



# The Footway Network Survey

Steve Wibberley  
Sheffield City Council

Simon Burrows  
Scott Wilson

[simon.burrows@scottwilson.com](mailto:simon.burrows@scottwilson.com)  
0115 9077000

[steve.wibberley@sheffield.gov.uk](mailto:steve.wibberley@sheffield.gov.uk)



# Introduction

---



What is the FNS?

- Originally developed by FCMG
- Adapted by Sheffield CC/Appia-uk
- More detail than CVI
- Faster than DVI
- Inventory not required
- Four basic footway defect categories



As New



## Aesthetically Impaired



## Functionally Impaired





## Structurally Unsound



# Introduction

---



How will the data be used?

- Determine extent of footways
- Determine condition of footway network
- Identify treatments
- Prioritise works
- Support Asset Management



# Case Study

## The FNS in Sheffield

Steve Wibberley  
Sheffield City Council



- Sheffield Highway Network – 1963 km

PFI Footway Categories	Code of Practice Footway Categories	Length (km)
Prestige	1a	16
High (Usage)	1 & 2	329
Low (Usage)	3 & 4 Adjacent to the Carriageway	2,585
Low (Usage)	3 & 4 Remote from the Carriageway	266
		<b>3,666</b>

- One-Third (33%) of the entire footway network surveyed annually (PFI)

- Equipment - HP iPAQ hx2490 (Windows Mobile 5.0)
- Software – ‘Appia’ Coarse Footway Inspection Software
- Survey Specification – Adopted FCMG methodology with amendments (kerb deterioration)
- Additional inventory data collected:
  - Average footway width.
  - Footway material type.



# Appia Survey Software

Coarse Footway I 12:11

SectionI	RoadName	Description	SectionL
B6073/01	Bernard	BERNARD	80
B6073/01	Effingham	EFFINGHAM	379
B6073/01	Effingham	EFFINGHAM	715
B6073/02	Effingham	EFFINGHAM	116
B6073/01	Effingham	EFFINGHAM	90
B6073/00	Furnival	FURNIVAL	218
B6073/02	Lovetot	LOVETOT	66

Left Right CSV DataTable CSV View

123 1 2 3 4 5 6 7 8 9 0 - =

Tab q w e r t y u i o p [ ]

CAP a s d f g h j k l ; ' ,

Shift z x c v b n m , . / ←

Ctrl á ü ` \ ↓ ↑ ← →

Exit

Pre-load Network

Coarse Footway I 12:12

Left Footway

Reverse Direction

Start Chainage (m)

Defect Type

AN  NF  FI  SI  AI

Defect Extents  Kerb Defect

25  50  100

Project Details Left Right CSV DataT

123 1 2 3 4 5 6 7 8 9 0 - =

Tab q w e r t y u i o p [ ]

CAP a s d f g h j k l ; ' ,

Shift z x c v b n m , . / ←

Ctrl á ü ` \ ↓ ↑ ← →

Exit

Record Defects

# Appia Survey Software

INPUT REQUIRED 14:43 ok

Left       Right  
 Please choose Majority Surface Type of previous section

Bituminous       Concrete  
 Block       Flag

Please indicate Average Footway Width  
 Average Width (m)

123	1	2	3	4	5	6	7	8	9	0	-	=	←
Tab	q	w	e	r	t	y	u	i	o	p	[	]	
CAP	a	s	d	f	g	h	j	k	l	;	'		
Shift	z	x	c	v	b	n	m	,	.	/	←		
Ctrl	á	ü	`	\						↓	↑	←	→

Exit

Inventory Data

```

- <NewDataSet>
- <MyDefects>
  <DefectID> 1 </DefectID>
  <SurveyName> c5 </SurveyName>
  <JobNumber />
  <SectionLabel> C64/008 </SectionLabel>
  <Description> KIRK EDGE ROAD - MOOR ROAD TO WORRAL ROAD </Description>
  <SectionLength> 2121 </SectionLength>
  <SurveyDate> 16/06/2009 </SurveyDate>
  <GeneralComments />
  <LeftDefectType> SI </LeftDefectType>
  <LeftStartChainage> 1458 </LeftStartChainage>
  <LeftEndChainage> 1487 </LeftEndChainage>
  <LeftExtent> 25 </LeftExtent>
  <LeftKerb> no </LeftKerb>
  <LeftReverseChainage> ro </LeftReverseChainage>
  <LeftComments />
</MyDefects>
<MyDefects>
  <DefectID> 2 </DefectID>
  <SurveyName> c5 </SurveyName>
  <JobNumber />
  <SectionLabel> C64/008 </SectionLabel>
  <Description> KIRK EDGE ROAD - MOOR ROAD TO WORRAL ROAD </Description>
  
```

XML Output Files

SCHEME ID	Scheme Type	ROAD NO	SECTION LABEL	SECTION DESCRIPTION	XSP	START CHAINAGE	END CHAINAGE	Length	AVERAGE CI	SCHEME EFFICIENCY	Structural Cost	Functional Cost	Aesthetic Cost	Kerb Cost
1	Structural	C732	C732/014	HARTLEY BROOK ROAD - NETHER SHIRE LANE - DUNNINC ROAD	L	26	88	62	75.8	100	3060.32	0	0	0
2	Structural	C732	C732/016	HARTLEY BROOK ROAD/BUTTERTHWAIT ROAD - DUNNINC ROAD TO ECCLESFIELD ROAD	L	11	61	50	50	100	2468	0	0	0
5	Structural	C732	C732/014	HARTLEY BROOK ROAD - NETHER SHIRE LANE - DUNNINC ROAD	R	271	326	55	66.36	100	2714.8	0	0	0
6	Structural	C732	C732/014	HARTLEY BROOK ROAD - NETHER SHIRE LANE - DUNNINC ROAD	R	469	524	55	50	100	2714.8	0	0	0
79	Kerb	C732	C732/014	HARTLEY BROOK ROAD - NETHER SHIRE LANE - DUNNINC ROAD	L	0	26	26	0	81	0	0	0	390
80	Kerb	C732	C732/014	HARTLEY BROOK ROAD - NETHER SHIRE LANE - DUNNINC ROAD	L	88	524	436	14.16	114	0	0	0	6540
81	Kerb	C732	C732/016	HARTLEY BROOK ROAD/BUTTERTHWAIT ROAD - DUNNINC ROAD TO ECCLESFIELD ROAD	L	0	11	11	0	100	0	0	0	165
82	Kerb	C732	C732/016	HARTLEY BROOK ROAD/BUTTERTHWAIT ROAD - DUNNINC ROAD TO ECCLESFIELD ROAD	L	61	316	255	5.49	147	0	0	0	3825
83	Functional	C732	C732/016	HARTLEY BROOK ROAD/BUTTERTHWAIT ROAD - DUNNINC ROAD TO ECCLESFIELD ROAD	L	316	372	56	300	300	0	81.6	0	0
120	Kerb	C732	C732/014	HARTLEY BROOK ROAD - NETHER SHIRE LANE - DUNNINC ROAD	R	0	271	271	2.02	100	0	0	0	4065
121	Kerb	C732	C732/014	HARTLEY BROOK ROAD - NETHER SHIRE LANE - DUNNINC ROAD	R	326	469	143	8.39	108	0	0	0	2145
122	Functional	C732	C732/016	HARTLEY BROOK ROAD/BUTTERTHWAIT ROAD - DUNNINC ROAD TO ECCLESFIELD ROAD	R	0	79	79	91.13	100	0	81.6	0	0
123	Kerb	C732	C732/016	HARTLEY BROOK ROAD/BUTTERTHWAIT ROAD - DUNNINC ROAD TO ECCLESFIELD ROAD	R	79	156	77	0	88	0	0	0	1155
124	Functional	C732	C732/016	HARTLEY BROOK ROAD/BUTTERTHWAIT ROAD - DUNNINC ROAD TO ECCLESFIELD ROAD	R	156	419	263	123.19	125	0	81.6	0	0

Example Report (Scheme Engineer):

Footway Condition Index (CI) >20 (excludes kerb)

Scheme Length >50m

Defect gap <30m

# Future for FNS Survey & UKPMS

---

April 2010:

- FNS included in UKPMS (PCIS) rule set 9.01.
- FNS survey imported as a HMDIF.
- UKPMS footway performance indicator under development by TRL.
- Prioritised footway works list with costs.
- Accreditation of FNS software.
- Accreditation of FNS surveyors.



# Case Study Housing Network Pilot Survey

Simon Burrows  
Scott Wilson



# Housing Network - Pilot Survey

---



## Background





# Housing Network - Pilot Survey



---

Nottingham City Homes is responsible for a network of;

- Common areas
- Drying areas
- Garage areas
- Footpaths to properties
- Linking footpaths





## Housing Network - Pilot Survey



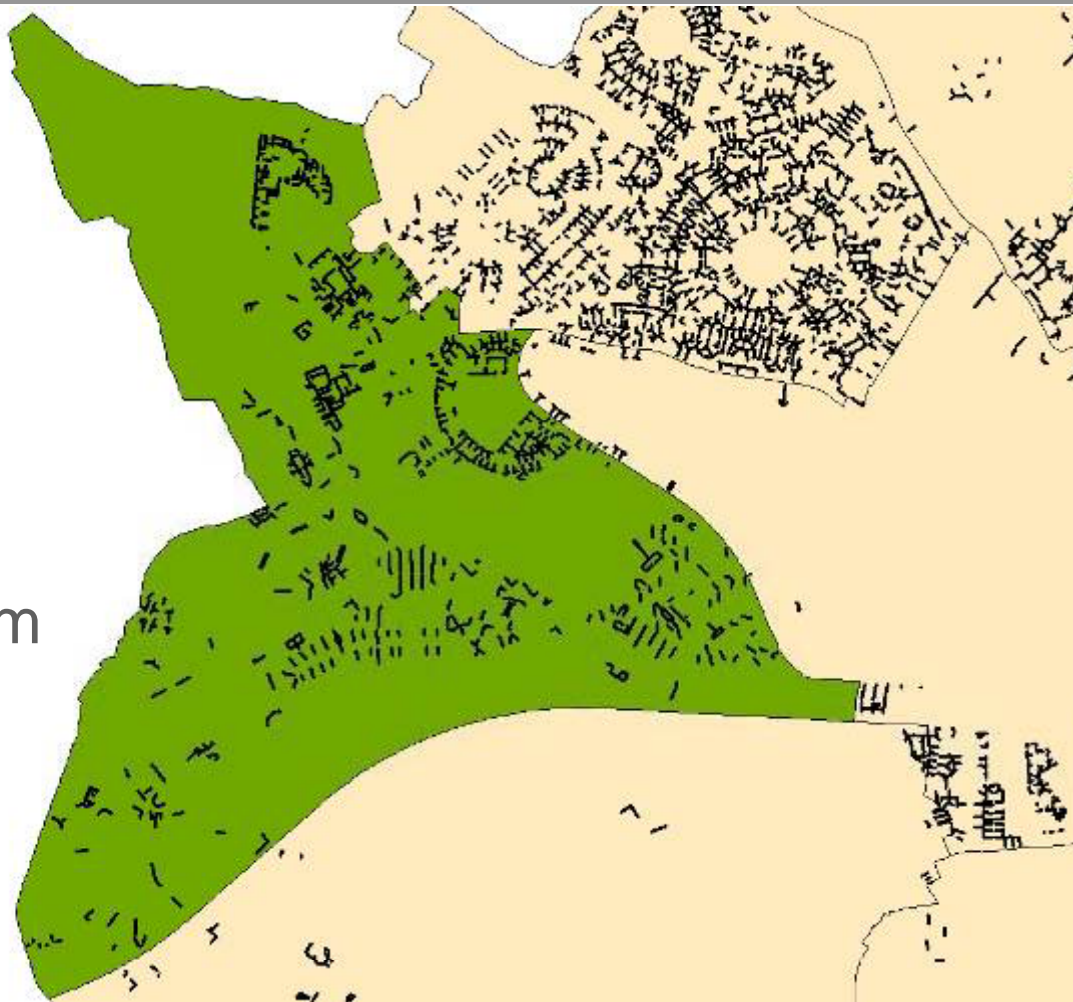
---

### Stage 2: Assessment

- Suitable survey – ‘new’ Footway Network Survey
- Inventory and condition
- Data processing
- Feed into AMP

# Housing Network - Pilot Survey

- 609 sections
- Length c24 km
- 2 surveyors/team



# Housing Network - Pilot Survey





# Housing Network - Pilot Survey





# Housing Network - Pilot Survey



# Housing Network - Pilot Survey



Work in progress



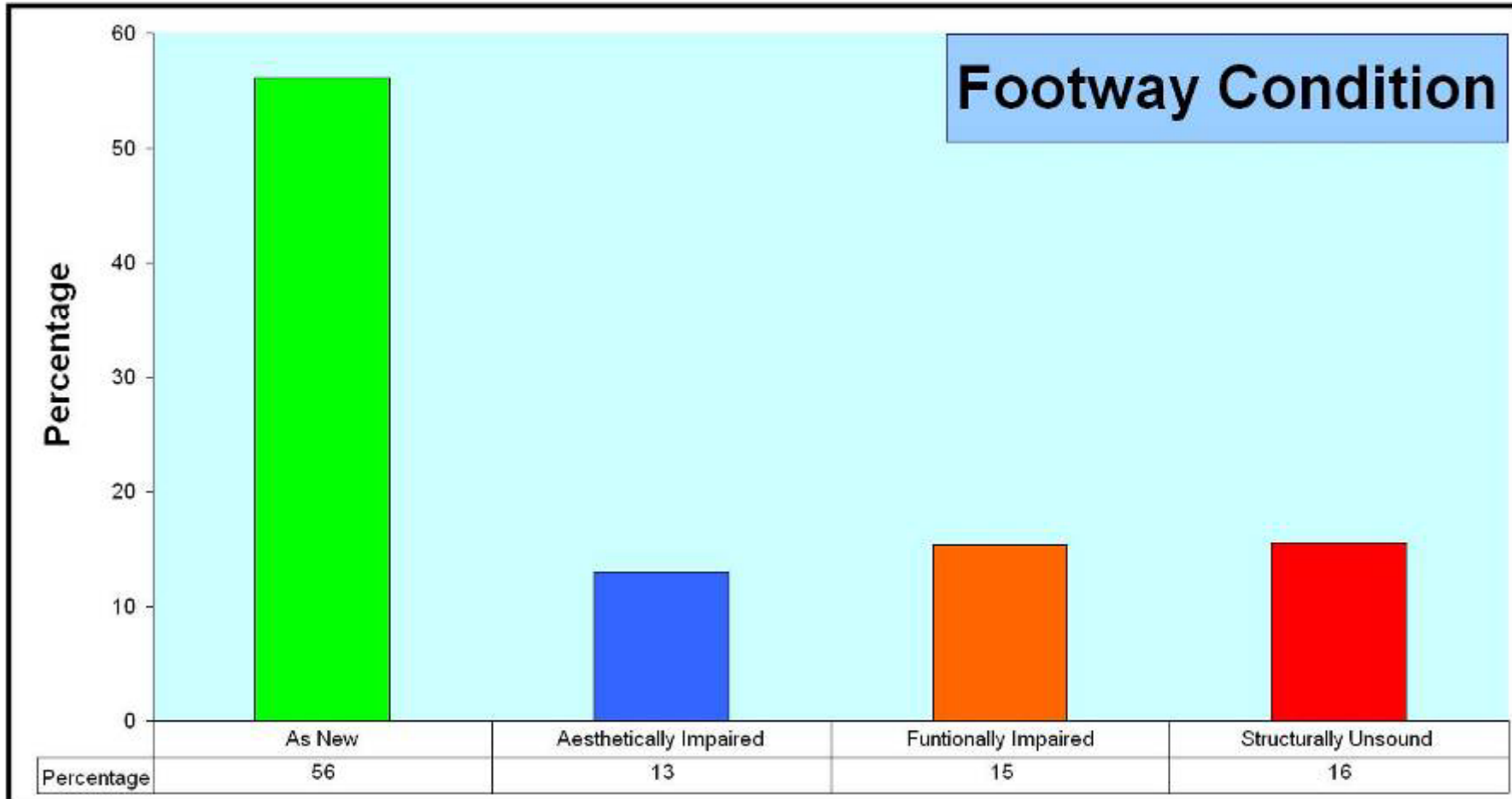


# Housing Network - Pilot Survey

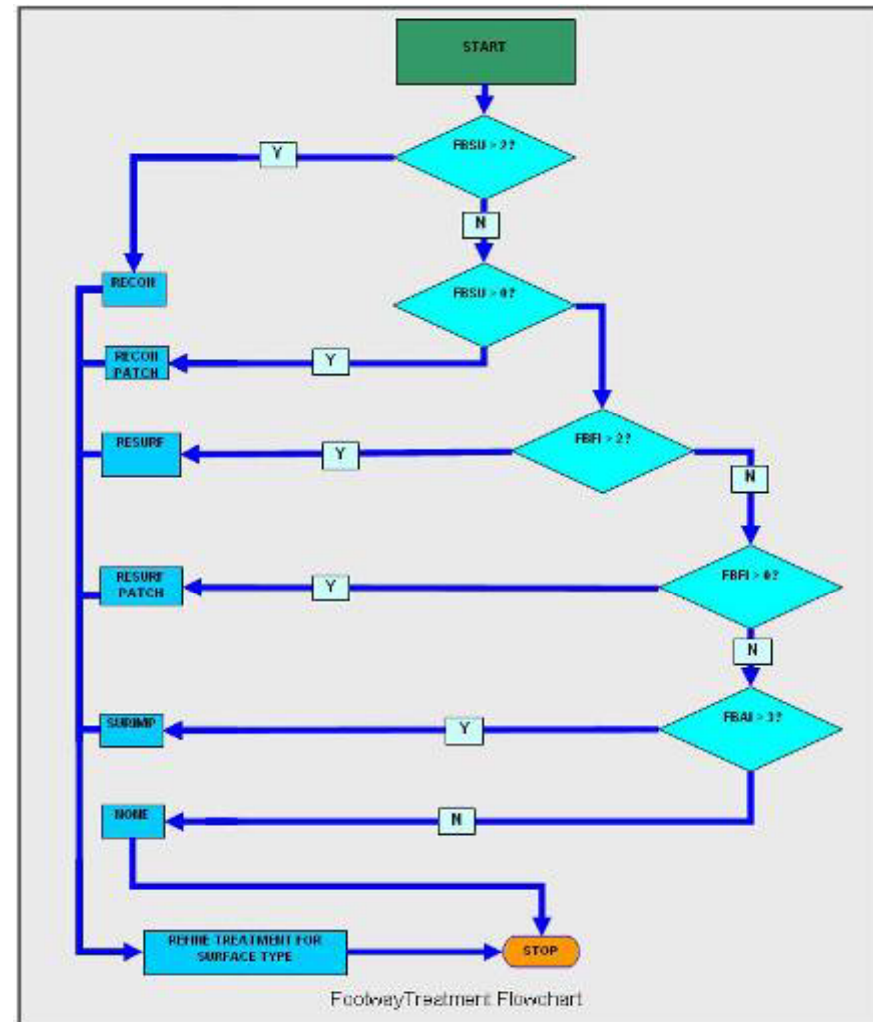
---

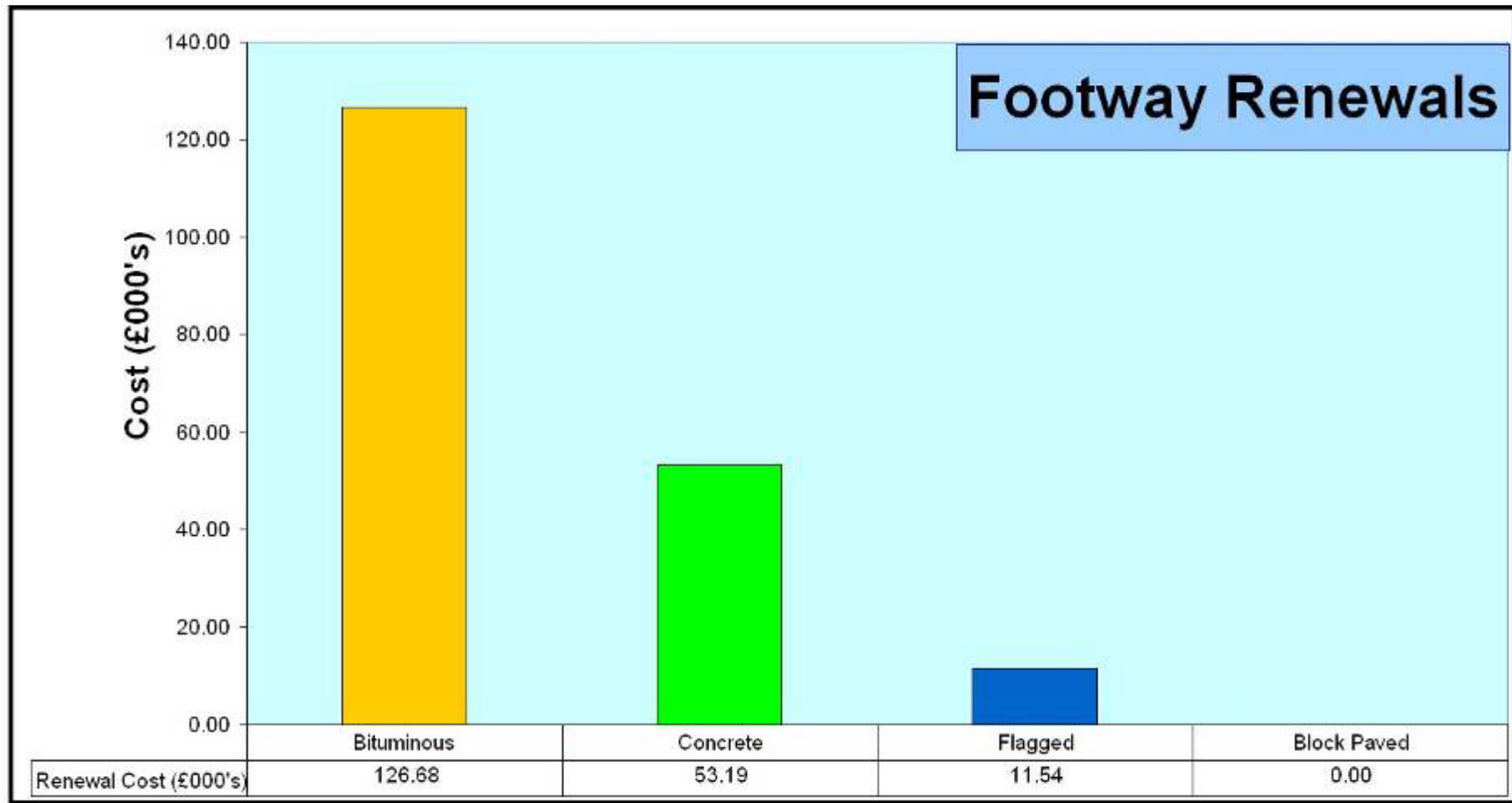


## Data Analysis



## Treatment Selection







# Housing Network - Pilot Survey



## Asset Valuation - Bilborough

<b>ITEM</b>	<b>Value (£)</b>
<b>Footway Gross Replacement Cost</b>	<b>1,373,561</b>
<b>Accumulated Consumption</b>	<b>191,405</b>
<b>Depreciated Replacement Cost</b>	<b>1,182,155</b>



# Housing Network - Pilot Survey



## Estimated Network Asset Valuation

ITEM	Value (£)
<b>Footway Gross Replacement Cost</b>	<b>22,000,000</b>
<b>Accumulated Consumption</b>	<b>2,000,000</b>
<b>Depreciated Replacement Cost</b>	<b><u>20,000,000</u></b>

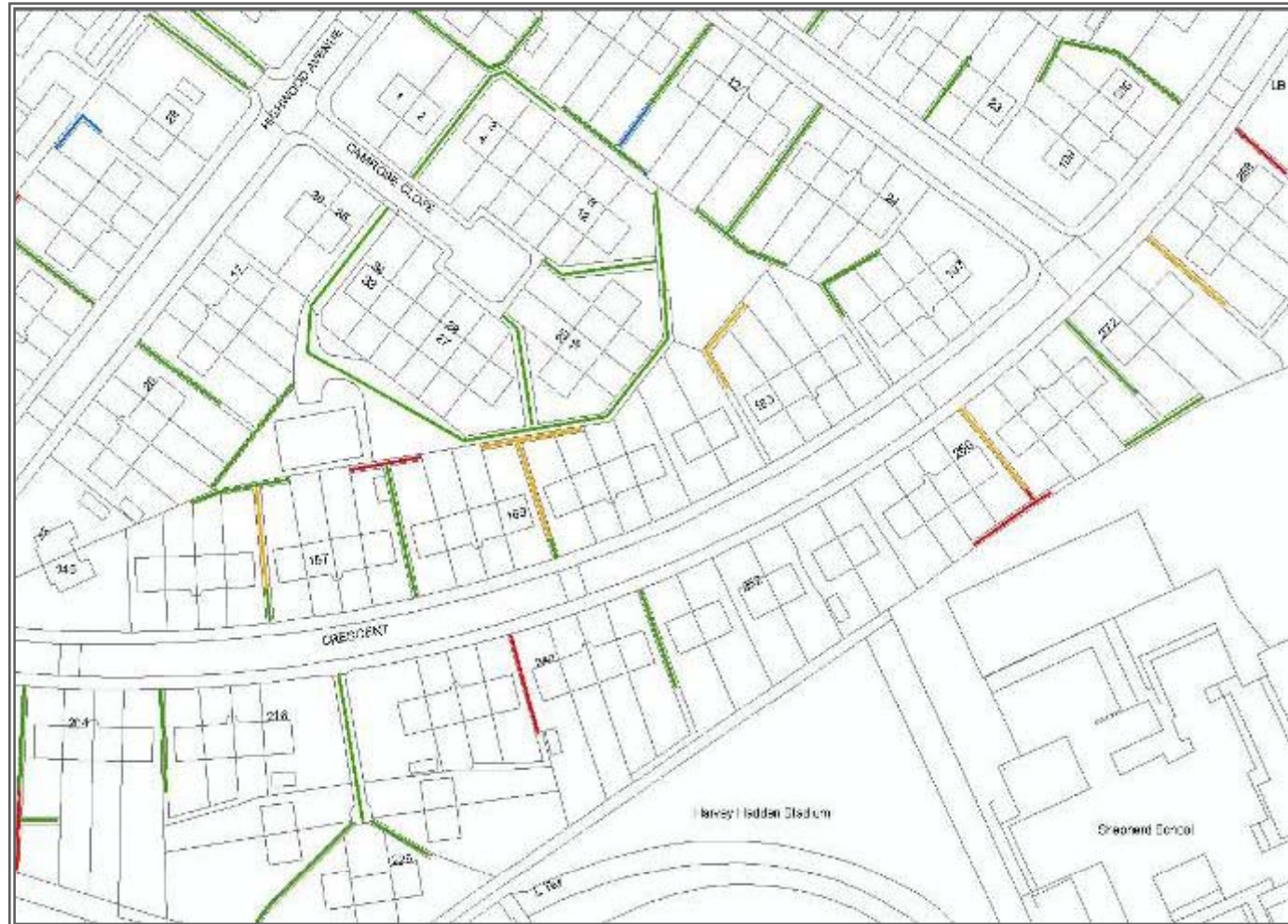
## Treatment

**Legend**

**Treatment**

**Treat\_Type**

- NONE
- RECON
- RECON\_PATCH
- RESURF
- RESURF\_PATCH





# Housing Network - Pilot Survey



---

## Summary

- Base network mapped in GIS
- Pilot survey complete
- Productivity around 3 – 3.5 km/day
- Few practical problems
- Draft treatments and costs produced





## Housing Network - Pilot Survey

---



Questions ?



# The Footway Network Survey

Steve Wibberley  
Sheffield City Council

Simon Burrows  
Scott Wilson

[simon.burrows@scottwilson.com](mailto:simon.burrows@scottwilson.com)  
0115 9077000

[steve.wibberley@sheffield.gov.uk](mailto:steve.wibberley@sheffield.gov.uk)