Running Analysis

- Run helper-scripts/
    - Run the *_intersection.R scripts to generate the tax lots that meet the amenities conditions (stored in created/intersections/).
    - Run create-prime.R script, which uses the intersection shapefiles to create the “PRIME” data. The results are stored in created/prime-bbls.
    - Run create-zone-cats-data.R. This creates two datasets: one that lists each BBL and the number of amenities it has, and the other which lists all the bbls that have ⅘ amenities. This data is stored in data/created/near-prime-bbls
    - Run create-ibx-served-missing-subway.R. This creates a list of bbls that have ⅘ amenities but no access to a subway, broken into two categories: served by proposed IBX or not served by proposed IBX. Results saved in created/ibx/
    - Run /helper-scripts/clean-pluto.R. This adds categories to the PLUTO data for the land use and building class variables
    - Do *not* try to run units-for-underutilization-calcs.R, this is sourced from other scripts when needed
- Run the scripts in analysis-scripts/ and use QGIS to make makes
    - Run 01_overall-breakdown-of-prime.R
        - High level calculations for report.
    - Run 02_plot-prime-lots.R
        - This creates sfs-for-qgis/primo-lots-sf.shp, used in QGIS.
    - Run 03_under-utilized.R
        - This contains analysis and creates shapefiles for the underutilization categories in sfs-for-qgis/underutilization. Used in QGIS.
    - Run 04_plot-amenity-zones.R
        - This creates sfs-for-qgis/num-amens-by-lot.shp which is used in QGIS
    - Run 05_plot-cols-of-zone-4.R
        - Creates underutilization column chart found in report.
    - Run 06_plot-zone-4-cats.R
        - Creates a shapefile of each bbl with ⅘ amenities with column for which they’re missing, for use in QGIS.
    - Run 07_plot-served-by-ibx.R
        - Creates a shapefile of bbls with ⅘ amenities but missing a subway, along with a column indicating whether they’re served by IBX. For use in QGIS.
    - Run 08_underutilized-ibx.R
        - Contains analysis of underutilized lots that’d be PRIME with IBX.
- Use QGIS:
    - For non-inset maps
        - For all non-inset maps, load in data/raw/nybb_24d/nybb_24d/nybb.shp to get the borough boundaries (set opacity to 100%). Load in the CartoDB/positron basemap.

        - For the first map in the report, simply load in sfs-for-qgis/prime-lots-sf.shp. Set the stroke style to none.
        - For the map of lots by number of amenities, load in num-amens-by-lot.shp. In “Layer Styling,” choose “Categorized” and color based on the num-amens column. Set the stroke style to none.
        - For the map of lots with all but one amenity, load in all-but-one-amen.shp. In “Layer Styling,” choose “Categorized” and color based on the category column. Set the stroke style to none.
        - For the map of lots served by the IBX, load in served-by-ibx.shp and Unofficial-Interborough-Express-Alignment.shp. In “Layer Styling,” choose “Categorized” and color based on the category column. Set the stroke style to none.
    - For all insets:
        - I did an ad hoc analysis and found the bbls of given lots that I thought served as good examples. To make the inset, load data/raw/nybb_24d/nybb_24d/nybb.shp to get the borough boundaries. Use Select Features By Values to select the given lot using the BBL (see below). Use Processing→Toolbox→Centroids to make the lot into a point.
        - Vacant lot bbl: 1003460039
        - Parking lot bbl: 3081670020
        - Commercial lot bbl: 3016080027
- Assumptions for underutilization:
    - For vacant lots, I filter PRIME lots that have a landuse of “vacant” in PLUTO. I filter for those with a lot area > 1815 square feet, which is the bottom 10th percentile for lots for multifamily residential buildings in the PLUTO data. I multiply the lot area of these vacant lots by the average number of units in multifamily residential buildings per square foot of lot in the PLUTO data.
    - For parking lots, I filter PRIME lots that have a landuse of “parking” in PLUTO. I filter for those with a lot area > 1815 square feet, which is the bottom 10th percentile for lots for multifamily residential buildings in the PLUTO data. I multiply the lot area of these parking lots by the average number of units in multifamily residential buildings per square foot of lot in the PLUTO data.
    - For church lots, I filter PRIME lots that have a landuse of “Churches/Religious Institutions” in PLUTO. I filter for those with a lot area > 1815 square feet, which is the bottom 10th percentile for lots for multifamily residential buildings in the PLUTO data. I calculate the likely first floor size by dividing the total built area by the number of floors. I subtract that value from the total lot area of the property to estimate open land. I multiply this open land value by the average number of units in multifamily residential buildings per square foot of lot in the PLUTO data.
    - For one story retail lots, I filter PRIME lots that have a landuse of “Commercial & Office,” a bldgclass of “Store Buildings”, and a numfloors value of 1. I then simply multiply that number by 15, the average number of residential units in a multifamily building in NYC (certainly contestable, but defensible. More detailed analysis with tighter assumptions is warranted).

    - For upzoning, I calculate the average number of units by zone. For each densification calculation, I take the actual number of units in a given building and subtract that from the average number of residential units in a building in the zone of interest. The result is how much that lot could densify to meet the average number of units for the given zone. I sum that result to get the total for the given densification.

Raw

pluto/Nyc_mappluto_24v3_1_shp

- Source: NYC Planning
- Contains: PLUTO shapefile data

pluto/Pluto_24v3_1.csv

- Source: NYC Planning
- Contains: PLUTO csv data

subways/MTA Subway Entrances and Exits_ 2024_20241128

- Source: NY Data
- Contains: Entrances and exits for all subways in NYC

subways/Subway Lines

- Source: NYC Open Data
- Contains: Shapefile for subway lines in NYC (no SIRR)

parks/Parks Properties_20241128

- Source: NYC Open Data
- Contains: Parks shapefile

schools/SchoolPoints_APS_2024_08_28

- Source: NYC Open Data
- Contains: The shapefile for all schools in NYC

schools/2021_DOE_High_School_Directory_20241130

- Source: NYC Open Data

- Contains: Highschools in NYC

schools/2021_DOE_Middle_School_Directory_20241130

- Source: NYC Open Data
- Contains: Middle schools in NYC

schools/2021_DOE_Kindergarten_Admissions_Guide_20241130

- Source: NYC Open Data
- Contains: Kindergartens in NYC

Retail/Retail_Food_Stores_20241128

- Source: NY Data
- Contains: All retail stores that sell food in NYS.

buses/Bus Stop Shelter_20241130/

- Source: NYC Open Data
- Contains: All bus stops in NYC

nychdb_nta_23q4_shp

- Source: Bytes of the Big Apple
- Contains: Housing production by NTA.

2050_1p_258r_shp_selection_final_elim50k_unionFEMA_20241201.csv

- Source: NYC Open Data
- Contains: The projected 2050 floodplain for NYC

IBX/Unofficial-Interborough-Express-Alignment.shp

- Source: Github
- Contains: Estimate of where the IBX will go.

Nybb_24d

- Source: NYC Open Data, using “Borough Boundaries (Clipped to Shoreline)”
- Contains: Borough boundaries shapefile

Created

intersections/tax_lots_subway_5_buffer.csv

- Created by: helper-scripts/subway-intersection.R
- Uses: nyc_mappluto_24v3_1_shp, MTA Subway Entrances and Exits_ 2024_20241128
- Contains: Just the bbls for the tax lots that intersect the .5 mile buffer of subway entrances

intersections/tax_lots_busstops_25_buffer

- Created by: helper-scripts/bus-intersection.R
- Uses: nyc_mappluto_24v3_1_shp, Bus Stop Shelter_20241130
- Contains: Just the bbls for the tax lots that intersect the .25 mile buffer of bus shelters.

intersections/tax_lots_parks_25_buffer

- Created by: helper-scripts/parks-intersection.R
- Uses: nyc_mappluto_24v3_1_shp, Parks Properties_20241128
- Contains: Just the bbls for the tax lots that intersect the .25 mile buffer of parks that are greater than 1 acre.

intersections/tax_lots_retail_5_buffer

- Created by: helper-scripts/retail-intersection.R
- Uses: nyc_mappluto_24v3_1_shp, Retail Food Stores_20241130
- Contains: Just the bbls for the tax lots that intersect the .5 mile buffer of a retail food establishment that is greater than 10,000 square feet and not a pharmacy or non-grocery.

intersections/tax_lots_schools_1_buffer

- Created by: helper-scripts/school-intersection.R
- Uses: nyc_mappluto_24v3_1_shp, SchoolPoints_APS_2024_08_28, 2021_DOE_High_School_Directory_20241130.csv, 2021_DOE_Middle_School_Directory_20241130.csv, 2021_DOE_Kindergarten_Admissions_Guide_20241130.csv
- Contains: Just the bbls for the tax lots that intersect the 1 mile buffer of a highschool, middle school, and elementary school.

intersections/non-flood-zone-tax-lots

- Created by: helper-scripts/flood-intersection.R

- Uses: nyc_mappluto_24v3_1_shp, Sea Level Rise Maps (2020s 100-year Floodplain), 2050_1p_258r_shp_selection_final_elim50k_unionFEMA_20241201.csv
- Contains: Just the bbls for the tax lots that do not intersect the projected 2050 floodplain.

prime-bbls/Prime-bbls

- Created by helper-scripts/create-prime.R
- Uses: nyc_mappluto_24v3_1_shp, tax_lots_subway_5_buffer.csv, tax_lots_parks_25_buffer.csv, tax_lots_retail_5_buffer.csv, tax_lots_schools_1_buffer.csv, non-flood-zone-tax-lots.csv
- Contains: Just bbls with access to all amenities

prime-bbls/num-amens-wide

- Created by helper-scripts/create-prime.R
- Uses: nyc_mappluto_24v3_1_shp, tax_lots_subway_5_buffer.csv, tax_lots_parks_25_buffer.csv, tax_lots_retail_5_buffer.csv, tax_lots_schools_1_buffer.csv, non-flood-zone-tax-lots.csv
- Contains: For each BBL, a column for each amenity with each row True or FALSE if that BBL has that amenity.

prime-bbls/num-amens-long

- Created by helper-scripts/create-prime.R
- Uses: nyc_mappluto_24v3_1_shp, tax_lots_subway_5_buffer.csv, tax_lots_parks_25_buffer.csv, tax_lots_retail_5_buffer.csv, tax_lots_schools_1_buffer.csv, non-flood-zone-tax-lots.csv
- Contains: Each row is a bbl-amenitiy pair along with True or False depending on if that BBL has that amenity

Pluto-clean

- Created by helper-scripts/clean-pluto.R
- Uses: Pluto_24v3_1.csv
- Contains: Pluto with clean landuse, building class, and other categories

near-prime-bbls/zone-4-with-cats/

- Created by: helper-scripts/create-zone-cats-data.R
- Uses: created/pluto-clean.csv, num-amens-long.csv, num-amens-wide.csv
- Contains: All bbls that have 4/5 amenities and which amenity they’re missing

near-prime-bbls/amenity-zone-cats

- Created by helper-scripts/create-zone-cats-data.R
- Uses: pluto-clean.csv, num-amens-long.csv, num-amens-wide.csv
- Contains: All bbls and how many amenities they have.

ibx/missing-subway-served-by-ibx.csv

- Created by: create-ibx-served-missing-subway
- Uses: zone-4-with-cats.csv, MapPLUTO.shp, Unofficial-Interborough-Express-Alignment.shp
- Contains: BBLs of lots that are currently near-PRIME but without a subway. Category indicating which would be served by IBX.

sfs-for-qgis/prime-lots-sf.shp

- Created by 02_plot-prime-lots.R
- Uses: prime-bbls.csv, MapPLUTO.shp, pluto-clean.csv
- Contains: Shapefile of PRIME lots

sfs-for-qgis/underutilized/*

- Created by: 03_under-utilized
- Uses: prime-bbls.csv, MapPLUTO.shp, pluto-clean.csv
- Contains: For each underutilization category, contains a shapefile.
- Used for: Finding example lots for article (such as a city-owned vacant lot) and creating inset maps

sfs-for-qgis/num-amens-by-lot.shp

- Created by: 04_plot-amenity-zones.R
- Uses: MapPLUTO.shp, pluto_24v3_1.csv, amenity-zone-cats.csv,
- Contains: Shape file of each lot along with how many amenities it has

sfs-for-qgis/all-but-one-amen.shp

- Created by: 06_plot-zone-4-cats.R
- Uses: MapPLUTO.shp, zone-4-with-cats.csv
- Contains: Shape file of each lot with ⅘ amenities, along with indicator of which amenity is missing

sfs-for-qgis/served-by-ibx.shp

- Created by: 07_plot-served-by-ibx.R

- Uses: MapPLUTO.shp, zone-4-with-cats.csv, missing-subway-served-by-ibx.csv, Unofficial-Interborough-Express-Alignment.shp
- Contains: Shape file of each lot with ⅘ amenities, along with indicator of which amenity is missing