**Chapter π - Transportation**

**Current Conditions**

The area around 370 Jay Street is currently serviced by a number of transportation options.

**Subway**

For subway trips, there are 13 different lines which go through the area and a number of stations. Table π-1 lists the closest stations which encompass all of the lines which stop in the area. For example, Hoyt St along the Eastern Parkway Line is not included because the Borough Hall stop along the same line is closer so the new trips coming from the further stop will be negligible.

Table π-1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Station | Subway Lines | Average Daily Traffic | Walking Distance | Estimated AM Trips | Estimated  PM Trips |
| Jay St Metrotech | NYCS-bull-trans-A.svgNYCS-bull-trans-C.svgNYCS-bull-trans-F.svgNYCS-bull-trans-R.svg | 59862 | 1 minute | 230 | 327 |
| Borough Hall | NYCS-bull-trans-2.svgNYCS-bull-trans-3.svgNYCS-bull-trans-4.svgNYCS-bull-trans-5.svg | 54622 | 4 minutes | 209 | 298 |
| Hoyt Schermerhorn | NYCS-bull-trans-A.svgNYCS-bull-trans-C.svgNYCS-bull-trans-G.svg | 16331 | 8 minutes | 29 | 41 |
| Dekalb Avenue | NYCS-bull-trans-B.svgNYCS-bull-trans-Q.svgNYCS-bull-trans-R.svg | 39138 | 7 minutes | 69 | 99 |
| Atlantic Av-Barclays Center | NYCS-bull-trans-B.svgNYCS-bull-trans-Q.svgNYCS-bull-trans-2.svgNYCS-bull-trans-3.svgNYCS-bull-trans-4.svgNYCS-bull-trans-5.svgNYCS-bull-trans-D.svgNYCS-bull-trans-N.svgNYCS-bull-trans-R.svg | 78121 | 16 minutes | 46 | 66 |

Average daily traffic is the average combination of the total number of people entering and leaving a station. This number does not account for any traffic that doesn’t enter or leave, such as transfers. Walking distance is the time in minutes it would take to walk to 370 Jay Street from that station according to Google Maps walking directions. The Estimated AM and PM trips are discussed in the impact analysis section.

We analyzed current usage of these stations by using the MTA turnstile data for a week in October 2015. The turnstile data published by the MTA has counts of entries and exits through each turnstile in a station combined into four hour blocks – 12AM, 4AM, 8AM, 12PM, 4PM and 8PM. The count at 12PM, for example, is the number of entries and exits through the turnstile between 8AM and 12PM. Due to granularity of the data, we can’t precisely assess current traffic during the peak hours.

**Bus**

There are 13 bus lines which service the area, shown in table π-2:

Table π-2

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Bus Line | Avg Weekday Ridership | Peak Buses per Hour | Estimated AM Rides | Estimated PM Rides | Est. AM Rides per Bus | Est. PM Rides per Bus |
| B25 | 10603 | 6 | 12 | 18 | .667 | 1.00 |
| B26 | 10290 | 11 | 12 | 18 | .364 | .545 |
| B38 | 20222 | 13 | 23 | 35 | .590 | .897 |
| B41 | 30701 | 12 | 35 | 53 | .972 | 1.47 |
| B45 | 6745 | 6 | 8 | 12 | .444 | .667 |
| B52 | 12523 | 12 | 14 | 22 | .389 | .611 |
| B54 | 11501 | 8 | 13 | 20 | .542 | .833 |
| B57 | 7054 | 5 | 8 | 12 | .533 | .800 |
| B61 | 10433 | 7 | 12 | 18 | .571 | .857 |
| B62 | 9587 | 7 | 11 | 17 | .524 | .810 |
| B63 | 12187 | 7 | 14 | 21 | .667 | 1.00 |
| B67 | 4554 | 5 | 5 | 8 | .333 | .533 |
| B103 | 13788 | 8 | 16 | 24 | .667 | 1.00 |

Average Weekday ridership is taken from the MTA’s 2014 statistics[[1]](#endnote-1) [[2]](#endnote-2). Peak buses per hour is the roughly the number of buses on that line per hour during the AM and PM peak hours according to the published timetables[[3]](#endnote-3). The estimate columns are discussed in the impact analysis section.

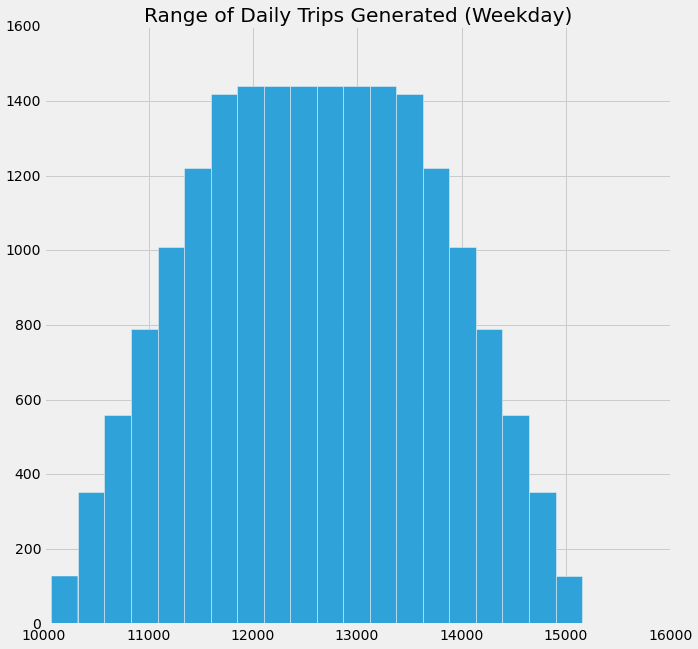
**Other**

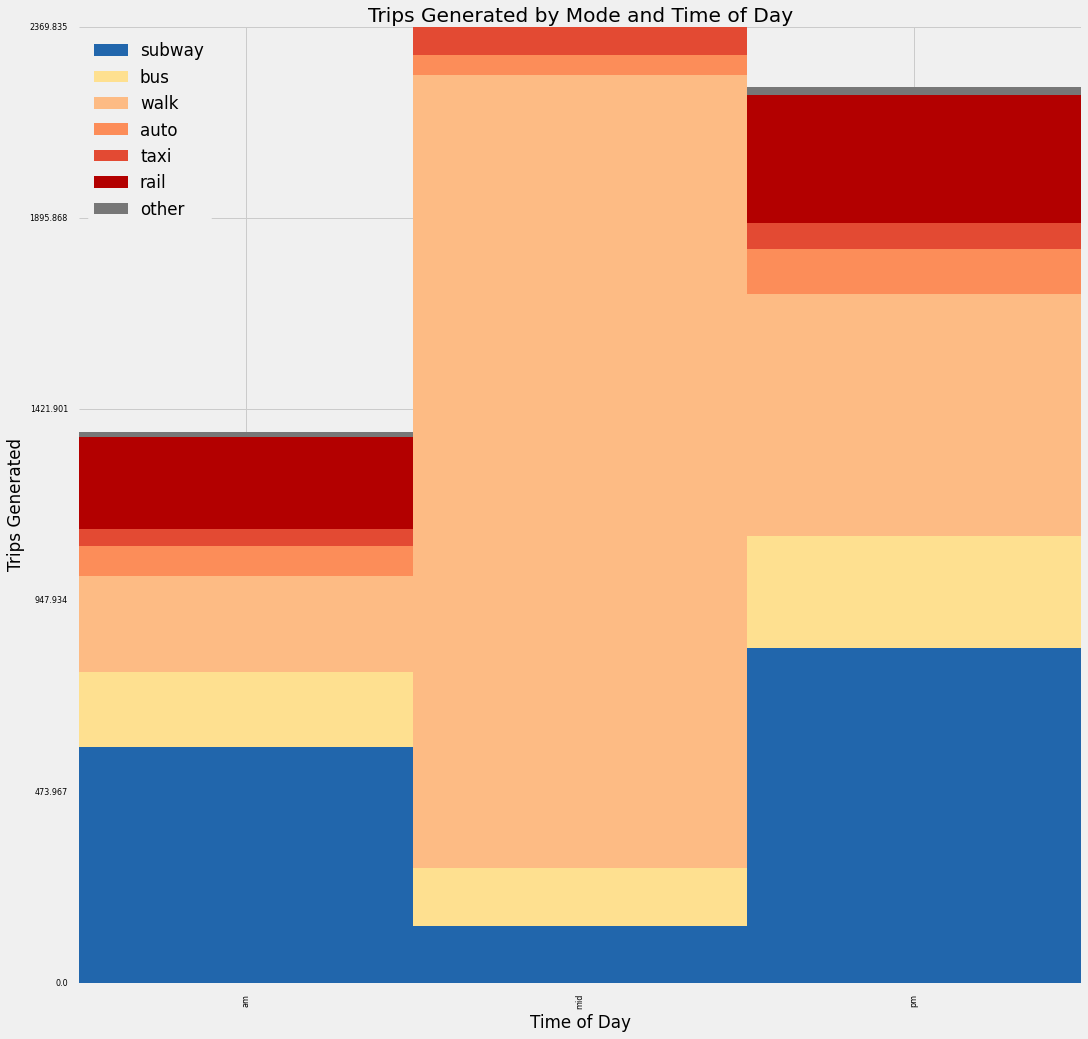
Other options include the Atlantic Branch of the Long Island Railroad (LIRR), which terminates at Atlantic Terminal; biking, including Citibike which has one station around the corner from 370 Jay and another 3 stations within a couple of blocks; private automobiles; and taxis.

**Impact Analysis**

The work at 370 Jay will include 450,000 square feet of new space – including 27,000 sqft of ground floor retail, 150,000 sqft of space for CUSP, 40,000 sqft of incubator space, and the rest mixed use by NYU[[4]](#endnote-4). To calculate trips generated and types of trips, Table 16-2 was used from the CEQR manual[[5]](#endnote-5), and Table 12-6 from the East Midtown environmental review[[6]](#endnote-6). Where statistics for academic settings were not available, office space was used as a proxy.

Without being sure of the exact makeup of the usage for the space, we generated a range of daily trips for different usage. We varied the retail space from all local retail to all destination retail, and the upper floors from all office to all academic, and all combinations of the two at 1% increments for a total of 10,000 building configurations. Below is a histogram of the results, showing the expected daily trips generated range from a low of about 10,000 to a high of 15,000 with an average of 12,500.



To get a better sense of the traffic, the next chart breaks down the average trips generated at the peak hours (AM rush hour, lunch time and PM rush hour) and mode of transportation. 

As shown, we expect there to be 1366 new trips during AM rush hour, 2220 during PM rush hour and 2370 during midday. The large amount of foot traffic during midday is mostly caused by the foot traffic to retail. The biggest impacts during AM and PM rush hours are to the subways. We expect that the automobile, taxi and railroad estimates are all over estimates due to using the modal splits of office space where academic modal splits were unavailable. Thus based on the CEQR requirements of 50 peak hour car trips, a level 2 assessment of traffic is probably unnecessary, but based on a 200 peak hour pedestrian or transit trips a level 2 assessment for pedestrians and transit would be required. Fortunately for this author and the reader, a full level 2 assessment is outside of the scope and budget of this environmental review.

**Subway Trip Assignment**

We estimated 585 subway trips generated during AM rush hour and 831 in the PM. We don’t have any usage statistics for subway lines themselves so we can’t assign trips to lines, only to the stations as a whole. We distributed the trips based on current station usage and distance from 370 Jay Street, weighing the closer stations more heavily. The results are shown in estimated AM and PM trips in table π-1. Both Jay Street Metrotech and Borough Hall look to get a significant increase in traffic during peak hours. Our escalator expert[[7]](#endnote-7) has identified the Jay Street escalators in particular as potential problem points.

**Bus Trip Assignment**

We estimated 185 bus trips generated during AM rush hour and 276 in the PM. To assign these trips to the bus lines we proportioned them according to current usage by the bus lines and then calculated the average additional rider per bus during peak hours. The results are shown in table π-2. Only for the B41 during PM rush hour do we expect more than one extra rider per bus on average. For all other bus lines during peak hours we project one or less than one additional rider per bus. We don’t have statistics on current load but based on the estimates the impact to any one bus line does not seem major.

**New Methods**

The current method for doing transportation impact analysis is quite crude – it involves using static tables of questionable applicability to calculate how many people will frequent a new building and how they might commute. We first need to improve the quality of our model of how many and what type of trips are generated by new development. To do that we need to get a sense of the people who commute to similar buildings in the area – where they come from and how they get there. This would require fine grained data of origin and destination, data which is currently impossible to discern from either subways or buses. Citibike and taxi trips data are examples of transportation which does allow for us to determine origin and destination. But even with that, we miss what happens before, how they go between, and where they go after.

Data which could give us a fairly complete picture of where people come from, where they go and how they go there is cell tower pings, which, for obvious privacy reasons would probably be unavailable to planners. Similarly wifi pings could give insight into movement patterns, given a big enough wifi network – possibly linkNYC once rolled out could be used responsibly for this sort of analysis.

With a model of how people currently commute to a location, we could then simulate the addition of new people commuting to and in the area and see whether any modes, streets, intersections, etc. are stressed too far by the additional load.

1. http://web.mta.info/nyct/facts/ridership/ridership\_busMTA.htm [↑](#endnote-ref-1)
2. http://web.mta.info/nyct/facts/ridership/ridership\_bus.htm [↑](#endnote-ref-2)
3. http://web.mta.info/nyct/service/bus/bklnsch.htm [↑](#endnote-ref-3)
4. https://www.nyu.edu/content/dam/nyu/govCommunAffairs/documents/nyu-in-nyc/brooklyn/2014-07-29-370-Jay-St-Presentation-Downloadable.pdf [↑](#endnote-ref-4)
5. http://www.nyc.gov/html/oec/downloads/pdf/2014\_ceqr\_tm/16\_Transportation\_2014.pdf [↑](#endnote-ref-5)
6. http://www.nyc.gov/html/dcp/pdf/env\_review/east\_midtown/12\_feis.pdf [↑](#endnote-ref-6)
7. Clayton Hunter Esq. [↑](#endnote-ref-7)