-4	-33	●

*Cash in Transit*

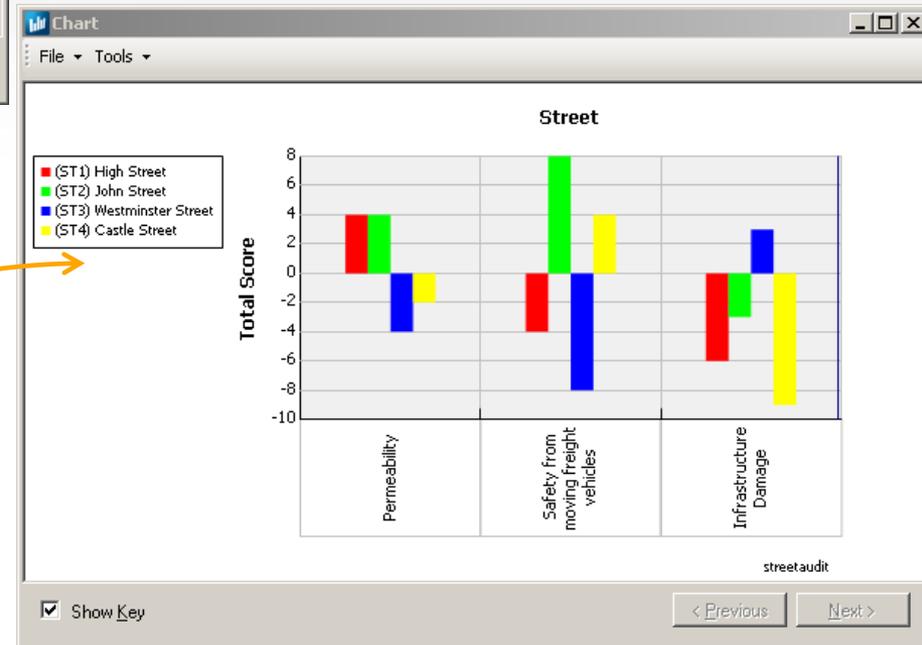
Overall Score  
-4 -33 ●

# Manipulating the Results

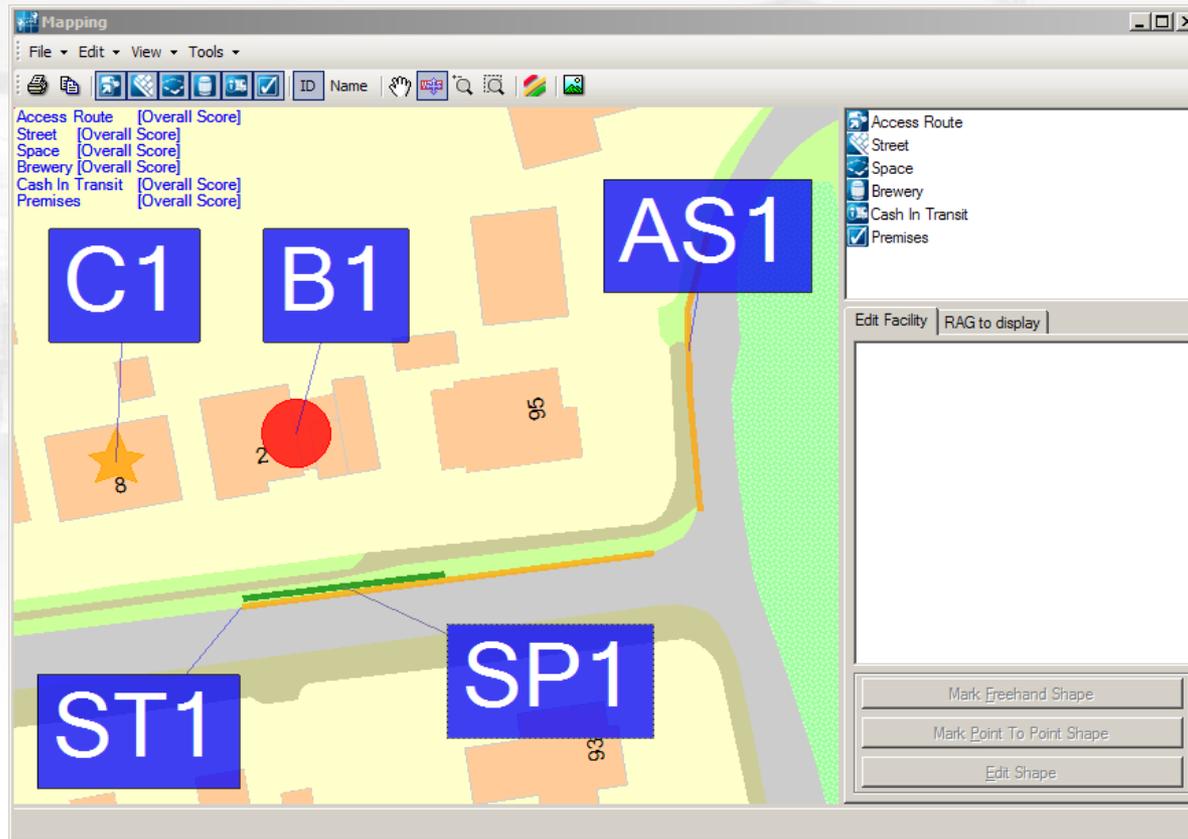


*By total score*

*By parameter*



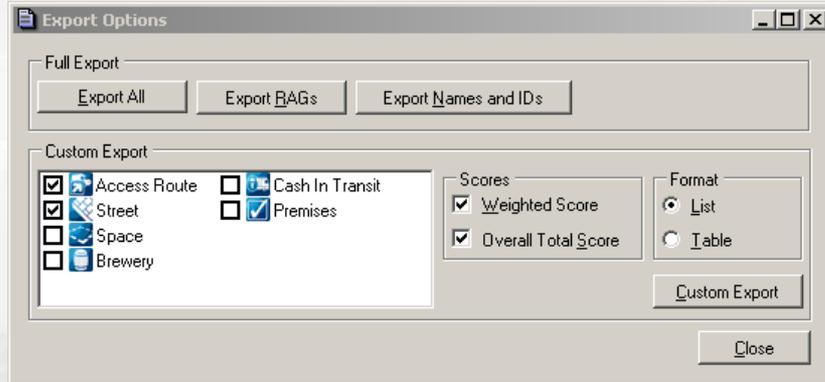
# Mapping The Results



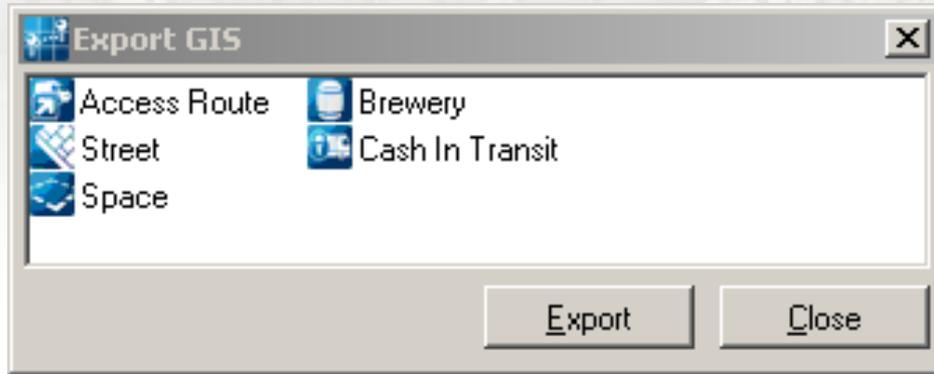
- In built mapping tool enables data to be visualised
- RAG colour ratings are used for easy identification of problems
- RAG ratings can be shown for total scores or by parameter

# Other Functions

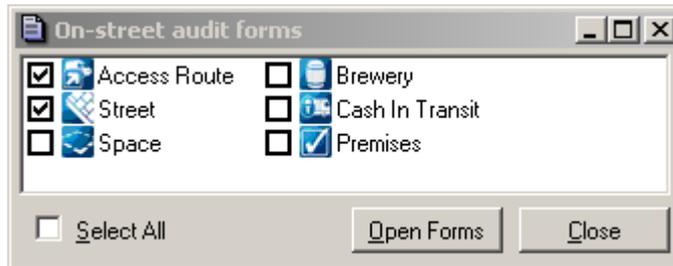
*Data Export to Excel*



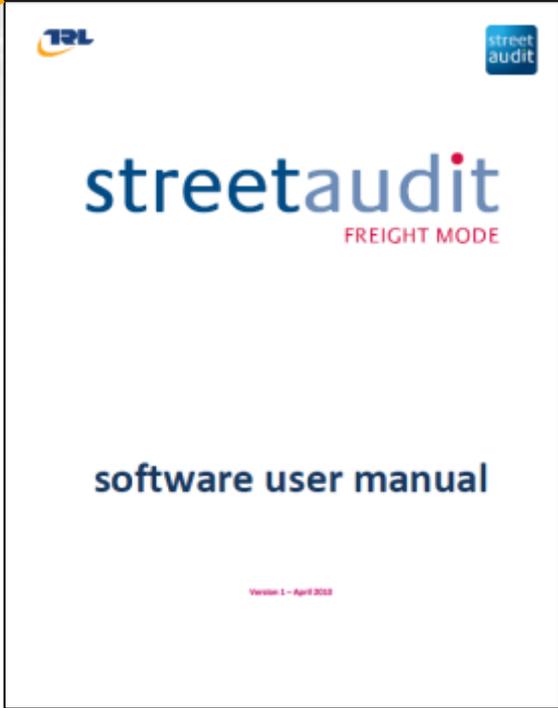
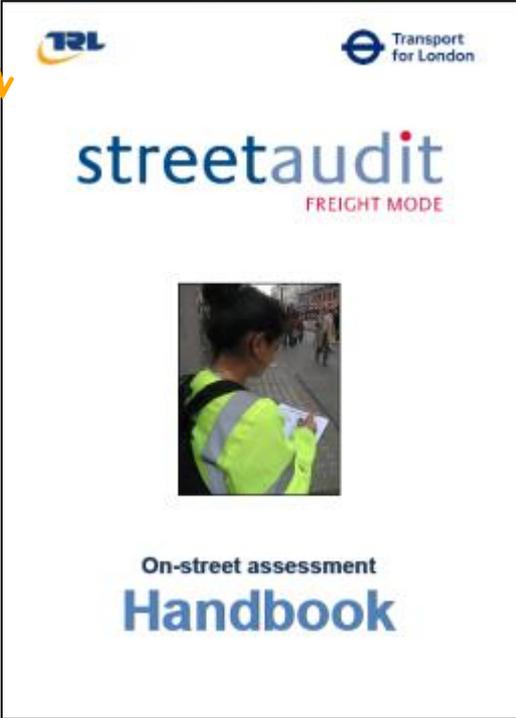
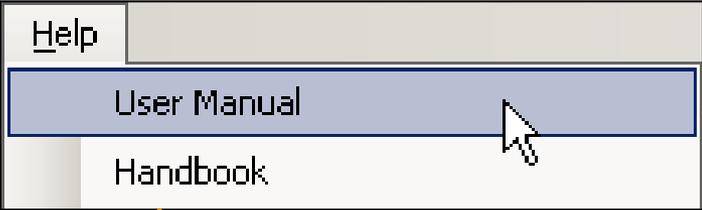
*Data Export for GIS analysis*



*Open on street forms*



# Help and Support



# Summary of streetaudit capability

- Streetaudit **combines** FERS with PERS
- It features an easy to use interface
- **Stores** photographs and premises dataset
- **In built** tools help **fast identification** of problems
  - **Mapping** tool
  - **Graphing** functions
- **Export** functions to other GIS tools
- **High resolution images** can be exported for reporting

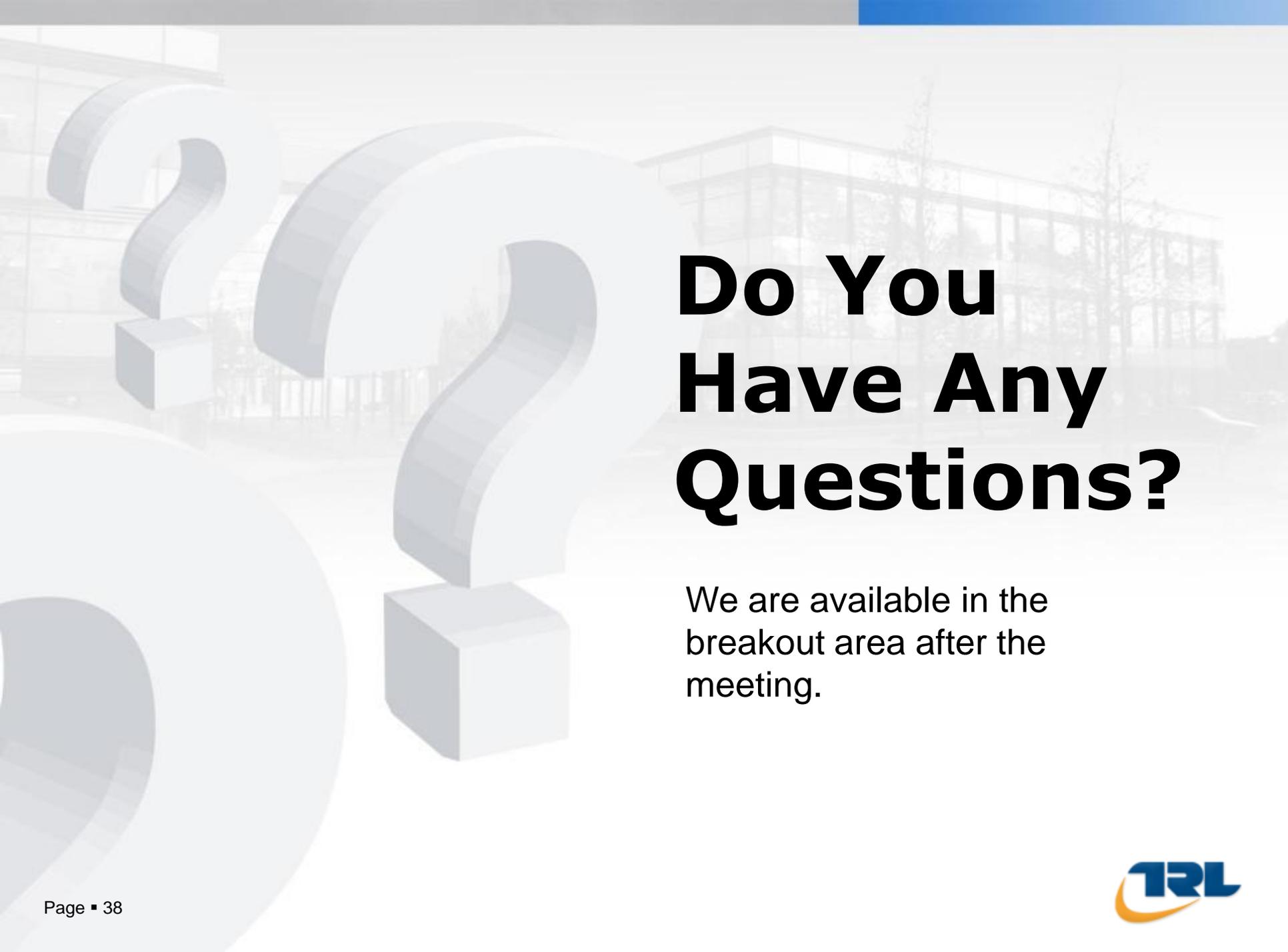


The screenshot shows a data entry form for a street audit. The form includes fields for 'Street Name', 'Date/Time of Survey', 'Location Description', 'Comment', and 'Other Comments'. Below the form is a table with columns for 'Priority', 'Risk', 'Score', 'Comment', 'Total Score', and '# of Max Score FRS'. The table contains three rows of data.

Priority	Risk	Score	Comment	Total Score	# of Max Score FRS
<input type="checkbox"/>	Low	4	Generally a consistent and generally excellent with a few	4	07
<input type="checkbox"/>	Medium	4	Height vehicles are frequent arrivals, and some transverse	4	03
<input type="checkbox"/>	High	4	Lack of evidence of vehicle risks to infrastructure near bridge	4	07



“streetaudit is a **unique** software solution  
which aids **value for money**,  
**evidence based** decision making”



# Do You Have Any Questions?

We are available in the  
breakout area after the  
meeting.

# Thank you

Date: 30<sup>th</sup> November 2010

Presented by: Stuart Greenshields

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