Building Elevation and Subgrade Dataset – Guidance on use and limitations

The building elevation and subgrade dataset has many potential use cases. However, the Department of City Planning (DCP) would like to provide additional important caveats and address some questions or issues that users may encounter.

General data collection:
The data vendor collected photographic as well as LiDAR imagery driving on NYC city streets. The imagery is much like what one might see on Google Streetview. The data operators would use only what they could see in the imagery and LiDAR point cloud to measure elevations and record building features. The LiDAR point cloud would sometimes be able to pick up measurements below the street level. **All data is derived from what was <u>visible</u> in the imagery and point cloud.**

An example of how this might play out:
"I noticed that many buildings in my neighborhood that clearly have basements with are classified as "no subgrade". I walk around my neighborhood every day and I can see the basements, what's going on!"
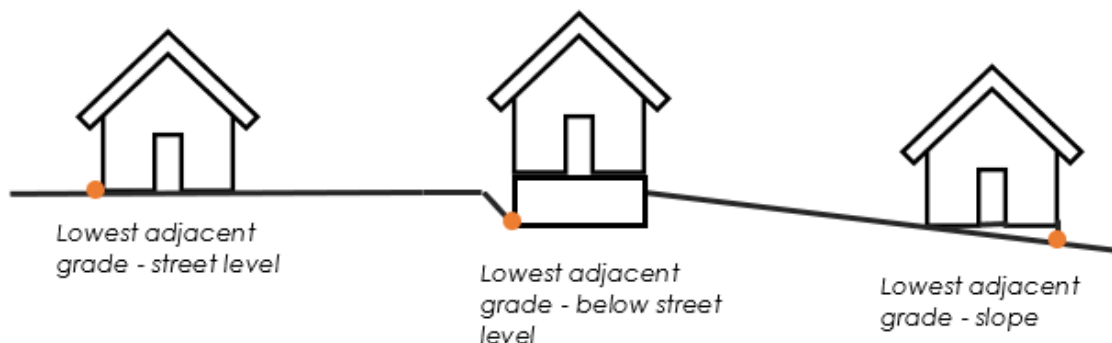
One might be able to see evidence of subgrade space -for instance windows close to the ground- while walking around. However, the imagery might not show the same thing. Are those windows near the ground located on the sides of buildings with very narrow spaces in between them? The vehicles capturing this data from the road cannot get the same angle and views as a pedestrian might be able to.

"But we can see in the imagery all of the houses are the exact same typology, can that be used as a basis to mark subgrade space?"

There was no expectation that the data operators involved in collecting measurements should understand or be aware of building typologies in New York City and did not think it would be helpful to make assumptions. The study prioritized a consistent methodology over introducing too much space for data operator interpretation.

Grade Measurement and Estimates
Please see the data dictionary for how DCP defined grade measurements. It is important to note that there are instances where the lowest grade may be below street level or on a slope (see image below).

Lowest adjacent grade - street level

Lowest adjacent grade - below street level

Lowest adjacent grade - slope

In many instances where the lowest adjacent grade was below street level, the derived measurement in the dataset is an **estimate.** Any building centroid that has an estimated grade elevation will note *"Property not visible due to construction or obstruction"* under note_1.

Estimates were made by individual data operators based on context clues in the imagery. As an example:

The data operator could measure the elevation of the top of the door and subtract the standard height of a door (80 inches) from this measurement to arrive at an estimate of the lowest point where the building meets the ground.

This building has a visible below grade space, but where the building touches the ground is not visible and the data operator cannot pull an elevation from the LiDAR point cloud.

The data operator can, however, see the top of a door to the below-street level space in the imagery

Elevation x – 80 inches = z_grade estimate

Subgrade spaces

As noted in the data dictionary, a subgrade space does not need to be habitable or show residential use to be recorded – this dataset cannot speak to whether recorded subgrade spaces are being used as residences. The z_grade measurement in buildings with subgrade space is not the same as the depth of the subgrade space – there is no way of knowing that measurement from outside of the building. The methodology relies on there being external clues that indicate subgrade space. It does not represent subgrade spaces that may only be internally accessible, such as cellars that may be present in large commercial or apartment buildings. **This dataset should not be treated as an inventory of subgrade spaces in New York City.**

Street level measurements

This study does not contain measurements that indicate street level elevation. Choosing one point to represent the entire terrain surrounding a building did not make on a citywide scale- even using the elevation of a point on the road would not account for the variability between the road and the building.