LAND USE DIVERSITY

NYC Department of City Planning Transportation Division

March 2021

- **MapPLUTO**
  - BBL
  - Census Tract 2010
  - Shape Area
  - Residential Area ⎫
  - Office Area
  - Retail Area
  - Garage Area   ⎬ Total Building Area
  - Storage Area
  - Factory Area
  - Other Area   ⎭

- Total Building Area != 0

- Total Building Area / Shape Area <= 40

$\qquad\qquad\qquad\qquad\uparrow\qquad\qquad\qquad\quad\uparrow$

$\qquad\qquad$ Built FAR $\qquad$ Max allowed FAR

Census Tract Land Use Diversity Index

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

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

P_i = the proportion of total building area of the ith land use category found in the Census Tract being analyzed

WT_i = the weight for the ith land use category

n = the number of land use categories of interest

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

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

$LUDI_{CT}^{i}$ = the Census Tract level Land Use Diversity Index in Census Tract i

BA_{CT}^{i} = the total building area in Census Tract i

Residential Area ⎯⎯ Residential Area × 1

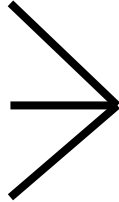Office Area
Retail Area ⟩ Office & Retail Area × 1

Garage Area
Storage Area
Factory Area ⟩ Other Area × 1
Other Area

Residential Area —— Residential Area × 1

Office Area —— Office Area × 1

Retail Area —— Retail Area × 1

Garage Area
Storage Area ⟩ Industrial Area × 1
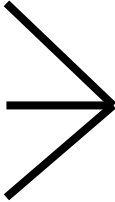Factory Area

Other Area —— Other Area × 1

Residential Area —— Residential Area × 1

Office Area —— Office Area × 1

Retail Area —— Retail Area × 3

Garage Area

Storage Area ⟩ Industrial Area × 0.25

Factory Area

Other Area —— Other Area × 1