Supplementary materials:

According to Card [1], the map category is in the column and the true category is in the row referring to the contingency table (table S1). Table S2 is the contingency table expressed in terms of proportion of numbers.

Table S1. Contingency table for accuracy assessment.

		Map category(j)				
		1	2	. . .	r	Total
	1	n_{11}	n_{12}		n_{1r}	$n_{1.}$
	2	n_{21}	n_{22}		n_{2r}	$n_{2.}$
True category(i)	.					
	.					
	.					
	r	n_{r1}	n_{r2}		n_{rr}	$n_{r.}$
	Total	$n_{.1}$	$n_{.2}$		$n_{.r}$	n

Table S2. Contingency table for accuracy assessment in terms of proportion of numbers.

		Map category(j)				
		1	2	. . .	r	Total
	1	p_{11}	p_{12}		p_{1r}	$p_{1.}$
	2	p_{21}	n_{22}		p_{2r}	$p_{2.}$
True category(i)	.					
	.					
	.					
	r	p_{r1}	p_{r2}		p_{rr}	$p_{r.}$
	Total	$p_{.1}$	$p_{.2}$		$p_{.r}$	1

Marginal distributions of map category, which is the area in category j according to the map. However, the mapping in this paper is done on parcel unit instead of pixel unit. We therefore used the ratio between the number of each category $N_{.j}$ and the total number of parcels N according to the resultant land use maps as π_j for the DI and FI classification [2,3]. For impervious surface mapping, the π_j is calculated based on the area in category j according to the resultant map.

Table S3. Contingency table for evaluating map accuracy of DI-based classification results (I: Institution; R: Residence; B: Business; O: Open Space).

Class	I	R	B	O	Total
I	42	8	13	7	70
R	9	91	22	4	126
B	20	18	48	5	91
O	11	8	9	40	68
Total	82	125	92	56	355

Table S4. Contingency table for evaluating map accuracy of FI-based classification results (I: Institution; R: Residence; B: Business; O: Open Space).

Class	I	R	B	O	Total
I	45	14	15	11	85
R	13	135	64	13	225
B	23	52	73	8	156
O	5	13	9	57	84
Total	86	214	161	89	550