

Introduction

This document is a supplement to “Improving the Cartographic Quality and Design of Greenmaps”. It is intended to examine whether the Cambridge Greenmap was made following the guidelines outlined in that paper, and to further clarify some of the points made therein i.e. § 3.1 ‘Simplification and Exaggeration’ and Figure 3.1 *Selected feature classes for Cambridge, MA, US greenmap*.

There was some concern expressed by reviewers and readers that the curvy line shown in the figure—indicating which symbols were selected from the process and planned to be included on the map—was exceedingly arbitrary. I believe that part of the confusion arose from the fact that it is easy to forget that the symbols’ relative positions within the table cells are unimportant; that only which cell a symbol is in, dictated by the selected indices, matters. Furthermore, that the symbols in the diagonal cells are in a kind of limbo and are neither favored nor disfavored for inclusion on the map. To that end I have updated the table (page 2), and reformatted it to hopefully make things clearer.

Although it may seem as though the mapped feature types (shown in green) are a random smattering of those with a Greenness of 3 or greater, closer examination reveals that there is indeed a strong correlation between the mapped features and those indicated by the Public Interest index as well. In particular, excluding geographically irrelevant types (shown in red):

- 13/28 (46%) of the symbols in the high value green zone were included
- 11/31 (35%) of the symbols in the transitional yellow zone were included
- 8/52 (15%) of the symbols in the low value red zone were included²

In addition, the few red zone symbols included on the map were of high Greenness. That is, they are particularly important and relevant but were not especially desired by the (small number of) surveyed citizens for one reason or another.

Finally, it should be noted that the Greenness and Public Interest indices were not the only factors which drove feature type selection. Availability of data played a major role, and to a lesser extent attempts were made to provide balance on the map. As stated in the original thesis, greenmaps should highlight both goods and bads; the aforementioned red zone symbols. An effort was also made to provide geographic balance, and include marginal features if they lay outside of the city center.

		Public Interest →					
		0	1	2	3	4	5+
Greenness →	0	1/8	0/6	0/4	0/2		
	1	1/1		0/1	0/1		
	2		0/5	0/1	0/1	0/3	
	3	2/4	4/10	4/6	0/1		1/1
	4	2/10	4/14	0/4	2/2	1/2	1/1
	5	3/10	5/9	2/3	0/1	1/1	

		Public Interest →					
		0	1	2	3	4	5+
Greenness →	0	13%	0%	0%	0%		
	1	100%		0%	0%		
	2		0%	0%	0%	0%	
	3	50%	40%	67%	0%		100%
	4	20%	29%	0%	100%	50%	100%
	5	33%	56%	67%	0%	100%	

² 🌐 and ♠ are not counted in the above calculations because the information is not included in the map frame. The symbols ♪ ∞ 🌳 are not excluded even though the symbols themselves are not used, since their intent is captured. Arguably though, any analysis should exclude sub-type feature symbols to avoid double counting.

Statistical Analysis

Recently (FA08-SP09), a more rigorous analysis (linear regression) was performed on the data reported above/below. The results show that both dimensions used for selection were *statistically significant factors of roughly equal importance* in determining what was mapped:

	Unstandardized Coefficients		Standardized	t	Sig.	Correlations		
	B	Std. Error	β			Zero-order	Partial	Part
(Constant)	-.006	.064		-.093	.926			
Available data	.382	.045	.602	8.548	.000	.646	.614	.579
Green	.032	.016	.135	1.918	.057	.279	.172	.130
Public	.040	.024	.115	1.684	.095	.158	.151	.114

Data

A CSV of this table is also included as a PDF attachment.

Description	Char	fInc	Included	fData	Data	Green	Public
shanty	>	0	No	-1	Nonesuch	0	1
bamboo	%	0	No	-1	Nonesuch	0	1
horseshoe	Q	0	No	-1	Nonesuch	0	1
current	v	0	No	-1	Nonesuch	0	1
camping	Ø	0	No	-1	Nonesuch	0	3
ferry	m	0	No	-1	Nonesuch	2	2
circleshield	C	0	No	-1	Nonesuch	3	1
elephant	q	0	No	-1	Nonesuch	3	2
stink	!	0	No	-1	Nonesuch	4	0
leak	9	0	No	-1	Nonesuch	5	0
orchard	□	0	No	-1	Nonesuch	5	0
fish	°	0	No	-1	Nonesuch	5	0
heron	T	0	No	-1	Nonesuch	5	2
oak	W	0	No	-1	Nonesuch	5	4
noise	4	0	No	0	No(t readily)	0	0
microscope	^	0	No	0	No(t readily)	0	0
stop light	‡	0	No	0	No(t readily)	0	0
elderly	£	0	No	0	No(t readily)	0	0
attention	§	0	No	0	No(t readily)	0	0
V	h	0	No	0	No(t readily)	0	0
meditation	P	0	No	0	No(t readily)	0	0
handset	,	0	No	0	No(t readily)	0	1
phone	?	0	No	0	No(t readily)	0	1
handicap	˘	0	No	0	No(t readily)	0	1
snowflake	j	0	No	0	No(t readily)	0	1
ladybug	˘	0	No	0	No(t readily)	0	1
trolley	...	0	No	0	No(t readily)	0	1
mountain	Ö	0	No	0	No(t readily)	0	2
world music	Œ	0	No	0	No(t readily)	0	2
dog	œ	0	No	0	No(t readily)	0	2
yin	p	0	No	0	No(t readily)	0	2
kid	f	0	No	0	No(t readily)	0	3
duck	s	0	No	0	No(t readily)	0	3
dolby	d	0	No	0	No(t readily)	2	1
boulevard	l	0	No	0	No(t readily)	2	1
columns	o	0	No	0	No(t readily)	2	1
circle	O	0	No	0	No(t readily)	2	1
basket	S	0	No	0	No(t readily)	2	1
community center	*	0	No	0	No(t readily)	2	4
parkncharge	<	0	No	0	No(t readily)	3	0
heart	˘	0	No	0	No(t readily)	3	1
ellipsis	ƒ	0	No	0	No(t readily)	3	1
star	n	0	No	0	No(t readily)	3	1
egg yolk	¶	0	No	0	No(t readily)	3	2
apple i	F	0	No	0	No(t readily)	3	2
bike lock	-	0	No	0	No(t readily)	3	3
drop	3	0	No	0	No(t readily)	4	0
barrel	5	0	No	0	No(t readily)	4	0
tear	8	0	No	0	No(t readily)	4	0
checkbox	^	0	No	0	No(t readily)	4	0
map	f	0	No	0	No(t readily)	4	0
dump	™	0	No	0	No(t readily)	4	0
crosshair	*	0	No	0	No(t readily)	4	1
grass		0	No	0	No(t readily)	4	1
solid flower	˘	0	No	0	No(t readily)	4	1
leaf	<	0	No	0	No(t readily)	4	1
path	>	0	No	0	No(t readily)	4	1
birds	®	0	No	0	No(t readily)	4	1
tour	Ö	0	No	0	No(t readily)	4	1
songbird	R	0	No	0	No(t readily)	4	1
Xmas	r	0	No	0	No(t readily)	4	1
eye	¥	0	No	0	No(t readily)	4	2
paw	˘	0	No	0	No(t readily)	4	2
e	D	0	No	0	No(t readily)	4	2

Description	Char	fInc	Included	fData	Data	Green	Public
sunset	Y	0	No	0	No(t readily)	4	2
bike	#	0	No	0	No(t readily)	4	4
fire	#	0	No	0	No(t readily)	5	0
over barrel	%	0	No	0	No(t readily)	5	0
recycle	J	0	No	0	No(t readily)	5	0
hands	k	0	No	0	No(t readily)	5	0
windmill	‡	0	No	0	No(t readily)	5	1
CFL	g	0	No	0	No(t readily)	5	1
swirl	l	0	No	0	No(t readily)	5	1
compost	2	0	No	0	No(t readily)	5	3
house	B	0	No	1	Yes	1	2
art	e	0	No	1	Yes	1	3
stars	y	0	No	1	Yes	2	2
sailboat	X	0	No	1	Yes	2	3
shield	c	0	No	1	Yes	2	4
meter	˘	0	No	1	Yes	3	0
parking	+	0	No	1	Yes	3	1
arrow	µ	0	No	1	Yes	3	1
tank	(0	No	1	Yes	4	0
mine)	0	No	1	Yes	4	0
house e	b	0	No	1	Yes	4	1
smoke	S	0	No	1	Yes	5	0
checked box	&	0	No	1	Yes	5	0
outfall	€	0	No	1	Yes	5	0
H2O reclaim	j	0	No	1	Yes	5	1
sun	i	0	No	1	Yes	5	2
web	H	0.5	Other	1	Yes	0	0
diamond	:	0.5	Other	1	Yes	1	0
hollow flower	z	0.5	Other	1	Yes	3	1
stack	U	0.5	Other	1	Yes	4	1
waves	x	0.5	Other	1	Yes	4	1
infinity	K	0.5	Other	1	Yes	4	3
wetland	t	0.5	Other	1	Yes	5	1
bang	E	1	Yes	1	Yes	2	4
hoops	l	1	Yes	1	Yes	3	0
book	N	1	Yes	1	Yes	3	0
squares	"	1	Yes	1	Yes	3	1
trefoil	\	1	Yes	1	Yes	3	1
sapling	w	1	Yes	1	Yes	3	1
stripes	L	1	Yes	1	Yes	3	2
bollards	l	1	Yes	1	Yes	3	2
ripple	u	1	Yes	1	Yes	3	2
heart garden	Z	1	Yes	1	Yes	3	2
museum	:	1	Yes	1	Yes	3	5
well	0	1	Yes	1	Yes	4	0
X	6	1	Yes	1	Yes	4	0
water	l	1	Yes	1	Yes	4	1
triangle	=	1	Yes	1	Yes	4	1
chevron	M	1	Yes	1	Yes	4	3
feet	l	1	Yes	1	Yes	4	4
circle apple	a	1	Yes	1	Yes	4	5
closed dump	@	1	Yes	1	Yes	5	0
apple	A	1	Yes	1	Yes	5	0
electricity	°	1	Yes	1	Yes	5	0
nuclear	7	1	Yes	1	Yes	5	1
butterfly	†	1	Yes	1	Yes	5	1
radio button	G	1	Yes	1	Yes	5	1
frog	ß	1	Yes	1	Yes	5	1
dine	˘	1	Yes	1	Yes	5	2
tree stand	V	1	Yes	1	Yes	5	2
reuse	/	1	Yes	1	Yes	5	4

Other=Cyan; Nonesuch=Red; No(t readily)=Grey