

An aerial photograph captures the demolition of a large, rectangular industrial building. The structure is partially collapsed, with thick plumes of white smoke and dust billowing from its base and sides. In the background, a multi-lane highway curves through a green landscape, and a river flows alongside it. A small town or residential area is visible further back. The sky is overcast.

Building Life Span Prediction

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Disposable Buildings



Problem

PWC forecasts that

*the volume of construction output
will grow by 85%*

to \$15.5 trillion worldwide by 2030.

A professional portrait of a middle-aged man with short brown hair, wearing black-rimmed glasses, a white button-down shirt, and a dark blue blazer over a plaid jacket. He is looking slightly to his left with a neutral expression. The background is a blurred indoor setting.

Customer Profile

Large Real Estate Corporations

- CBRE
- Co-Star
- The Related Company
- JLL



Customer Profile

Government Agencies

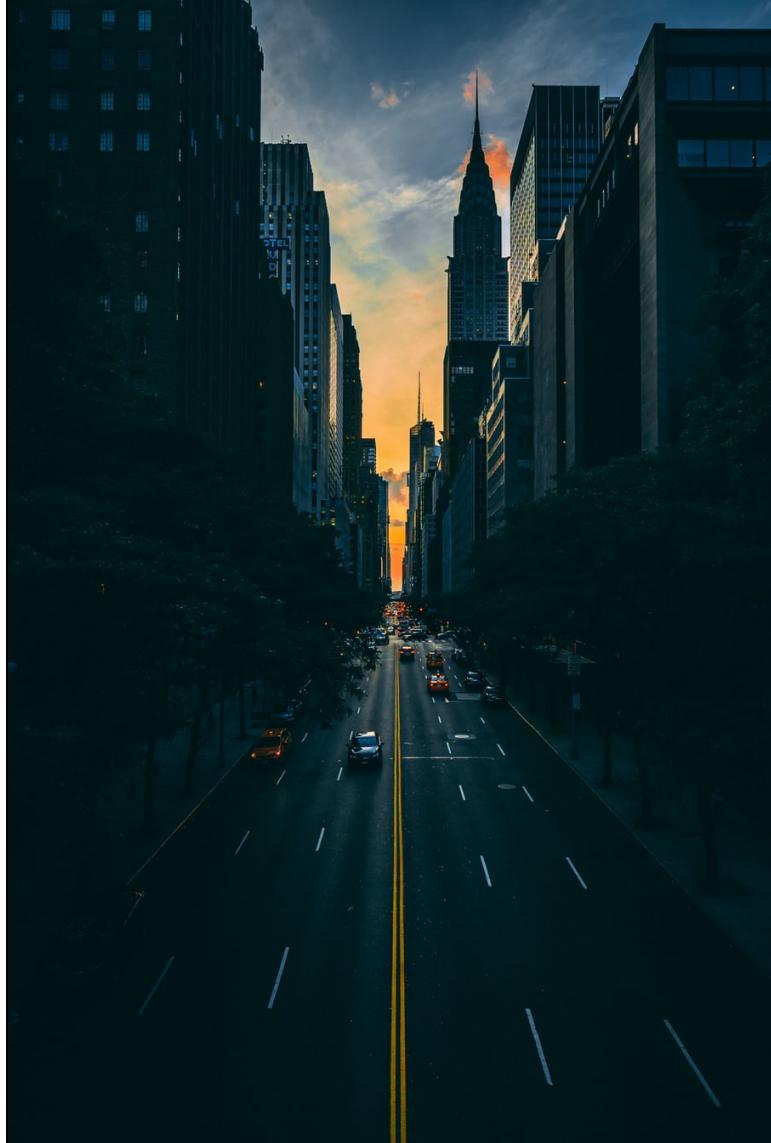
- HUD
- USACE
- NAVFAC



3,500 tax lots
Demolished buildings
Commercial only
Constructed 1800 - 2017

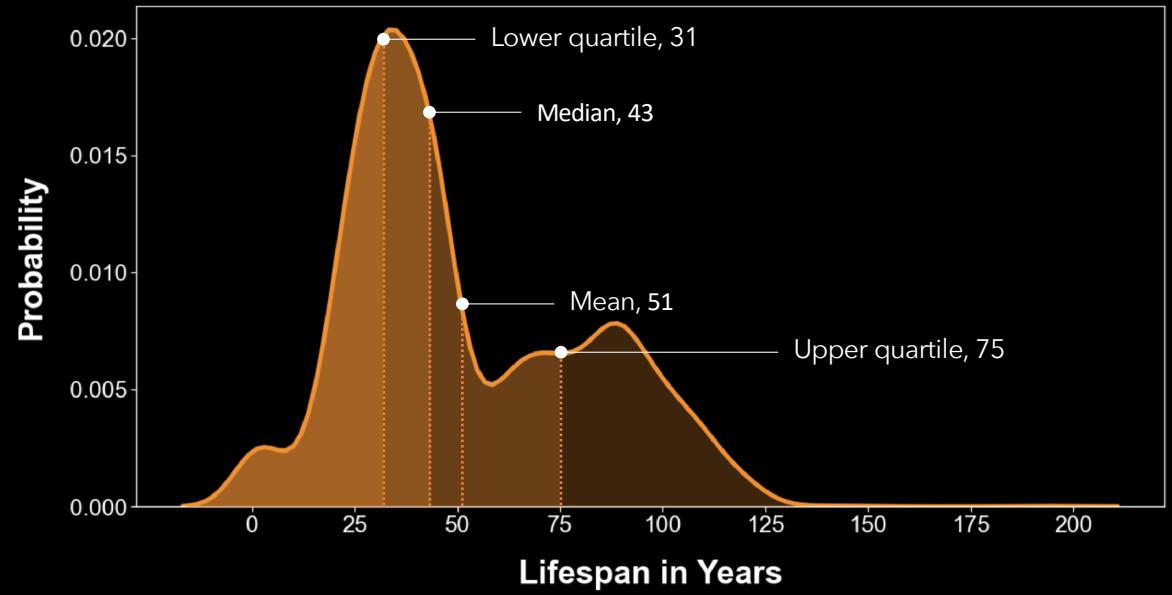
Data

PLUTO + NYC Permits

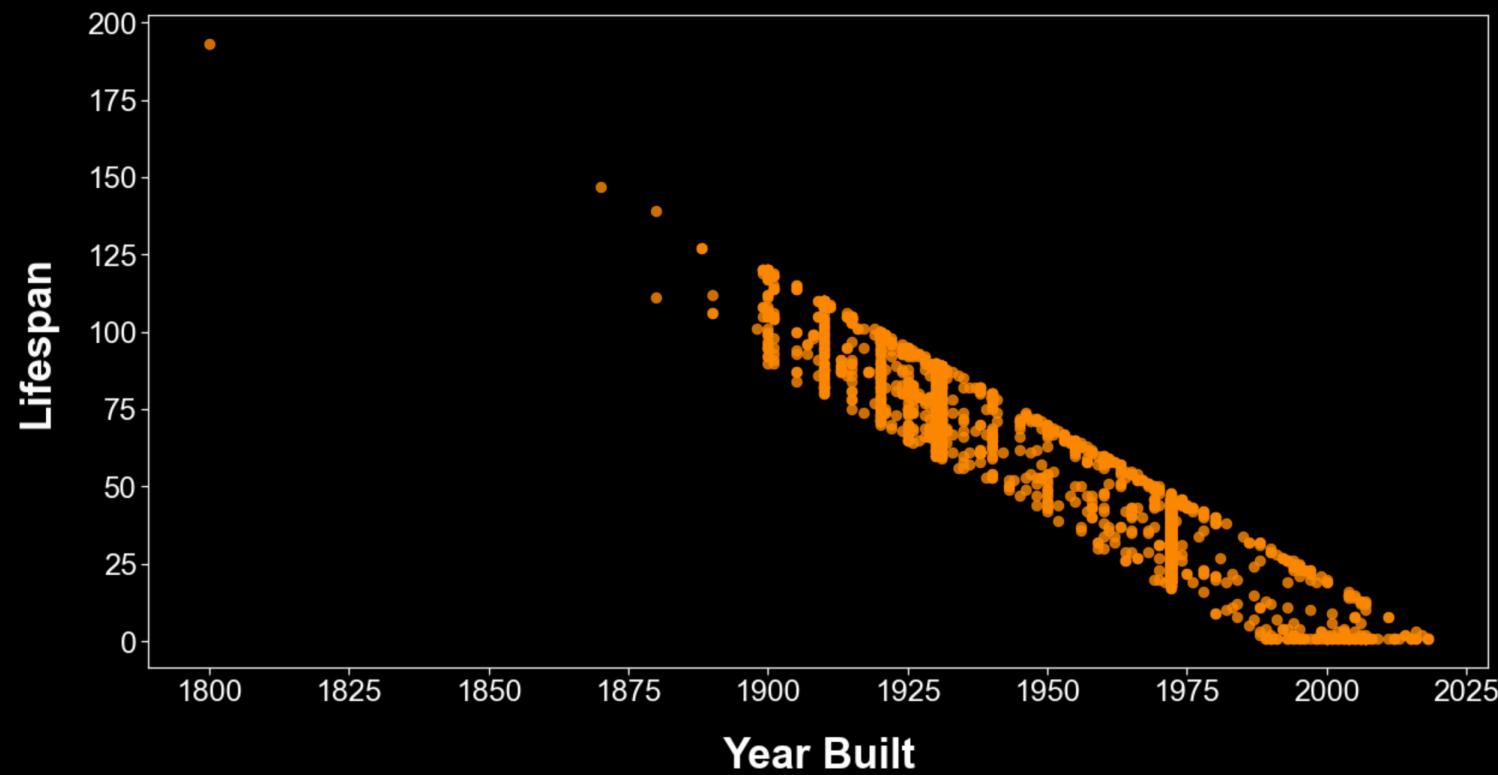


Analysis

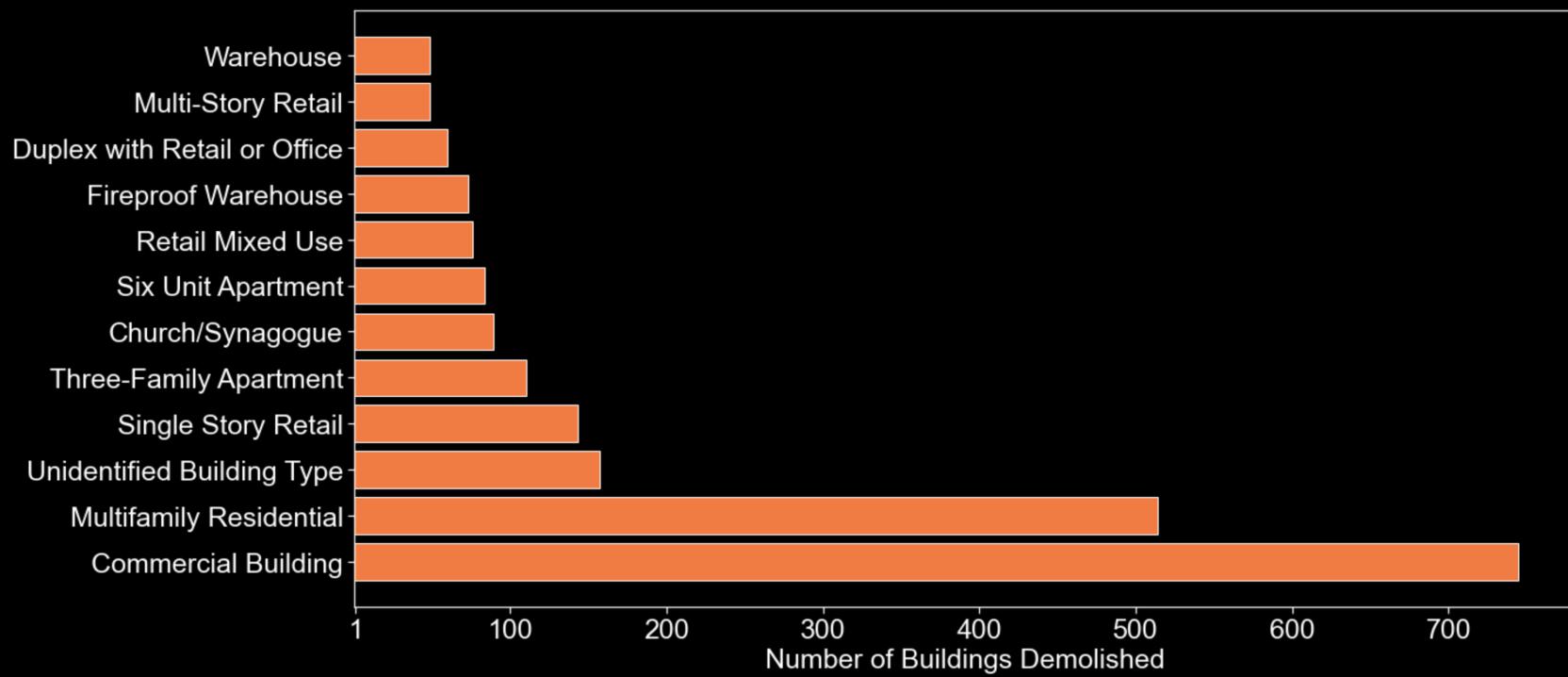
Distribution of Lifespan

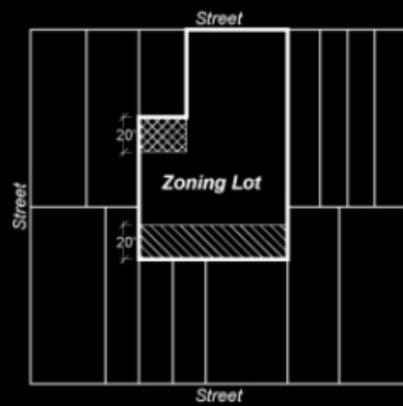


Lifespan by Year Built

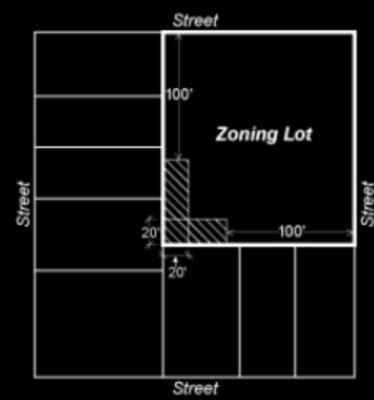


Top Building Types Demolished

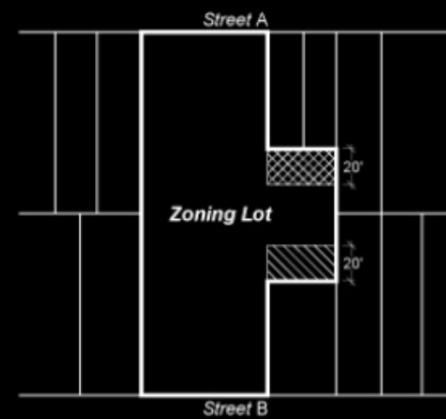




Inside Lot

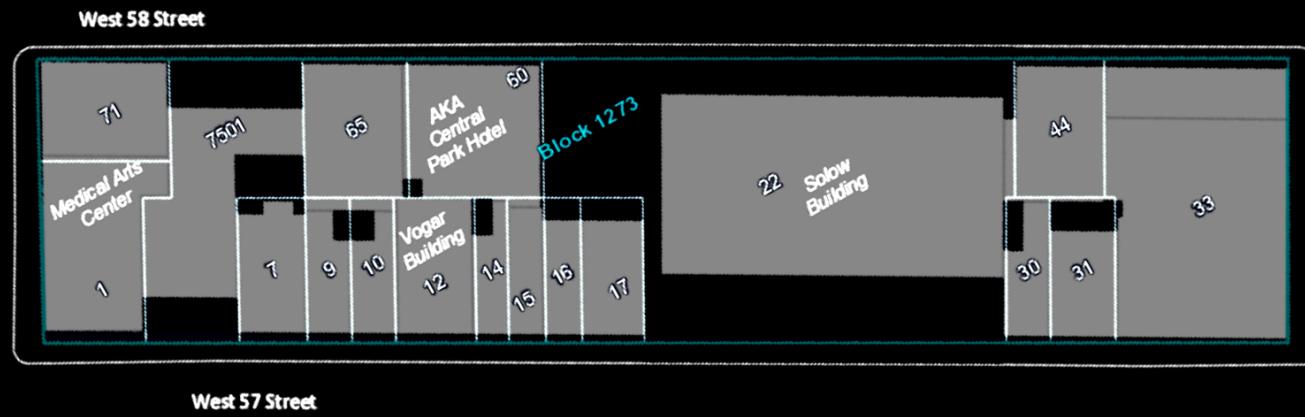


Corner Lot



Through Lot

Lot Area



Larger lots cause a slightly positive impact on lifespan.



- frontage = lifespan ↓



+ frontage = lifespan ↑

Frontage

For every 100 ft of frontage, lifespan goes up 2 years.

Year Built



older = lifespan ↑



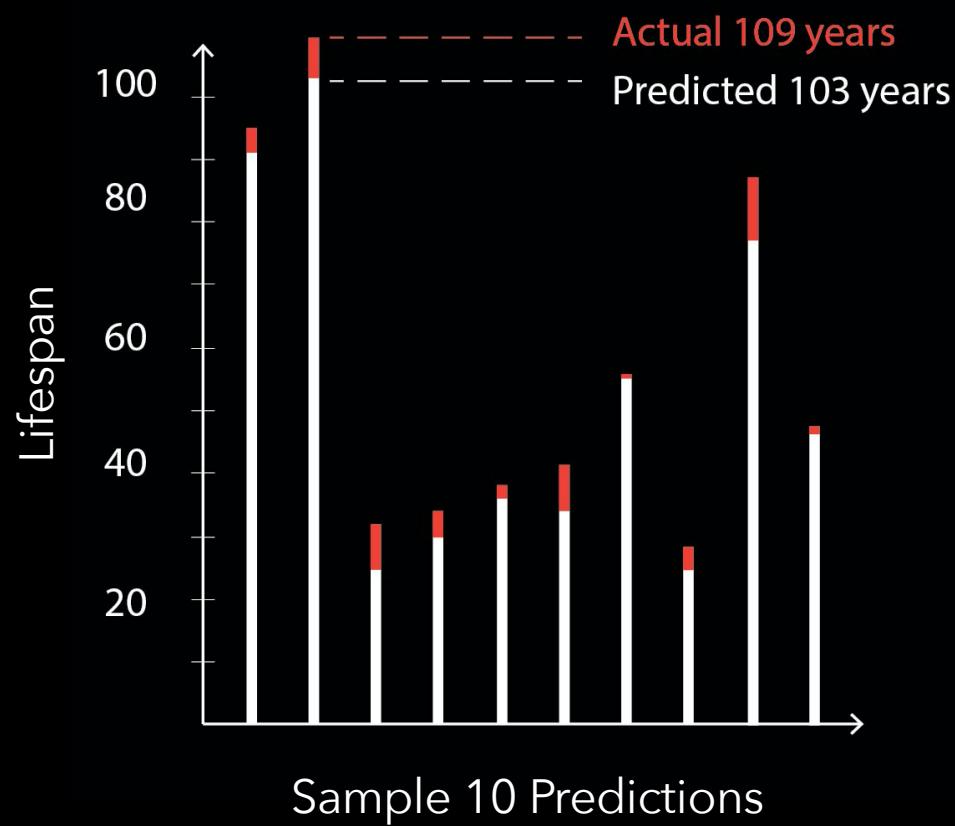
Younger = lifespan ↓

*For every year younger
that a building is, its
lifespan will decrease
by 1 year.*

Model Results

RMSE = 7.7

Predictions
accurate within ± 8
years





Future Study

Existing Buildings

Architectural characteristics



Recommendations

Masterplanning:

- Plan fewer small lots
- Increase Use of overlay zones
- Eliminate split-zone lots
- Anticipate demos with rising values

Design:

- Prioritize Street Frontage
- Design with architectural characteristics of older buildings.

Land Management:

- Eliminate mixed-ownership properties.

Contact Info



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