

An aerial photograph capturing the controlled demolition of a tall, rectangular building. The building is the central focus, with a massive, billowing cloud of white dust and debris erupting from its base and sides. The building's facade is composed of vertical concrete or metal panels. To the left of the building, a multi-lane highway curves through the landscape, with several cars visible. Below the highway, there are some smaller structures and a body of water. The surrounding area is a mix of residential housing, trees, and open land. In the background, rolling hills are visible under a clear sky. The overall scene conveys the power and scale of modern demolition techniques.

Building Life Span Prediction

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Problem

PWC forecasts that

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

to \$15.5 trillion worldwide by 2030.



Customer Profile

Large Real Estate Corporations

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



Customer Profile

Government Agencies

- HUD
- USACE
- NAVFAC

Data



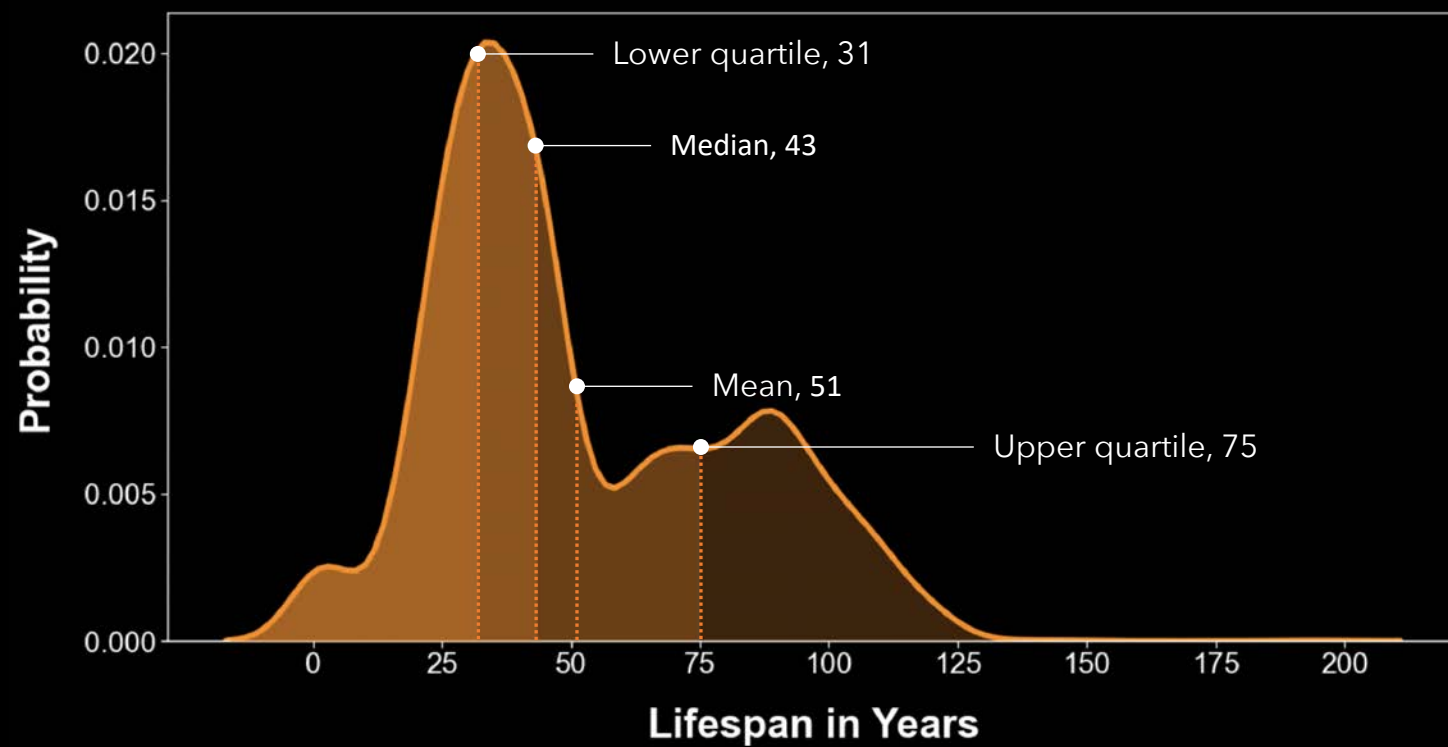
3,500 tax lots
Demolished buildings
Commercial only
Constructed 1800 - 2017

PLUTO + NYC Permits

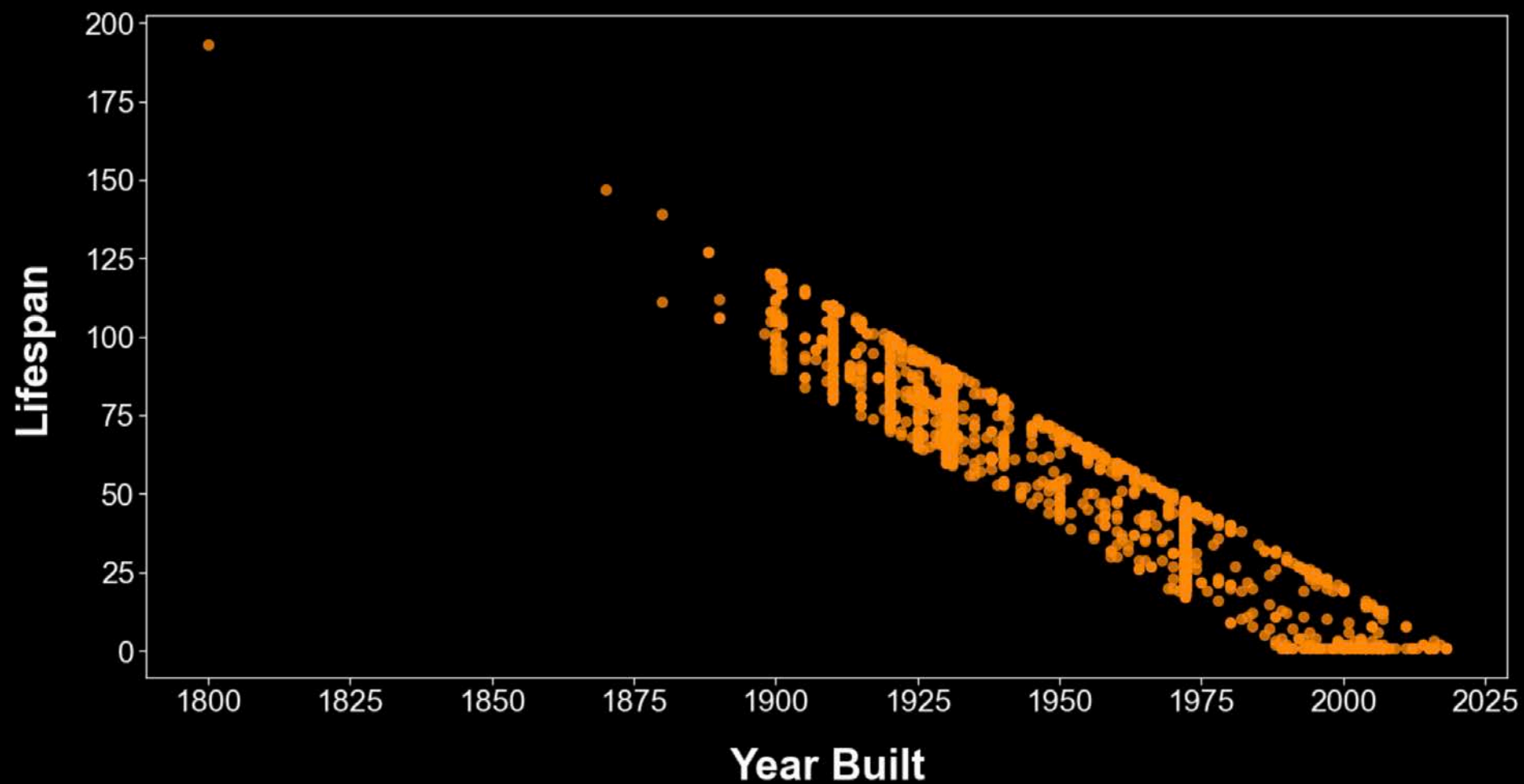


Analysis

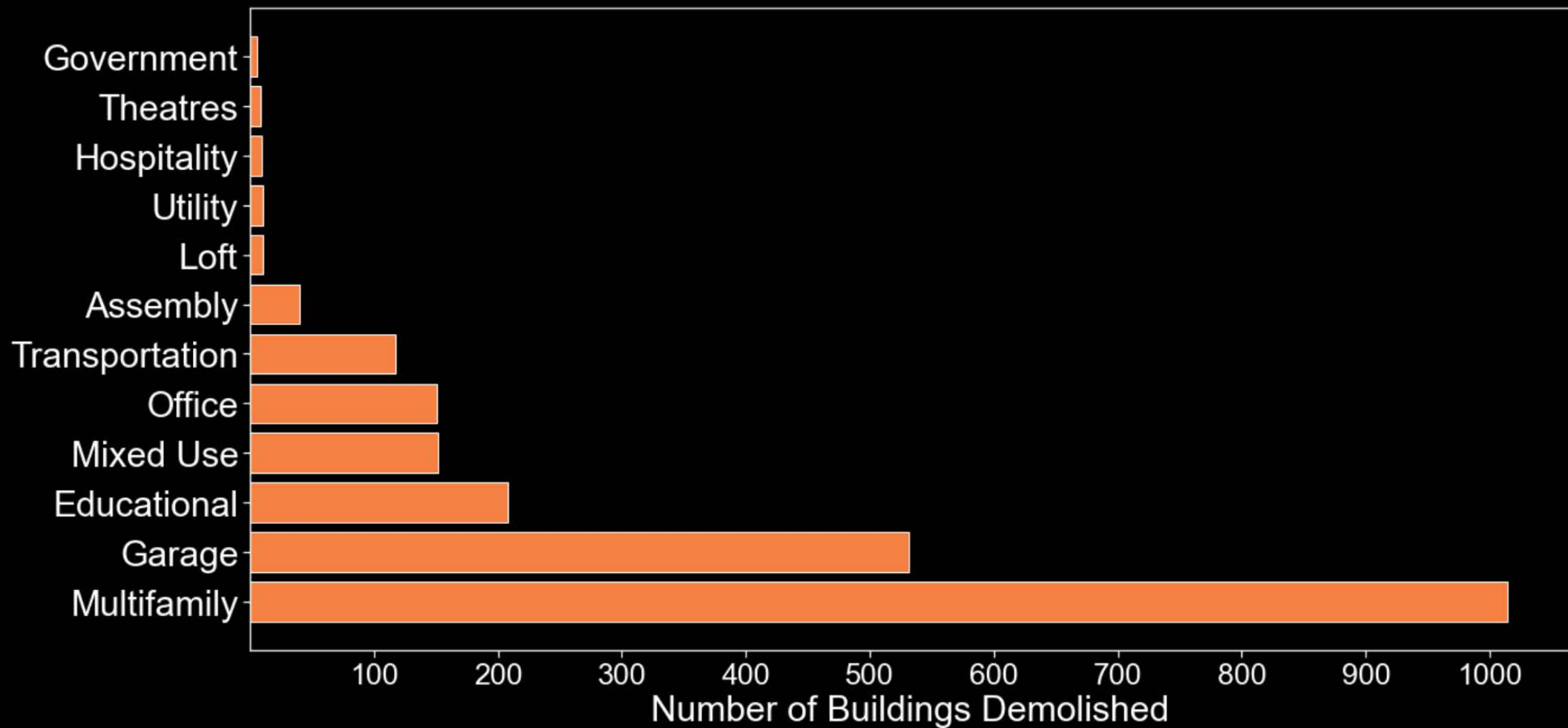
Distribution of Lifespan

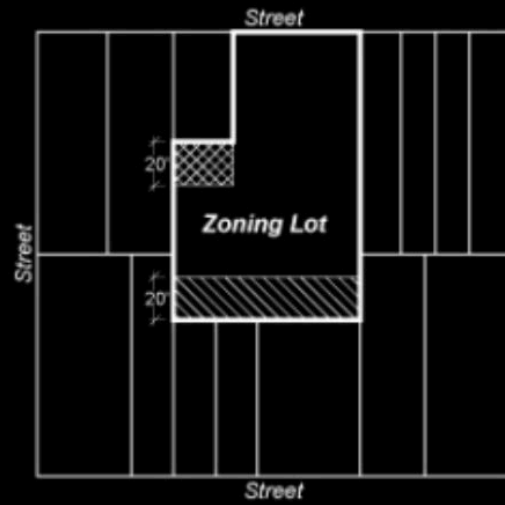
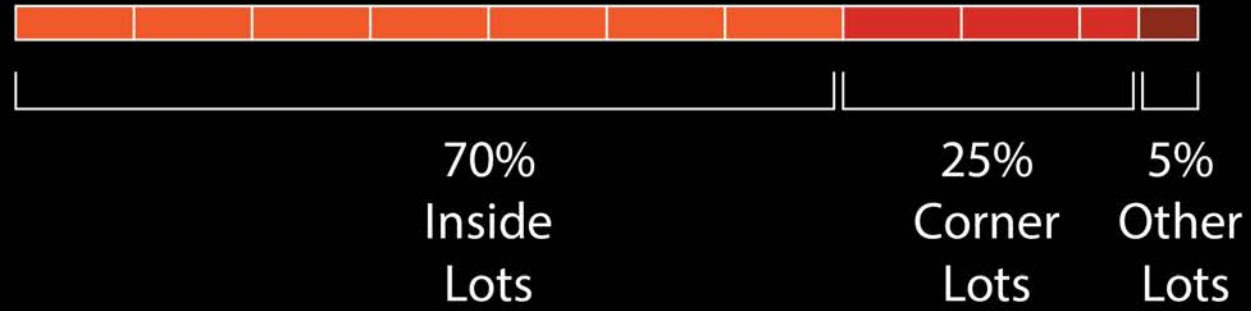


Lifespan by Year Built

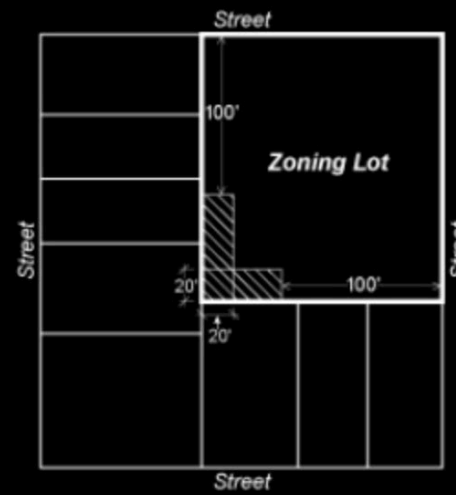


Top Building Types Demolished

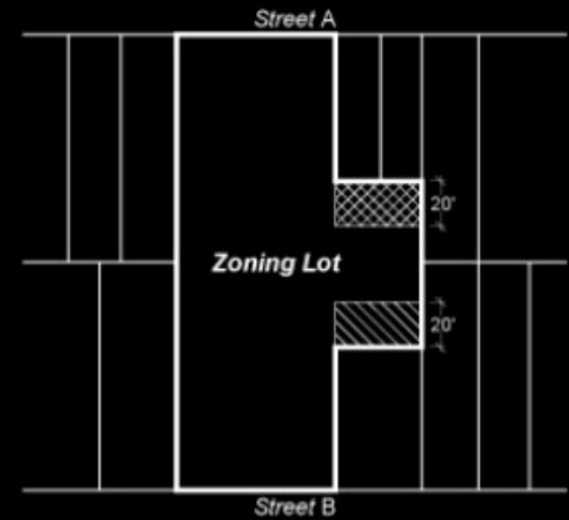




Inside Lot



Corner Lot

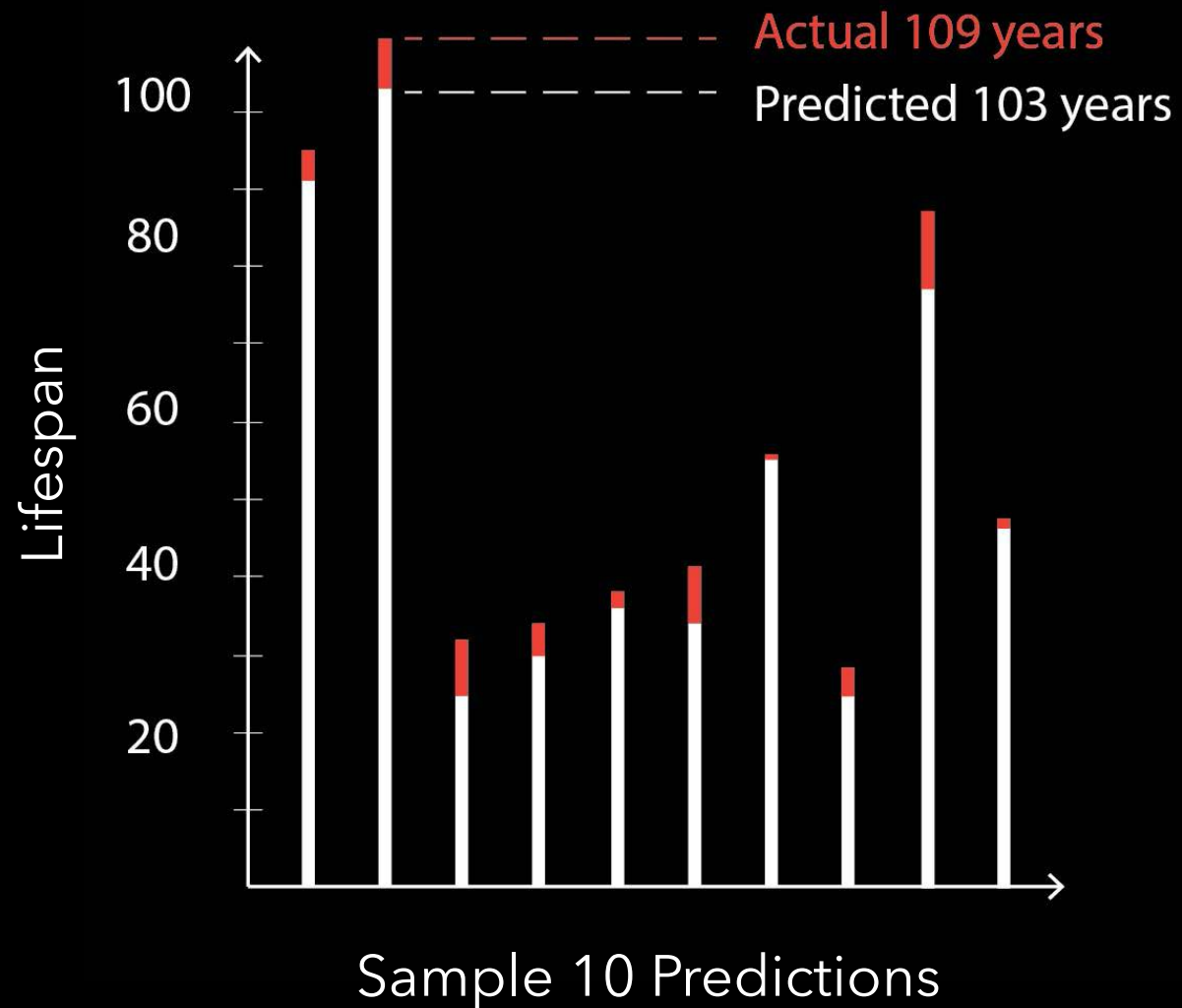


Through Lot

Model Results

RMSE = 7.7

Predictions
accurate within ± 8
years

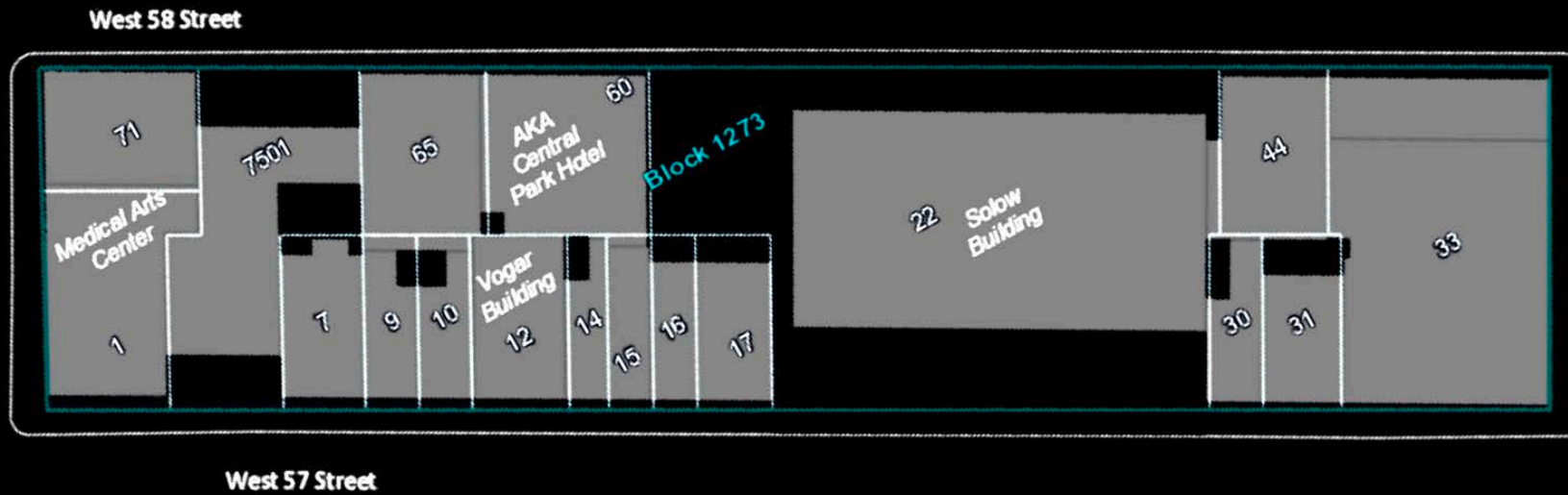


Lofts



Lofts had a longer lifespan than any other building type.

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.***



Future Study

Existing Buildings

Architectural characteristics

Deeper coefficient analysis



Recommendations

Masterplanning:

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

Design:

- Prioritize Street Frontage
- Design with architectural characteristics of older buildings.
- Encourage loft style structures.

Contact Info



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