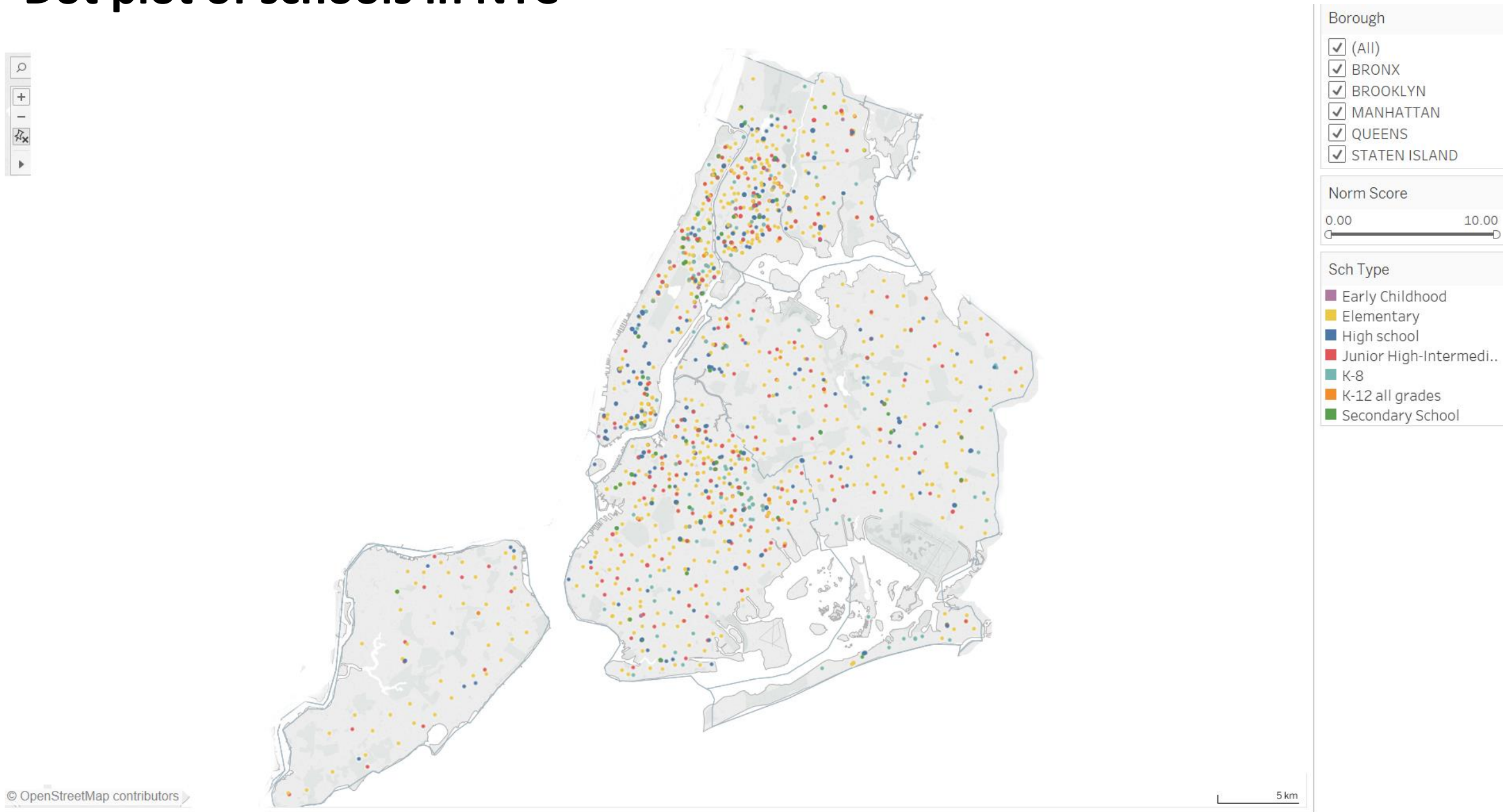# Urban Accessibility

Visualization and Quantitative analysis of School Quality in New York City

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Dot plot of schools in NYC

Borough
- ☑ (All)
- ☑ BRONX
- ☑ BROOKLYN
- ☑ MANHATTAN
- ☑ QUEENS
- ☑ STATEN ISLAND

Norm Score
0.00   10.00

Sch Type
- ■ Early Childhood
- ■ Elementary
- ■ High school
- ■ Junior High-Intermedi..
- ■ K-8
- ■ K-12 all grades
- ■ Secondary School
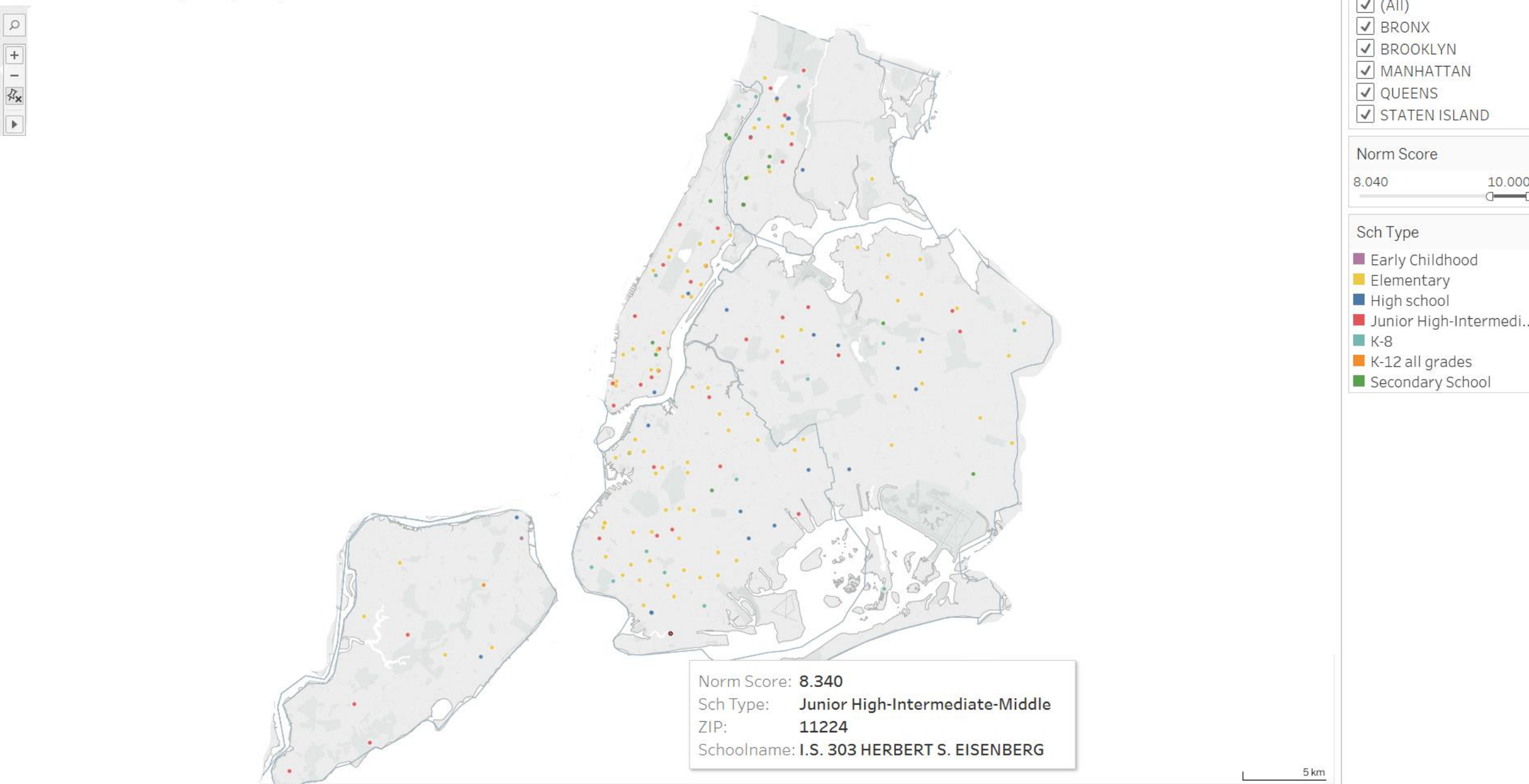
© OpenStreetMap contributors

5 km

Colour shows details about School Type.
The data is filtered on Borough and the view is filtered on Norm Score, which ranges from 0.00 to 10.00

Borough	School Count
Brooklyn	518
Bronx	400
Manhattan	325
Queens	315
Staten Island	72

Top rated schools in NYC – Dot plot

Schools IN NYC (Dot plot)

Borough
- ☑ (All)
- ☑ BRONX
- ☑ BROOKLYN
- ☑ MANHATTAN
- ☑ QUEENS
- ☑ STATEN ISLAND

Norm Score

8.040   10.000

Sch Type
- ■ Early Childhood
- ■ Elementary
- ■ High school
- ■ Junior High-Intermedi..
- ■ K-8
- ■ K-12 all grades
- ■ Secondary School

Norm Score:	8.340
Sch Type:	Junior High-Intermediate-Middle
ZIP:	11224
Schoolname:	I.S. 303 HERBERT S. EISENBERG

5 km

The view is filtered on Norm Score, which ranges from 8.040 to 10.000

Borough	School Count
Brooklyn	61
Bronx	28
Manhattan	44
Queens	38
Staten Island	12

Ranking Zip Codes based of number of schools contained

Sch Type
- Early Childhood
- Elementary
- High school
- Junior High-Intermedi..
- K-8
- K-12 all grades
- Secondary School

Sch Type:	Elementary
ZIP:	10456
Avg. Norm Score:	6.621
Count of State Code:	10
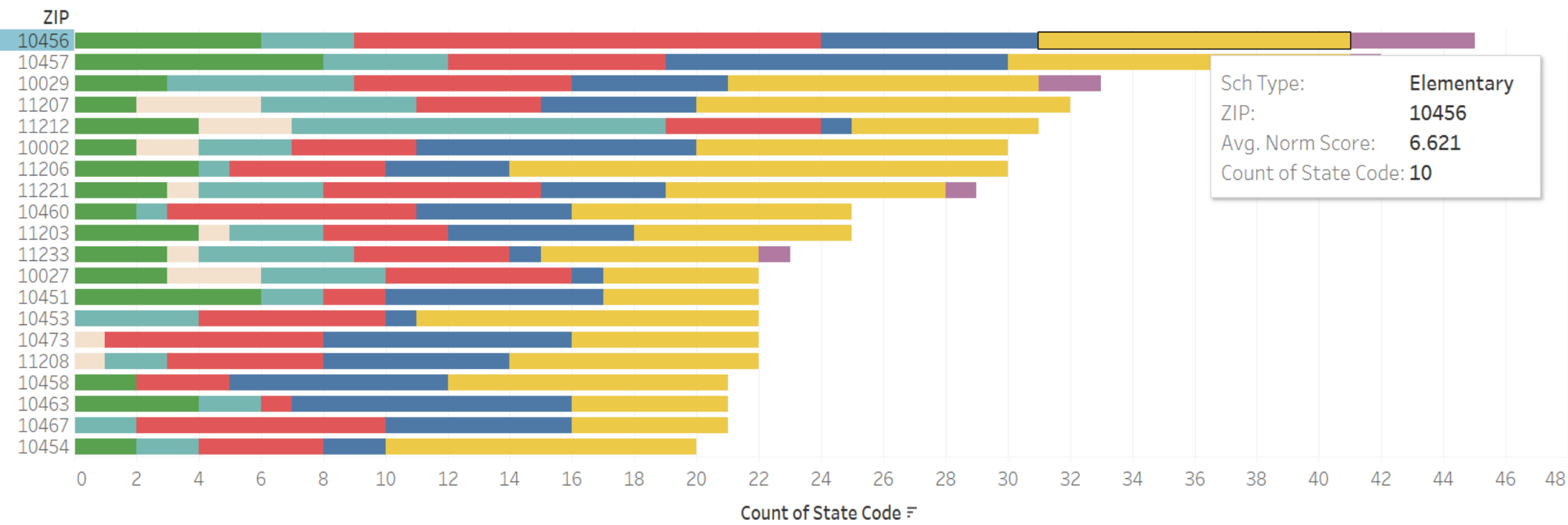
Summary

Count:	6(5.6%)
AVG(Norm Score)	
Sum:	33.853 (5.5...
Average:	5.642
Minimum:	4.867
Maximum:	6.621
CNT(State Code)	
Sum:	45 (8.4%)
Average:	7.50
Minimum:	3
Maximum:	15

Rank (School Count)	Zip Code	Area Nearby
1	10456	SAINT ANNS AVE, BRONX
2	10457	TREMONT AVE, BRONX
3	10029	110TH ST, NEW YORK
4	11207	ELDERT ST, BROOKLYN
5	11212	PO BOX , BROOKLYN
6	10002	GOPOST , NEW YORK
7	11206	BLANDERS ST, BROOKLYN
8	11221	COMERENN AVE, BROOKLYN
9	10460	DEVOE AVE, BRONX
10	11203	FARRAGUT RD, BROOKLYN
11	11233	BAINBRIDGE ST, BROOKLYN
12	10027	125TH ST, NEW YORK
13	10451	161ST ST, BRONX
14	10453	JEROME AVE, BRONX
15	11208	PINERLEN AVE, BROOKLYN

- Allows the government to identify the amount of schools (even aggregated by type of school) in a Zip Code

- Table shows the Areas near the Zips ranked in the same order as the bar chart
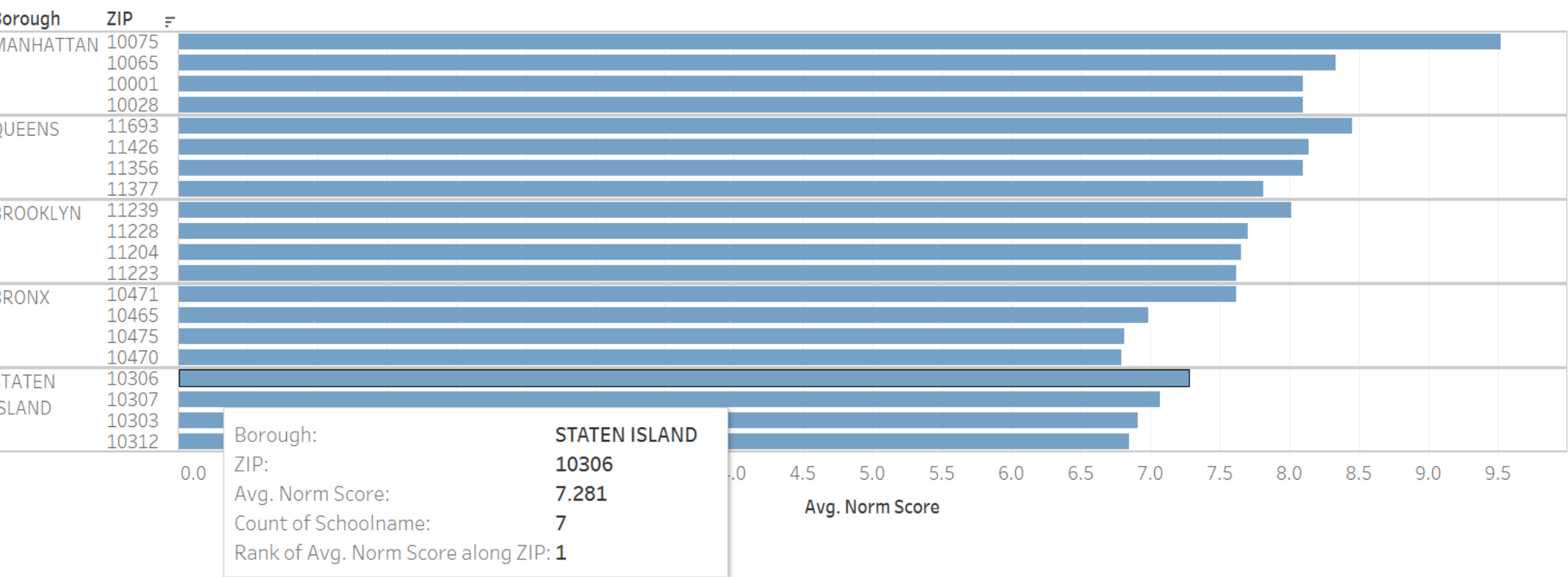
School Quality Evaluation Index
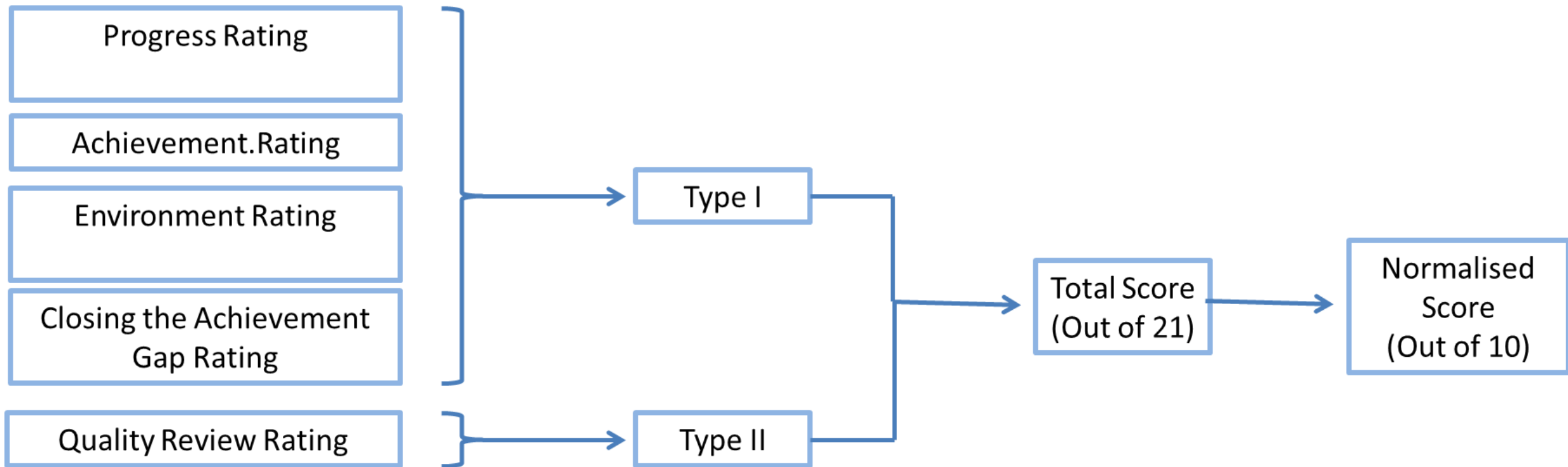
Normalization Formula : Norm. Score

```python
scale_a=0
scale_b=10
mini=0 #(recorded lowest)
maxi=20.99

for i, row in school_initial.iterrows():
    val= round(
                ( ((  (scale_b-scale_a)*(row["Total_Score"]-mini))
                        /(maxi-mini))+scale_a)
            ,2)
    # if val <0:
    #     val=0
    school_initial.set_value(i,"Norm_Score",val)
```

Norm. Score (Avg) aggregated by Zip Code

Rank-wise of Avg. Normalised Score broken down by Borough and ZIP.
Top 4 Rank of Avg. Norm Score displayed

- Provides parents with Area (Zip) Codes with Top Quality schools
- Boroughs within NYC can be compared amongst each other based on Normalised Score

Average Normalised Scores for schools aggregated Zip wise

Tooltip:
Borough:	MANHATTAN
ZIP:	10028
Avg. Norm Score:	8.095
Count of Schoolname:	2
Rank of Avg. Norm Score along ZIP:	4
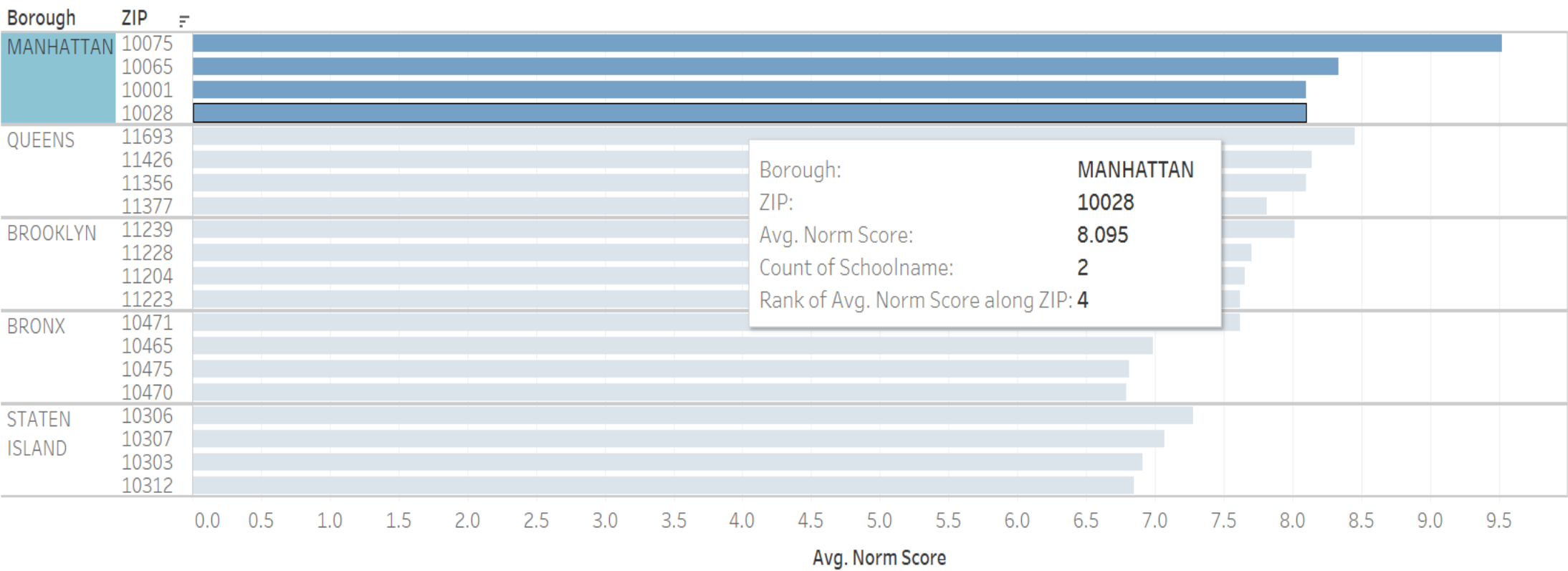
Rank of AVG(Norm Sco...
1 ————————— 4

Summary
Count:	4(20.0%)
AVG(Norm Score)	
Sum:	34.047 (22....
Average:	8.512
Minimum:	8.095
Maximum:	9.520
CNT(Schoolname)	
Sum:	12 (12.1%)
Average:	3.00
Minimum:	1
Maximum:	6
Rank of AVG(Norm Scor...	
Sum:	10 (20.0%)
Average:	2.50
Minimum:	1
Maximum:	4

Borough	Zip Code	School Name	Norm. Score
Manhattan	10075	P.S. 158 BAYARD TAYLOR	9.52
	10065	P.S. 059 BEEKMAN HILL INTERNATIONAL	10
		P.S. 183 ROBERT L. STEVENSON	9.29
		MANHATTAN INTERNATIONAL HIGH SCHOOL	8.34
		VANGUARD HIGH SCHOOL	7.86
		ELLA BAKER SCHOOL	7.38
		TALENT UNLIMITED HIGH SCHOOL	7.14
	10001	M.S. 260 CLINTON SCHOOL WRITERS & ARTISTS	9.29
		P.S. 033 CHELSEA PREP	7.62
		BATTERY PARK CITY SCHOOL	7.38
	10028	P.S. 006 LILLIE D. BLAKE	9.52
		P.S. 290 MANHATTAN NEW SCHOOL	6.67

- 2 Level Drill down to Borough (Manhattan, the top rated for education)
- Average normal Score allow ranking of zips in Borough.
- Table provides the top schools contribution to the Rank and their respective Norm. Scores

# Heat Map for School Quality in particular Zip : An Interactive Visual

ZIP	10065

School Codes	M059	M183	M225	M449	M459	M519
Quality Score	4.99	3.5	3.5	3.5	3.5	4.99
Progress Rating	4	4	3	3	4	4
Achievement Rating	4	4	3	3	2	4
Environmental Rating	4	4	3	3	4	2
Closing Achiement Gap Rating	4	4	3	4	4	0
Normalised Score	10	9.29	7.38	7.86	8.34	7.14

Heat Map for Zip : 11201

ZIP	11201

School Codes	K008	K029	K261	K287	K307	K313	K350	K419	K429	K439	K483	K497	K519	K527	K592	K605	K674
Quality Score	4.99	4.99	3.5	3.5	3.5	3.5	3.5	3.5	3.5	0	5	3.5	3.5	3.5	0	3.5	3.5
Progress Rating	2	3	2	2	3	3	2	2	2	4	4	3	2	3	2	3	0	2	3
Achievement Rating	3	4	3	1	3	4	2	2	2	2	4	3	1	2	3	2	3	0	3	2
Environmental Rating	2	4	3	2	2	2	2	2	2	2	4	4	2	2	2	2	0	2	2
Closing Achiement Gap Rating	4	3	3	1	3	3	1	4	2	3	4	3	2	3	4	3	3	0	2	2
Normalised Score	7.62	9.05	6.91	4.53	6.91	7.38	5	6.43	5.48	6.91	7.62	8.57	5	5.96	7.86	5.96	6.91	0	5.96	5.96

Name: COBBLE HILL SCHOOL OF AMERICAN STUDIES
Code: K519
Normalised Score: 7.86
**Rank (by Zip):** 3

Average Household Income VS School Distribution
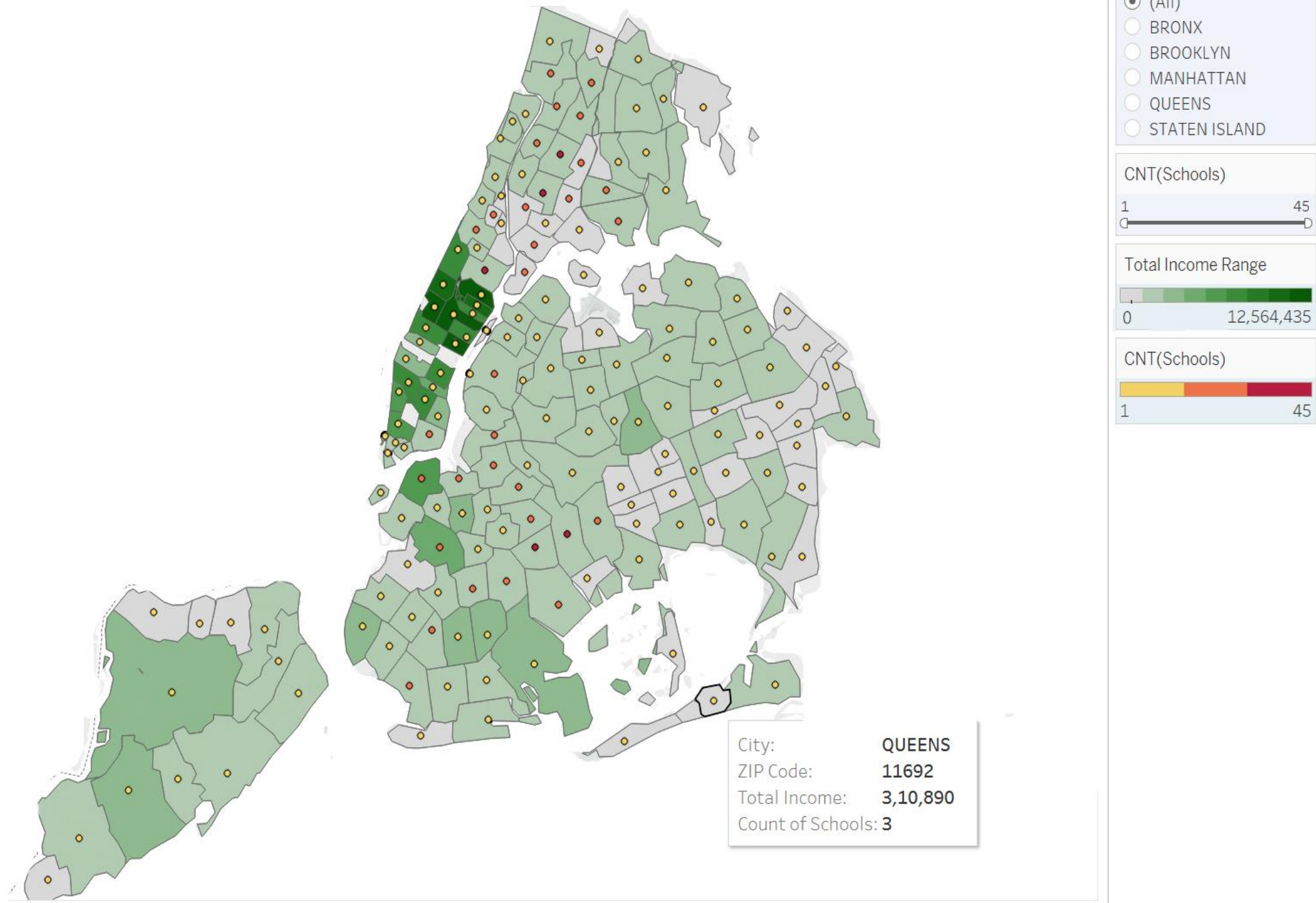
- Dot colour shows count of Schools.
- Data layer colour (Heat) shows Average Total Income as an attribute.
- The data is filtered on count of schools in a Zip.
- The view is filtered on count of Schools and City. The count of Schools filter ranges from 1 to 45.
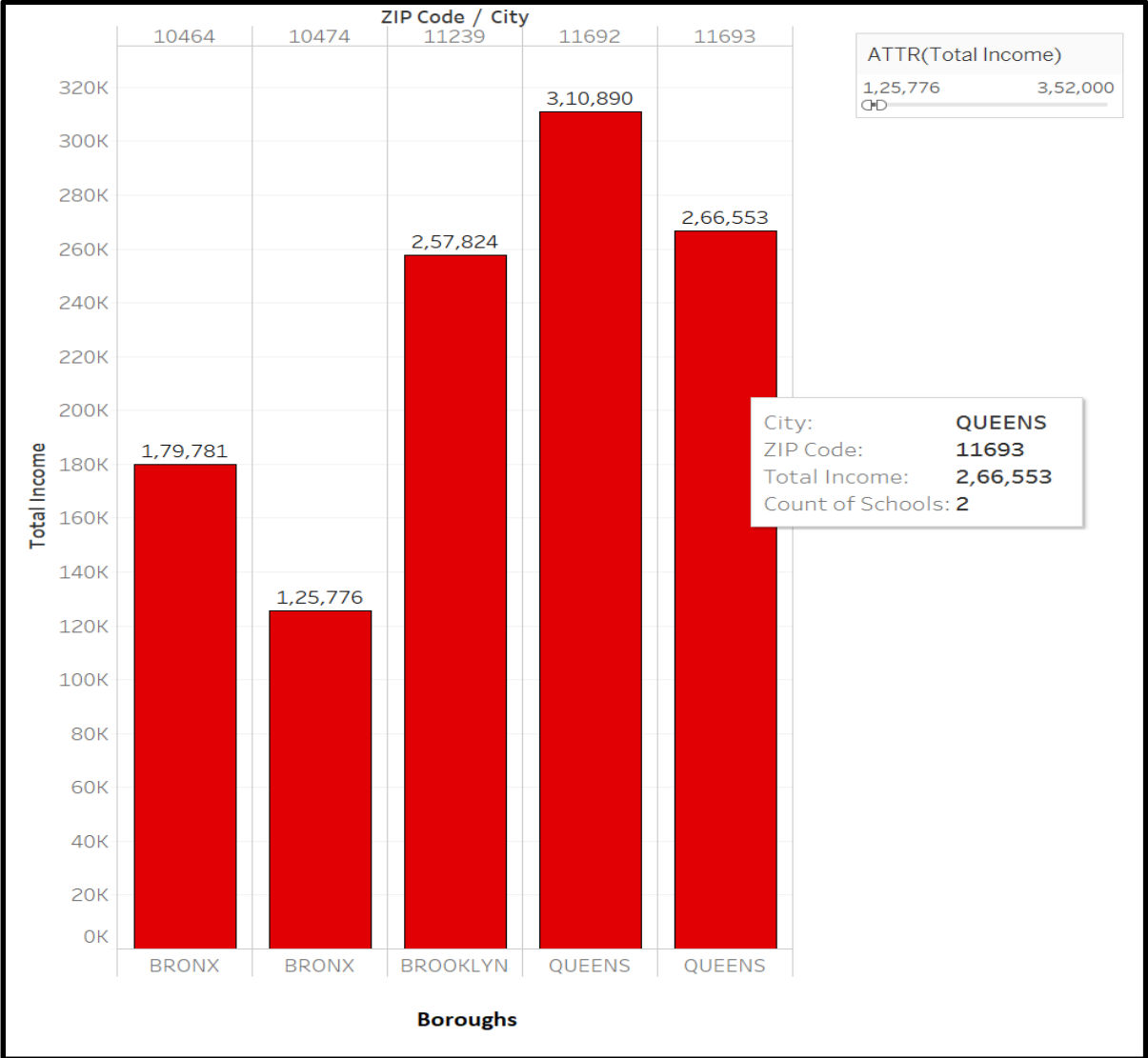
Concluding Arguments

1. Most Vulnerable and Most Accessible Areas Based on Average Household Income with regards to schools
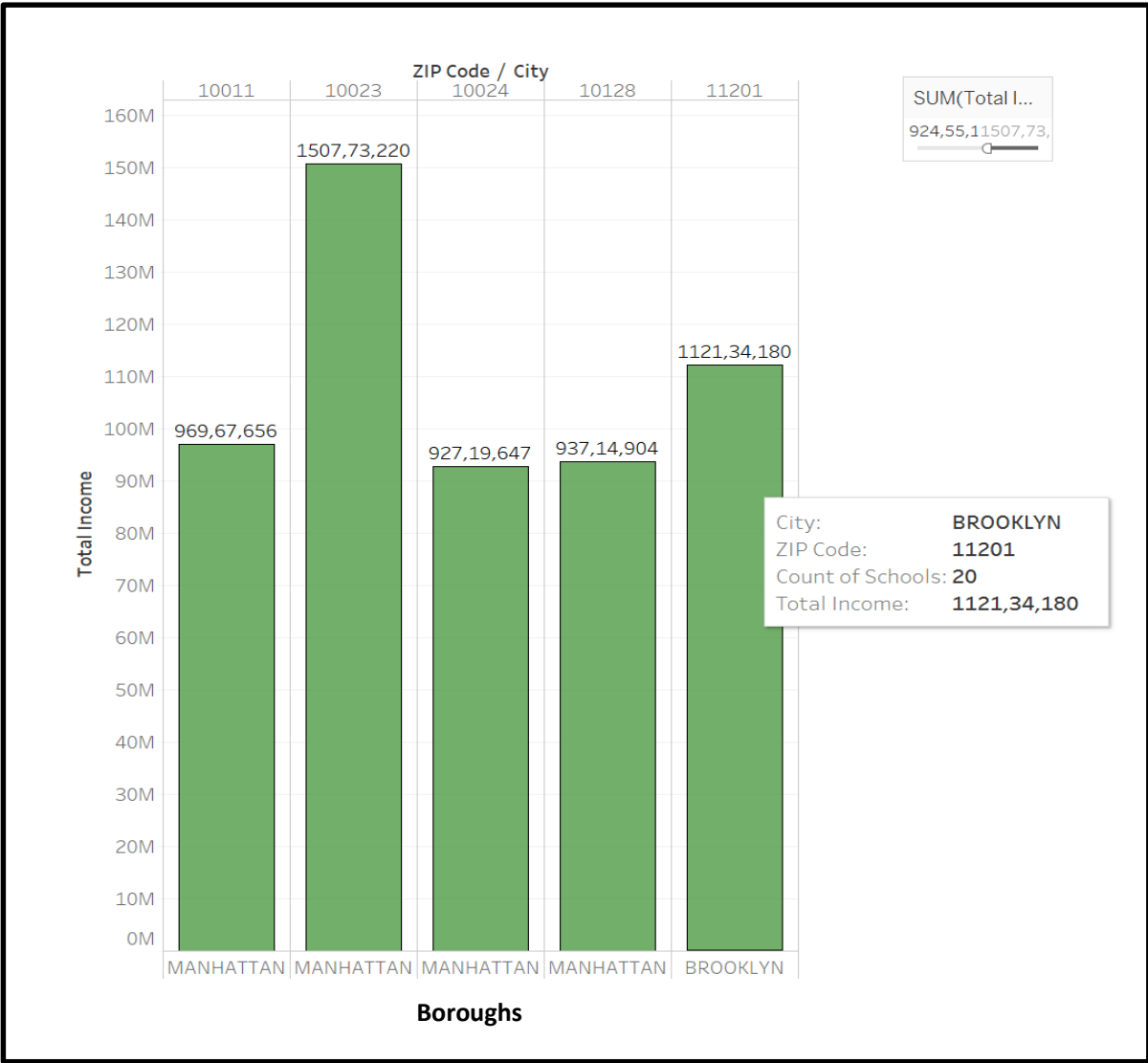

- Maximum Household Income Distribution

Borough	Zip Code	Avg. Household Income (USD)	School Count
Manhattan	10011	96,967,656	12
Manhattan	10023	150,773,220	12
Manhattan	10024	92,719,647	9
Manhattan	10128	93,714,904	8
Brooklyn	11201	112,134,180	20

- Minimum Household Income Distribution

Borough	Zip Code	Avg. Household Income (USD)	School Count
Bronx	10464	179,781	1
Bronx	10474	125,776	5
Brooklyn	11239	257,824	3
Queens	11692	310,890	3
Queens	11693	266,553	2

2. Most Vulnerable and Most Accessible Areas Based on Quality of education in schools
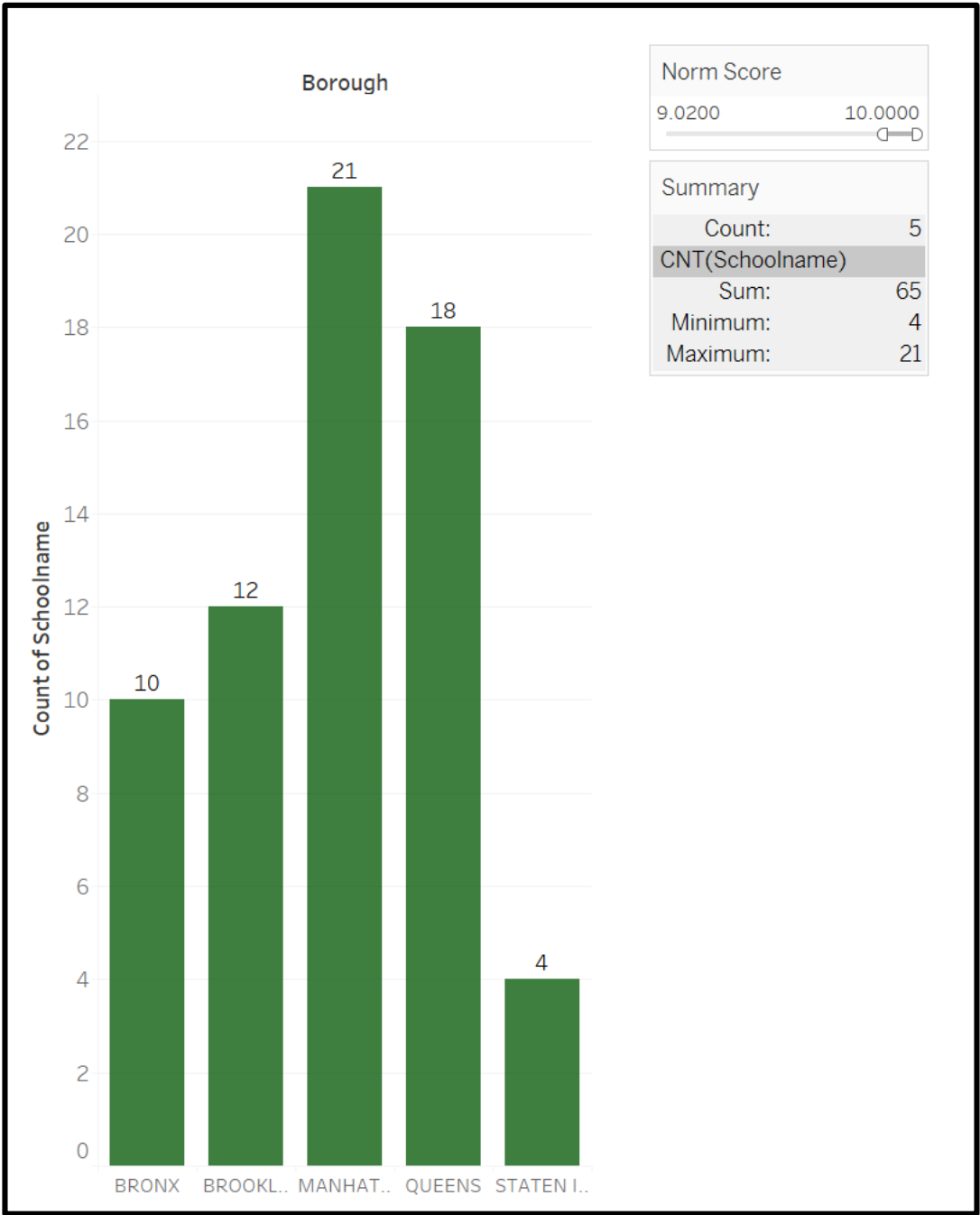
**Count of Schools having Highest Quality Education
(Norm. Score between 9-10)**
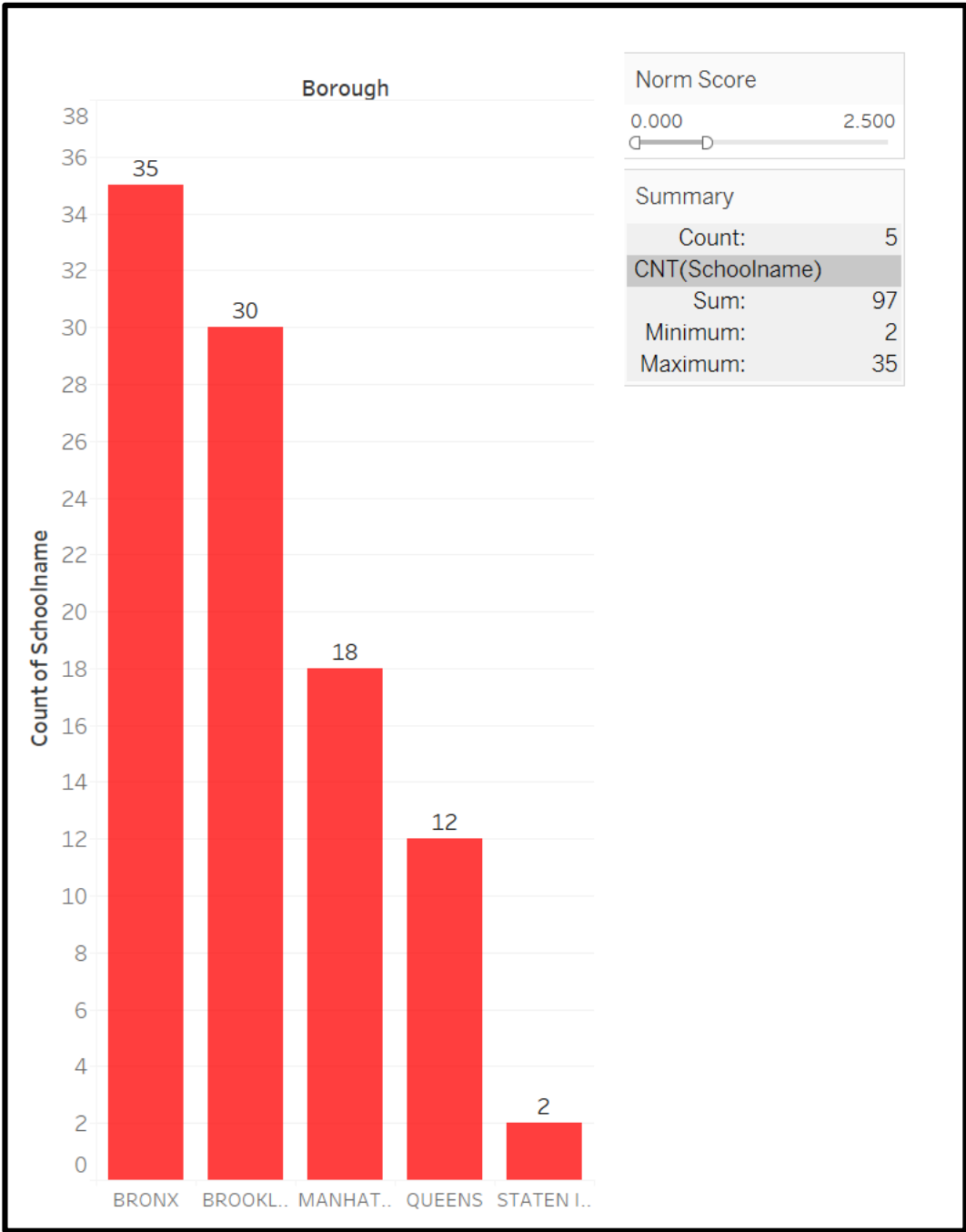
**Count of Schools having Lowest Quality Education
(Norm. Score between 0-2)**