PROBLEM STATEMENT

Optimize effectiveness of volunteers to maximize WTWY gala recruitment by using insights from NYC MTA travel pattern analysis.

promotionentertainment.com

DATA SET

- **Manhattan:April 2015**
- Historical data for MTA travel during probable recruiting time prior to summer gala*
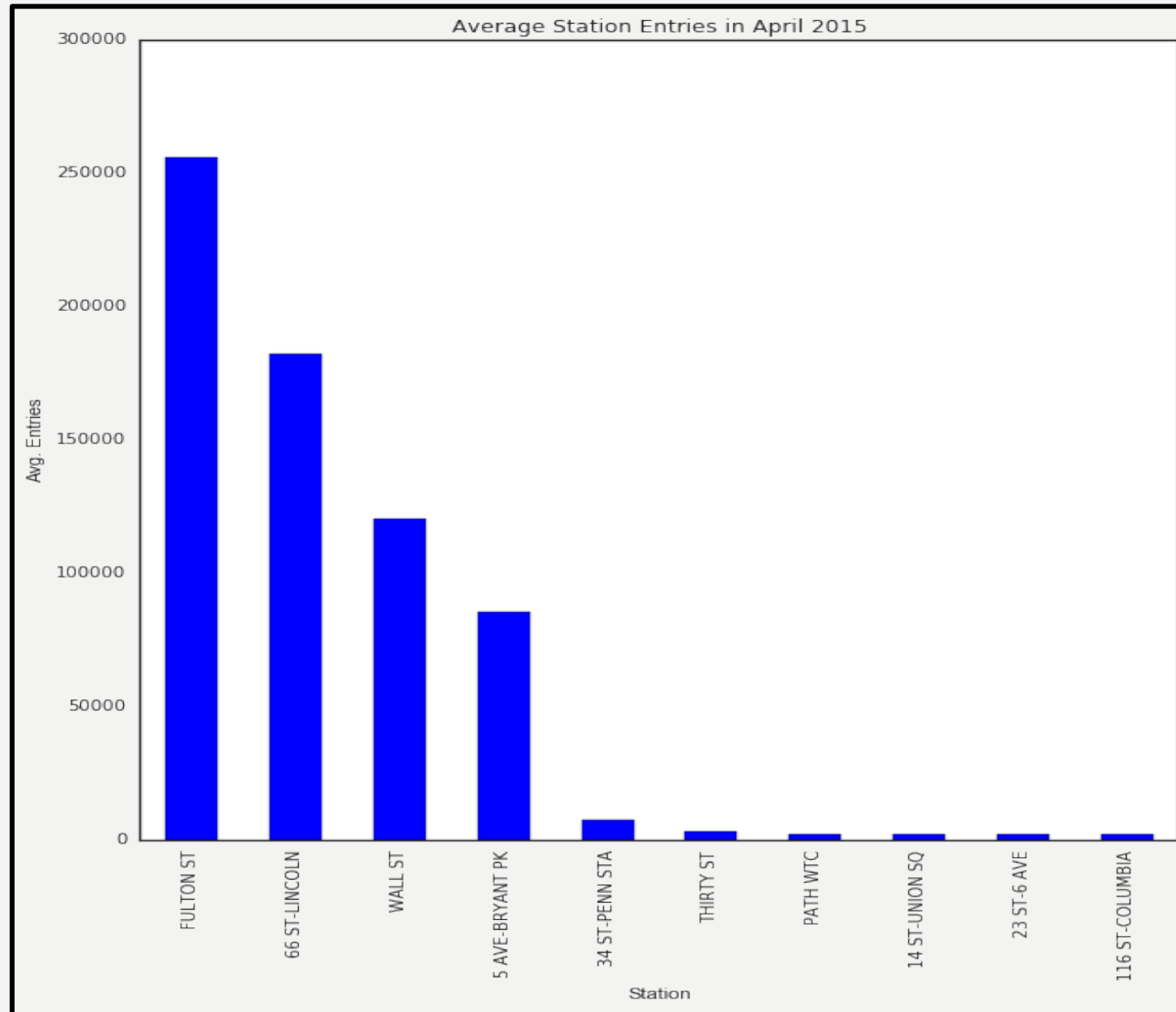- Socioeconomic data for Manhattan zip codes**

*MTA data from http://web.mta.info/developers/turnstile.html
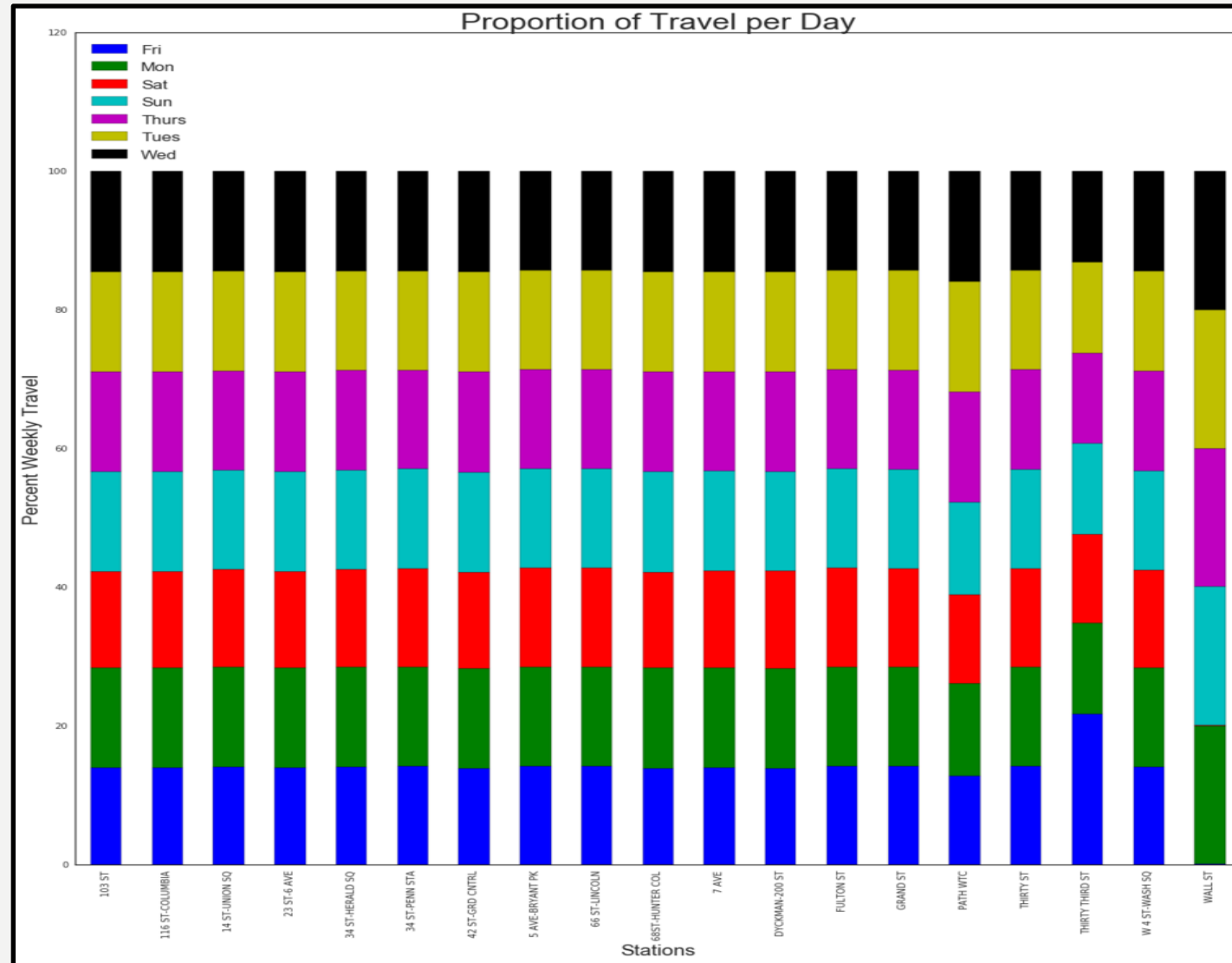
**Population data from http://zipatlas.com/

MOST TRAVELED STATIONS

(MEASURED BY AVERAGE ENTRIES PER DAY IN APRIL 2015)

TRAVEL PER WEEK DAY

(MEASURED AS A PROPORTION OF TOTAL WEEKLY TRAVEL PER STATION)

Proportion of Travel per Day

POPULATION PARAMETERS

- The ideal area to recruit for WTWY Gala would <u>rank</u> highly in the following categories:
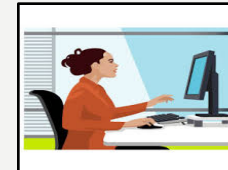
  – Female to Male Ratio

  – % Population employed in Professional & Scientific Industry

  – % Females in Labor Force

  – % Population Taking Public Transit to Work

  – % Households with Income > $100,000

ANALYSIS:

ZIP CODE TRAVEL VS. POPULATION RANKINGS

Travel Ranking

Rank	Station	Zip Code	Average Entries
1	FULTON ST	10038	255970
2	66 ST-LINCOLN	10023	182447
3	WALL ST	10005	120608
4	5 AVE-BRYANT PK	10036	85243
5	34 ST-PENN STA	10001	7510
6	THIRTY ST	10003	3068
7	PATH WTC	10048	2356
8	14 ST-UNION SQ	10003	2220
9	23 ST-6 AVE	10011	2180
10	116 ST-COLUMBIA	10027	2152
11	DYCKMAN-200 ST	10034	2027
12	7 AVE	10009	1968
13	42 ST-GRD CNTRL	10017	1925
14	103 ST	10029	1848
15	68ST-HUNTER COL	10021	1841

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Population Ranking

Rank	Zip Code	Female:Male Ratio
1	10048	3.23
2	10037	1.42
3	10021	1.28
4	10039	1.27
5	10162	1.22
6	10028	1.21
7	10017	1.21
8	10128	1.2
9	10022	1.19
10	10030	1.19
11	10010	1.19
12	10038	1.18
13	10040	1.16
14	10029	1.15
15	10025	1.14
16	10034	1.14
17	10016	1.14
18	10009	1.14
19	10024	1.14
20	10023	1.13
21	10069	1.13
22	10026	1.12
23	10044	1.11
24	10027	1.1
25	10032	1.09
26	10001	1.08
27	10031	1.07
28	10003	1.06
29	10033	1.06
30	10002	1.02
31	10035	1.02
32	10012	1
33	10280	0.99
34	10019	0.98
35	10013	0.95
36	10014	0.94
37	10011	0.93
38	10282	0.92
39	10018	0.8
40	10165	0.75
41	10036	0.74
42	10004	0.73
43	10006	0.67
44	10005	0.67
45	10007	0.59

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Each station is scored on 5-parameter Population Ranking and Travel Ranking

Example:

Population ranking = $(1_{F:M} + 16_{Prof.} + 39_{FL} + 33_{PT} + 2_{HI})$ = 93

Travel Ranking = 7

# ANALYSIS:

Top travelled stations were scored based on a weighted sum of ideal population parameters and average daily station entries

Top 15 travelled stations

Prof./Sci. Industry

Female to Male Ratio

Income >$100k

Females in Labor Force

Public Transit to Work

Ideal Population

Weighted by top travel ranking

Proposed recruitment stations
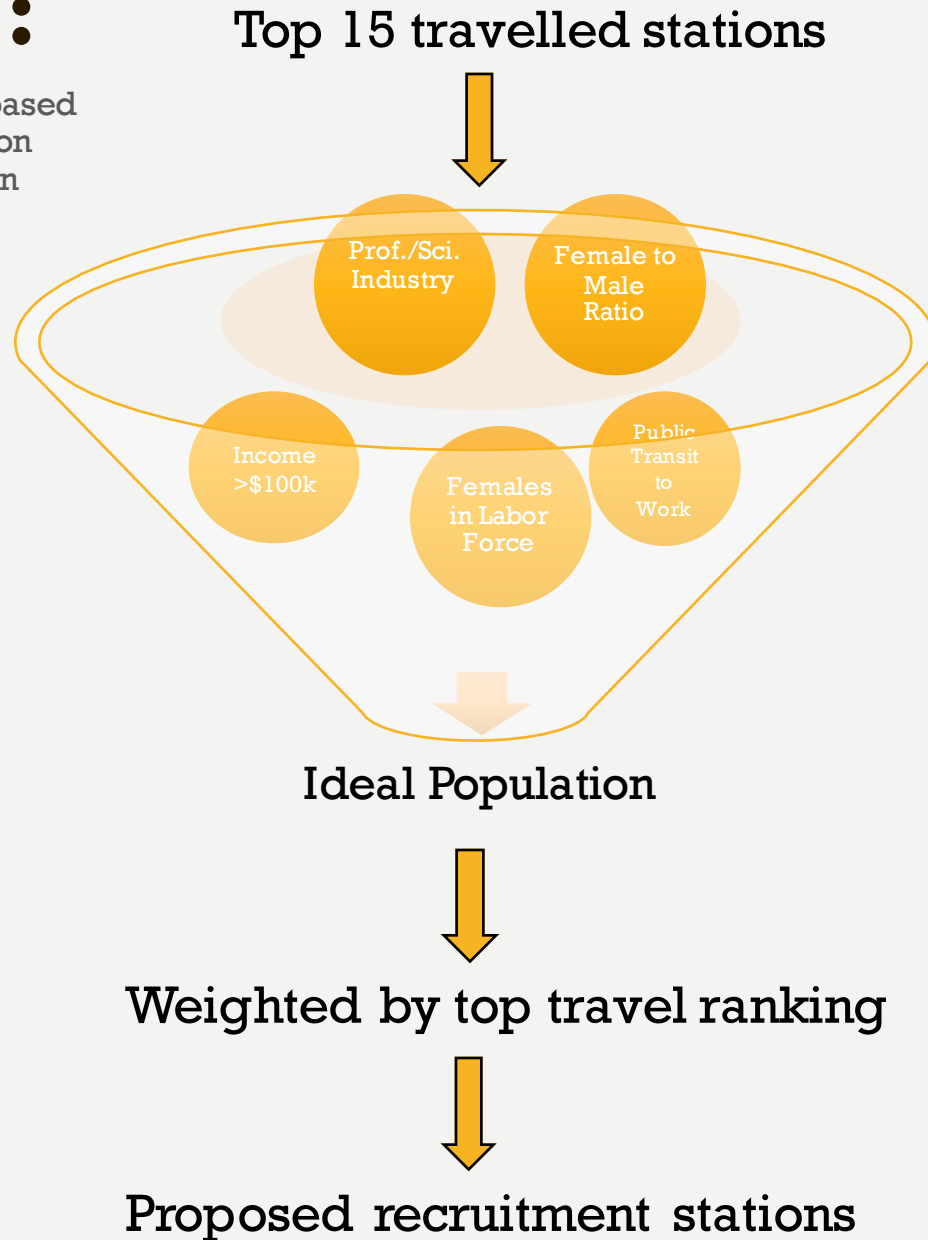
COMPARING INFLUENCE OF DEMOGRAPHIC AND TRAVEL DATA

Population vs Travel Ranking
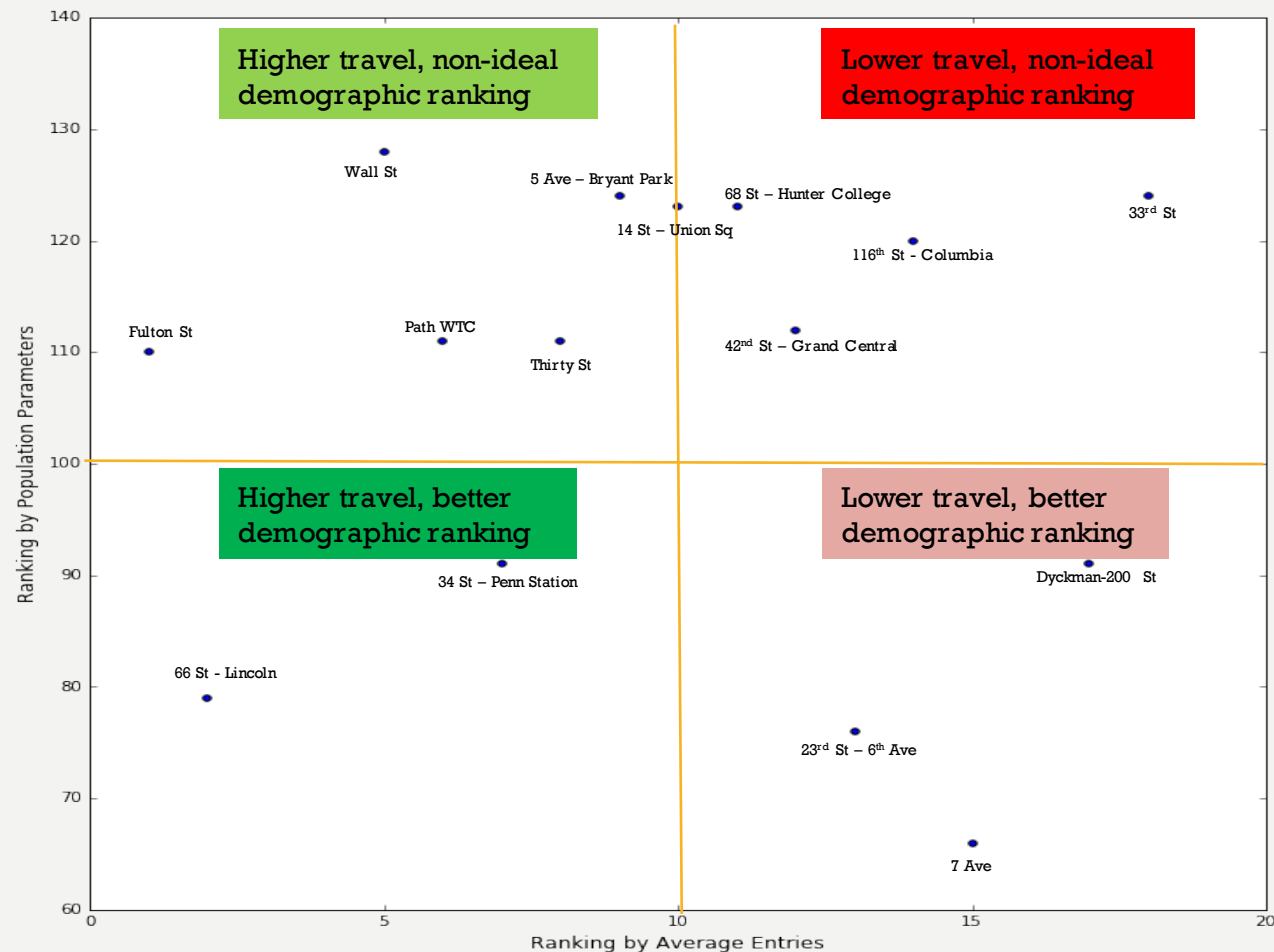
CONCLUSION

- Comparable travel concentration each week day
- Most travelled stations are in commuter areas
- Stations combining travel density with population demographics likely to participate in WTWY gala recruitment:
  1. Fulton St
  2. 66 ST – Lincoln
  3. Wall St
  4. Path WTC
  5. 34th St (Penn Station)
  6. 30th St
  7. 5th Ave (Bryant Park)
  8. 14th St (Union Square)

HURDLES/NEXT STEPS

- Examine motivation behind highest travelled stations
- Expand time span of MTA data set
- Revisit week day analysis
- Evaluate travel in multiple entrances for each station