LAND USE DIVERSITY

NYC Department of City Planning Transportation Division

June 2021

NYC PLANNING

- **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

Built FAR   Max allowed FAR

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

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 ith land use category found within half-mile walkshed of the Census Block being analyzed

WT_i = the weight for the ith land use category

n = the number of land use categories of interest

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

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

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

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

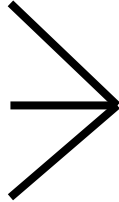Office Area
Retail Area
> Office & Retail Area × 1

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 ⟩ Industrial Area × 1
Factory Area

Other Area —— Other Area × 1

Residential Area —— Residential Area × 1

Office Area —— Office Area × 1

Retail Area —— Retail Area × 5

Garage Area
Storage Area ⟩ Industrial Area × 0.25
Factory Area

Other Area —— Other Area × 1