

# FRAUD ANALYTICS HW4 INSPECTION REPORT

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## VARIABLES:

$$V_1 = \text{FULLVAL}$$

$$V_2 = \text{AVLAND}$$

$$V_3 = \text{AVTOT}$$

## EXPERT VARIABLES:

$$S_1 = \text{LTFRONT} * \text{LTDEPTH}$$

$$S_2 = \text{BLDFRONT} * \text{BLDDEPTH}$$

$$S_3 = S_2 * \text{STORIES}$$

$$r_1 = \frac{V_1}{S_1} \quad r_4 = \frac{V_2}{S_1} \quad r_7 = \frac{V_3}{S_1}$$

$$r_2 = \frac{V_1}{S_2} \quad r_5 = \frac{V_2}{S_2} \quad r_8 = \frac{V_3}{S_2}$$

$$r_3 = \frac{V_1}{S_3} \quad r_6 = \frac{V_2}{S_3} \quad r_9 = \frac{V_3}{S_3}$$

$$ri\_inverse = 1/r_i \quad (i=1,\dots,9)$$

These 18 ratios are grouped by zip5, zip3, TAXCLASS, borough. Then the average of each ratio  $r_i$  for each group  $g$  is calculated. Reciprocal of each  $r_i$  is calculated to consider the unusually low values. Z scaled values (zscores) of these 90 variables tell how many standard deviations the value is from the mean. So we can look at the z scores to identify anomalous records.

Criteria for evaluating the high scores:

Color scale conditional formatting of the scores highlights the extreme scores. These extreme scores are then manually evaluated and reported for fraudulent activity.

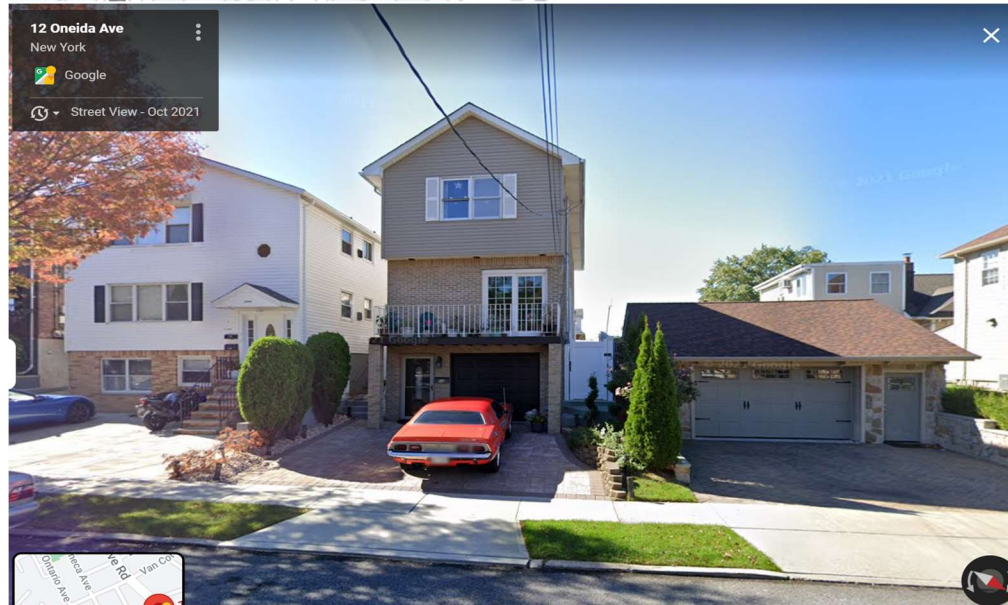
**RECORD 956520**

Original values:

Variable	Value	Variable	Value
RECORD	<b>956520</b>	EXLAND	1620
BBLE	5006590012	EXTOT	1620
BORO	5	EXCD1	1017
BLOCK	659	STADDR	12 ONEIDA AVENUE
LOT	12	ZIP	10301
EASEMENT		EXMPTCL	
OWNER	TROMPETA RIZALINA	BLDFRONT	1812
BLDGCL	A1	BLDDEPTH	5020
TAXCLASS	1	AVLAND2	
LTFRONT	25	AVTOT2	
LTDEPTH	91	EXLAND2	
EXT	G	EXTOT2	
STORIES	3	EXCD2	
FULLVAL	348200	PERIOD	FINAL
AVLAND	15600	YEAR	2010/11
AVTOT	20892	VALTYPE	AC-TR

Analysis:

This has unusually high r5inv, r8inv and r9inv values. This is likely because of high S2 value and subsequently high S3 value. This is unlikely because of high AVTOT OR AVLAND because the values of r1 through r9 are mostly within normal range.



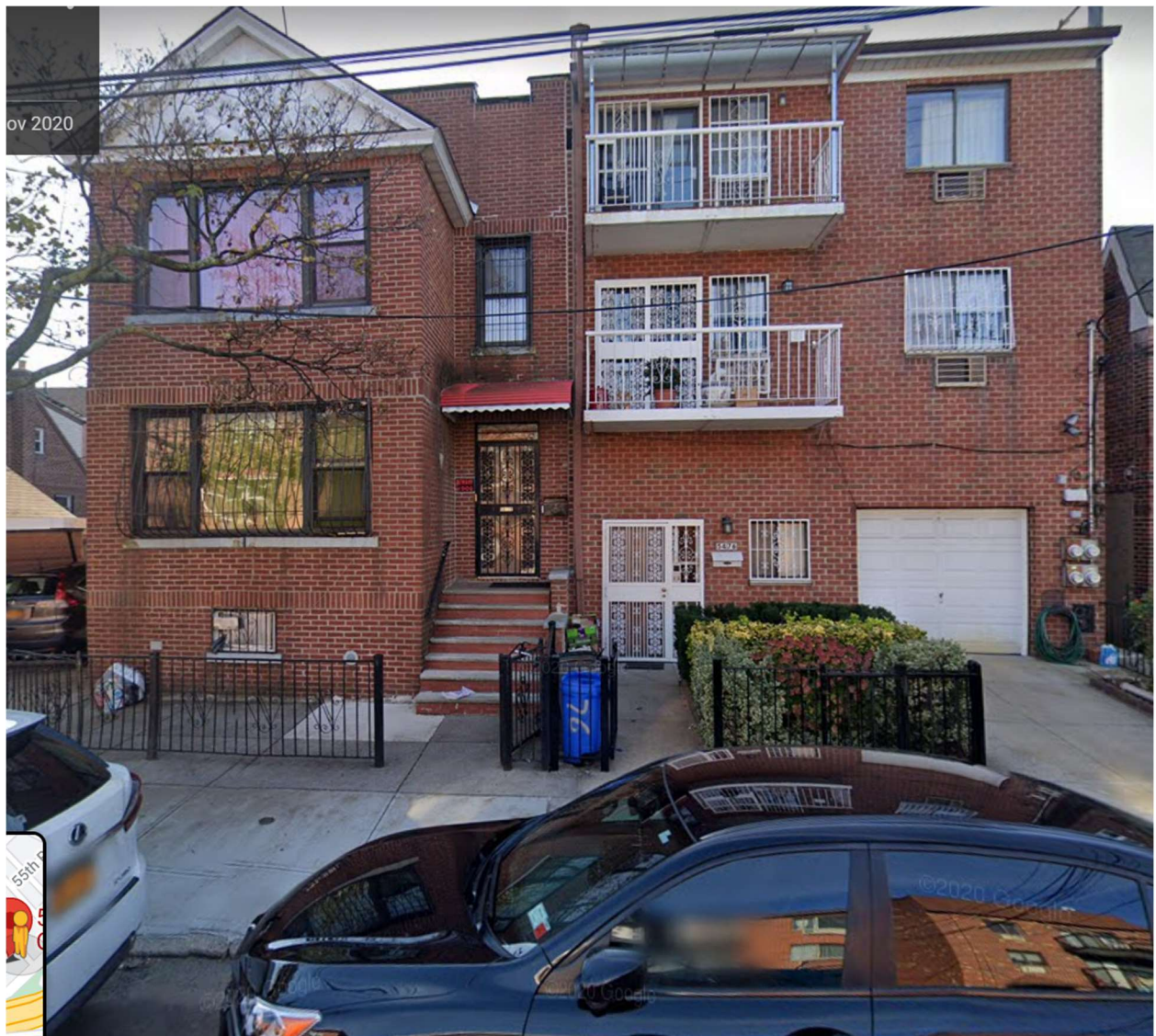
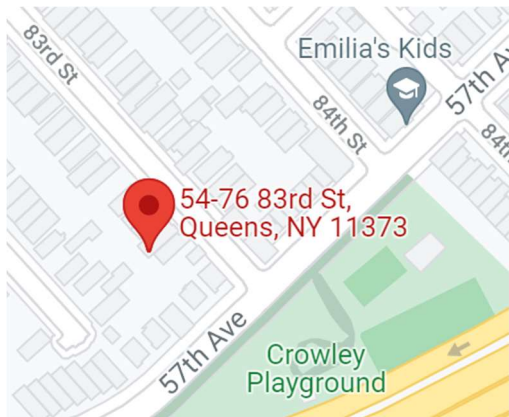
**RECORD 658933**

Original values:

Variable	Value	Variable	Value
RECORD	<b>658933</b>	EXLAND	1620
BBLE	4029060054	EXTOT	1620
BORO	4	EXCD1	1017
BLOCK	2906	STADDR	54-76 83 STREET
LOT	54	ZIP	11373
EASEMENT		EXMPTCL	
OWNER	WAN CHIU CHEUNG	BLDFRONT	2500
BLDGCL	C0	BLDDEPTH	5600
TAXCLASS	1	AVLAND2	
LTFRONT	25	AVTOT2	
LTDEPTH	100	EXLAND2	
EXT		EXTOT2	
STORIES	3	EXCD2	
FULLVAL	776000	PERIOD	FINAL
AVLAND	26940	YEAR	2010/11
AVTOT	46560	VALTYPE	AC-TR

## Analysis:

This record is of particular interest as it has high r5, r6, r8, r9 inverse values for zip codes. This indicated that the property has unusually high BLDFRONT and BLDDEPTH and number of stories as compared to others in the same zipcode.



RECORD **934793**

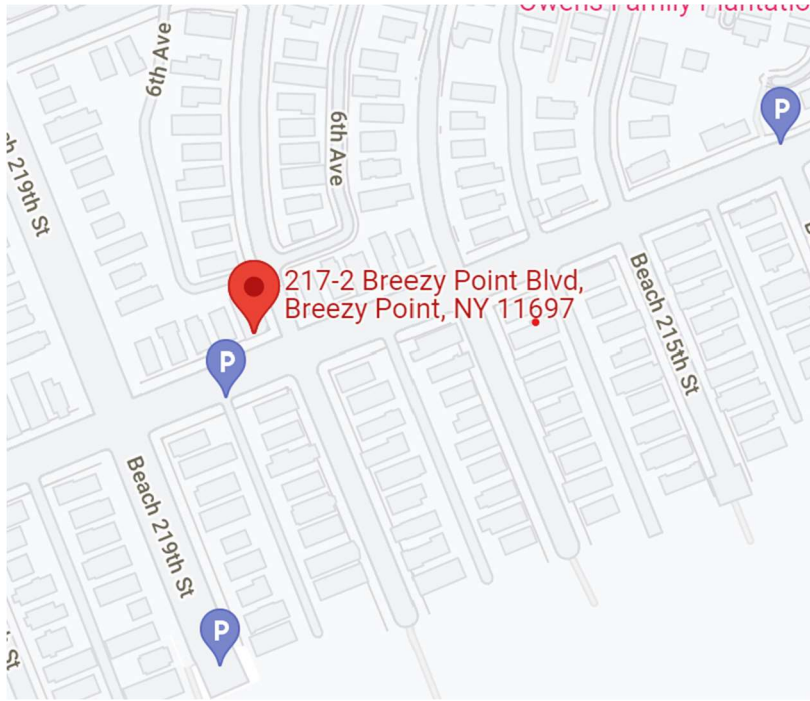
Original values:

Variable	Value	Variable	Value
RECORD	<b>934793</b>	EXLAND	768206
BBLE	4163500400	EXTOT	1133406
BORO	4	EXCD1	1010
BLOCK	16350	STADDR	217-02 BREEZY POINT BLVD
LOT	400	ZIP	11697
EASEMENT		EXMPTCL	
OWNER	BREEZY POINT COOPERAT	BLDFRONT	30
BLDGCL	A8	BLDDEPTH	40
TAXCLASS	1D	AVLAND2	
LTFRONT	2798	AVTOT2	
LTDEPTH	997	EXLAND2	
EXT		EXTOT2	
STORIES	1	EXCD2	
FULLVAL	273000000	PERIOD	FINAL
AVLAND	10920000	YEAR	2010/11
AVTOT	16380000	VALTYPE	AC-TR

Analysis:

This record has unusually high r2, r3, r2\_boro and r3\_boro values, likely because of high FULLVAL as compared to other properties in the same borough.





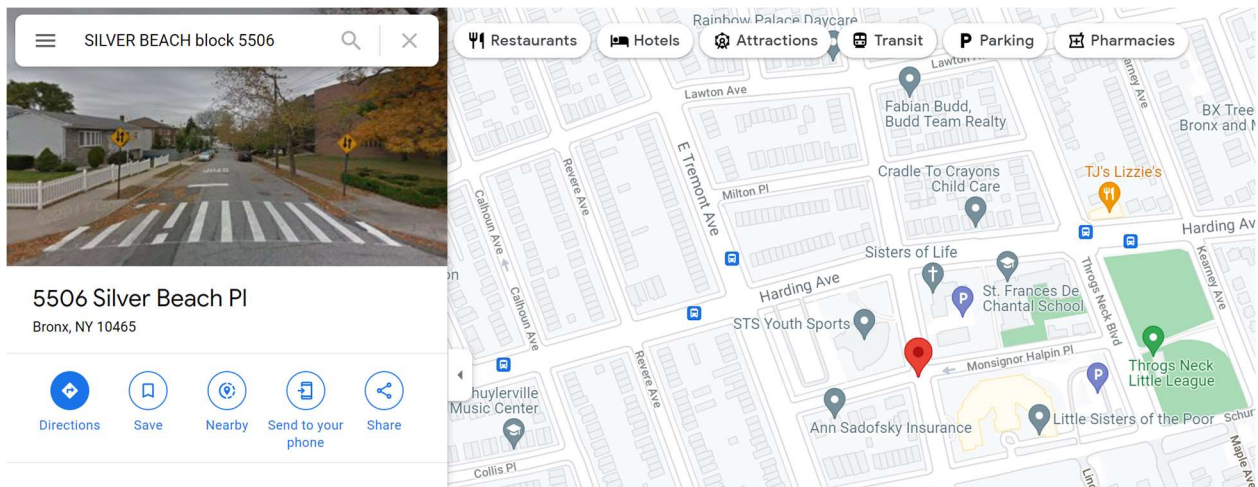
## RECORD 243059

Original values:

Variable	Value	Variable	Value
RECORD	243059	EXLAND	55860000
BBLE	2055060001	EXTOT	1217059
BORO	2	EXCD1	2258636
BLOCK	5506	STADDR	SILVER BEACH
LOT	1	ZIP	10465
EASEMENT		EXMPTCL	
OWNER	SILVER BEACH GARDENS	BLDFRONT	16
BLDGCL	A8	BLDDEPTH	30
TAXCLASS	1D	AVLAND2	
LTFRONT	999	AVTOT2	
LTDEPTH	556	EXLAND2	
EXT		EXTOT2	
STORIES	1	EXCD2	
FULLVAL	5730	PERIOD	FINAL
AVLAND	10	YEAR	2010/11
AVTOT	10	VALTYPE	AC-TR

Analysis:

This record is of particular interest as it has unusually low inverse of r1, r4 and r7 values for tax class and zip. This indicates that the property has unusually low BLDFRONT and BLDDEPTH values for that zip and tax class.





**RECORD 665158**

Original values:

Variable	Value	Variable	Value
<b>RECORD</b>	<b>665158</b>	<b>EXLAND</b>	
<b>BBLE</b>	4030720001	<b>EXTOT</b>	
<b>BORO</b>	<b>4</b>	<b>EXCD1</b>	
<b>BLOCK</b>	<b>3072</b>	<b>STADDR</b>	80-01A METROPOLITAN AVENUE
<b>LOT</b>	<b>1</b>	<b>ZIP</b>	<b>11379</b>
<b>EASEMENT</b>		<b>EXMPTCL</b>	<b>X5</b>
<b>OWNER</b>	ST JOHNS CEMETERY	<b>BLDFRONT</b>	<b>12</b>
<b>BLDGCL</b>	<b>Z8</b>	<b>BLDDEPTH</b>	<b>18</b>
<b>TAXCLASS</b>	<b>4</b>	<b>AVLAND2</b>	<b>11745000</b>
<b>LTFRONT</b>	<b>1412</b>	<b>AVTOT2</b>	<b>11807640</b>
<b>LTDEPTH</b>	<b>2532</b>	<b>EXLAND2</b>	<b>11745000</b>
<b>EXT</b>		<b>EXTOT2</b>	<b>1237500</b>
<b>STORIES</b>	<b>1</b>	<b>EXCD2</b>	
<b>FULLVAL</b>	29355000	<b>PERIOD</b>	<b>FINAL</b>
<b>AVLAND</b>	13140000	<b>YEAR</b>	<b>2010/11</b>
<b>AVTOT</b>	13209750	<b>VALTYPE</b>	<b>AC-TR</b>

Analysis:

This record is of particular interest as it has high r2, r3, r5, r6, r8, r9 values for zip5, zip3. This indicated that the property has unusually high FULLVAL or low BLDFRONT, BLDDEPTH, STORIES as compared to its neighborhood.



# St. John Cemetery

4.4 ★★★★★ 57 reviews  
Cemetery

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Opens at 9:00 AM

