

LAND USE DIVERSITY

NYC Department of City Planning Transportation Division

June 2021



- **MapPLUTO**

- BBL
- Census Tract 2010
- Shape Area
- Residential Area
- Office Area
- Retail Area
- Garage Area
- Storage Area
- Factory Area
- Other Area

Total Building Area



- Total Building Area $\neq 0$
- Total Building Area / Shape Area ≤ 40
 - ↑
Built FAR
 - ↑
Max allowed FAR



$$LUDI_{BK} = -\left(\sum_{i=1}^n P_i \times \ln(P_i) \times WT_i\right) \div \ln\left(\sum_{i=1}^n WT_i\right)$$

Where,

$LUDI_{BK}$ = the Census Block level Land Use Diversity Index with a range between 0 and 1; 0 represents homogenous land use, and 1 indicates the building area is equally distributed across all land use types

P_i = the proportion of total building area for the i^{th} land use category found within half-mile walkshed of the Census Block being analyzed

WT_i = the weight for the i^{th} land use category

n = the number of land use categories of interest



$$LUDI_{CT} = \left(\sum_{i=1}^n LUDI_{BK}^i \times BA_{BK}^i \right) \div \sum_{i=1}^n BA_{BK}^i$$

Where,

$LUDI_{CT}$ = the Census Tract level Land Use Diversity Index with a range between 0 and 1; 0 represents homogenous land use, and 1 indicates the building area is equally distributed across all land use types

$LUDI_{BK}^i$ = the Census Block level Land Use Diversity Index of Census Block i

BA_{BK}^i = the total building area within half-mile walkshed of the Census Block i



$$LUDI_{NTA} = \left(\sum_{i=1}^n LUDI_{BK}^i \times BA_{BK}^i \right) \div \sum_{i=1}^n BA_{BK}^i$$

Where,

$LUDI_{NTA}$ = the Neighborhood Tabulation (NTA) level Land Use Diversity Index with a range between 0 and 1; 0 represents homogenous land use, and 1 indicates the building area is equally distributed across all land use types

$LUDI_{BK}^i$ = the Census Block level Land Use Diversity Index of Census Block i

BA_{BK}^i = the total building area within half-mile walkshed of the Census Block i

Residential Area — Residential Area × 1

Office Area
Retail Area > Office & Retail Area × 1

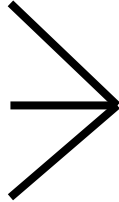
Garage Area
Storage Area
Factory Area
Other Area > Other Area × 1



Residential Area — Residential Area × 1

Office Area — Office Area × 1

Retail Area — Retail Area × 1

Garage Area
Storage Area
Factory Area  Industrial Area × 1

Other Area — Other Area × 1



Residential Area — Residential Area $\times 1$

Office Area — Office Area $\times 1$

Retail Area — Retail Area $\times 3$

Garage Area
Storage Area
Factory Area \Rightarrow Industrial Area $\times 0.25$

Other Area — Other Area $\times 1$