

ACME:

King County Home Renovation Investment Plan



Summary

I analyzed 21,420 homes sold in King County between 2014 and 2015. By studying and modeling pricing patterns, ACME is able to identify which home renovation patterns are likely to improve the price of the homes they bought, thus improving the value of their investment.

1. Unsurprisingly, we're able to confirm renovations show a strong likelihood to improve home price
2. Improving the Building Grade of homes and the Square Footage of the living area showed the biggest impact on price
3. Limit spending on Grade Improvement projects to \$1.1M and living area sq. ft. expansion to \$664K

A black and white photograph of the Seattle skyline, featuring the iconic Space Needle tower on the left and various other skyscrapers in the background under a cloudy sky.

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Business Problem





This analysis focuses on solving the following questions:

1. Will renovations have a meaningful impact on home price?
2. If so, which renovations should ACME focus on?
3. How much should ACME spend on renovation projects?

Data & Methods

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21,420 Homes

This analysis included homes in King County, Washington, between 2014 and 2015.

20 Features

Features could be broadly grouped into 2 categories: changeable (like number of bathrooms) and unchangeable (like zip code)

Linear Regression

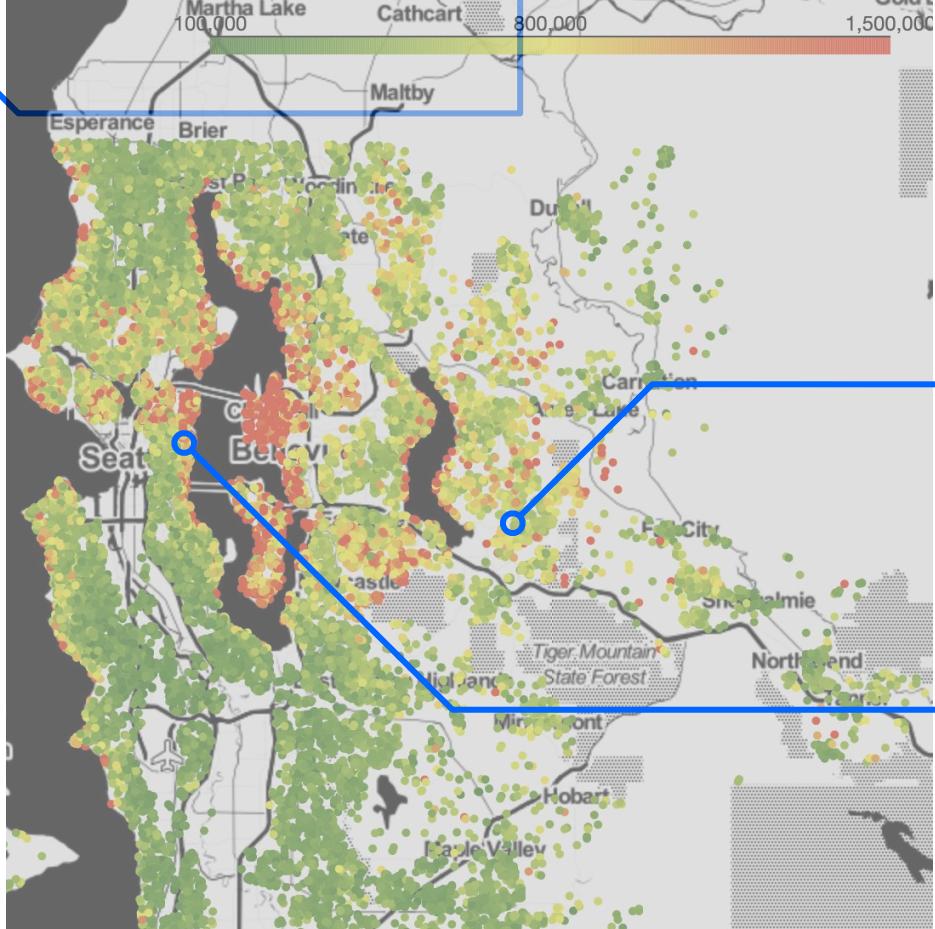
The data was fit to a linear regression model to study how relevant features affect home price





Why linear regression?

- We wanted to understand how different factors impact the price of a home in King County
- Linear regression inference enables us to answer “*How does X (some home feature) affect Y (the home price)?*”
- Furthermore, linear regression allows us to also get a measure of certainty about our results



HOME PRICES IN KING COUNTY

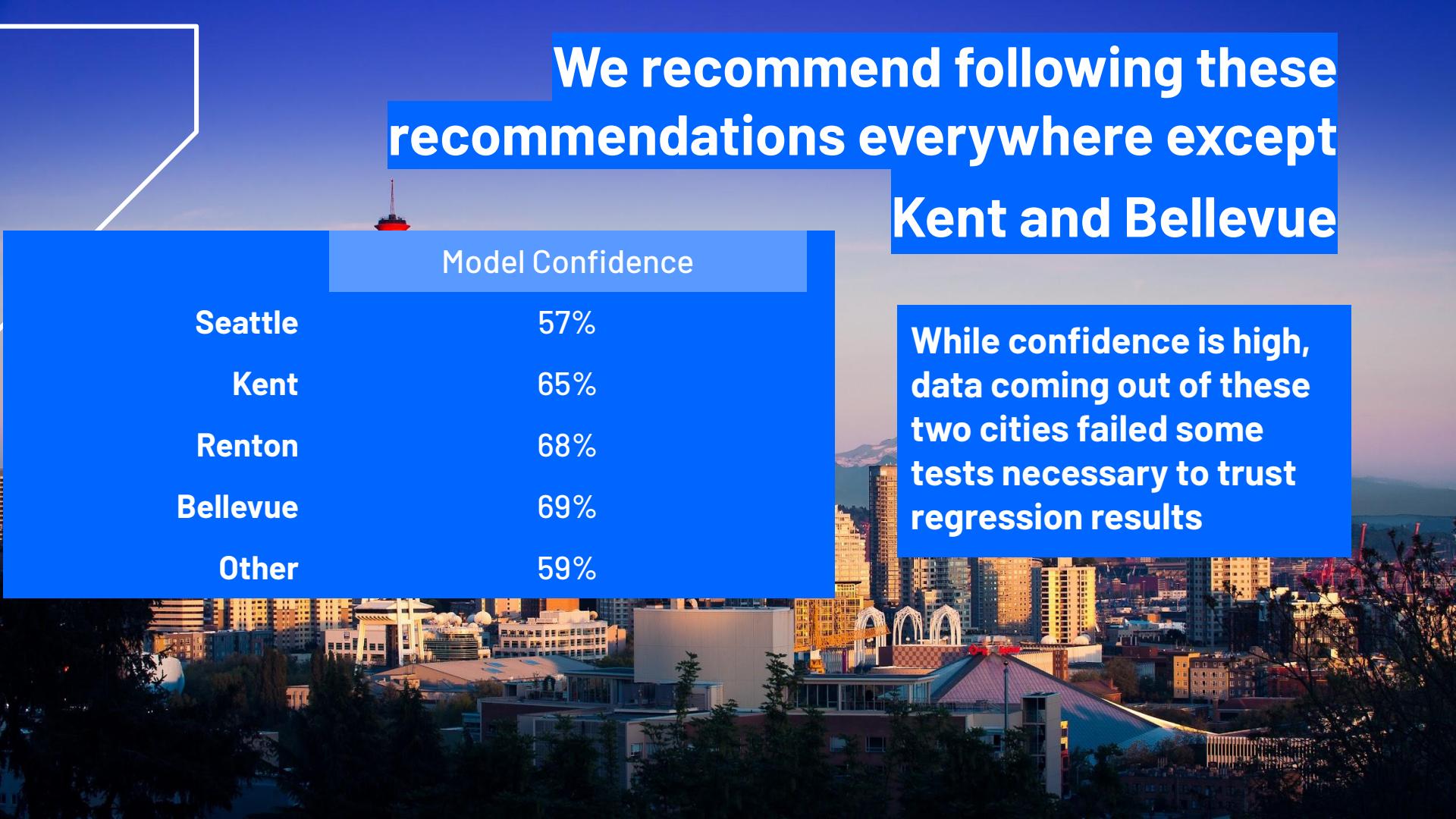
SUBURBS

Unsurprisingly, home prices around less dense areas are lower

METRO

While metro areas like Seattle and Bellevue have more expensive homes

For that reason, this analysis was ran within specific regions to eliminate the impact of an address on price and to isolate the effects on home renovations



We recommend following these recommendations everywhere except Kent and Bellevue

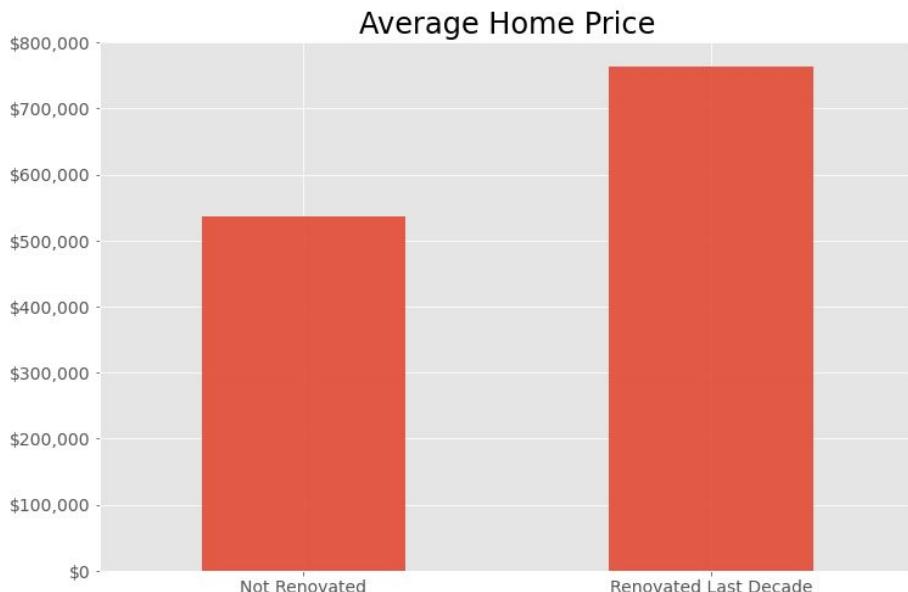
	Model Confidence
Seattle	57%
Kent	65%
Renton	68%
Bellevue	69%
Other	59%

While confidence is high, data coming out of these two cities failed some tests necessary to trust regression results

The Results



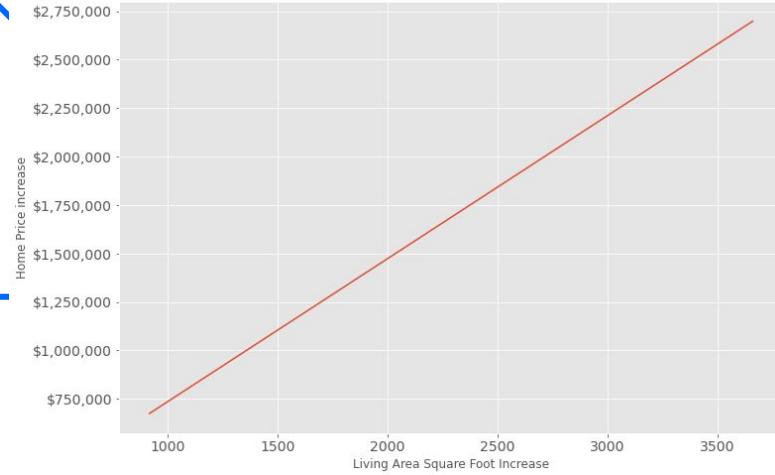
It pays to renovate



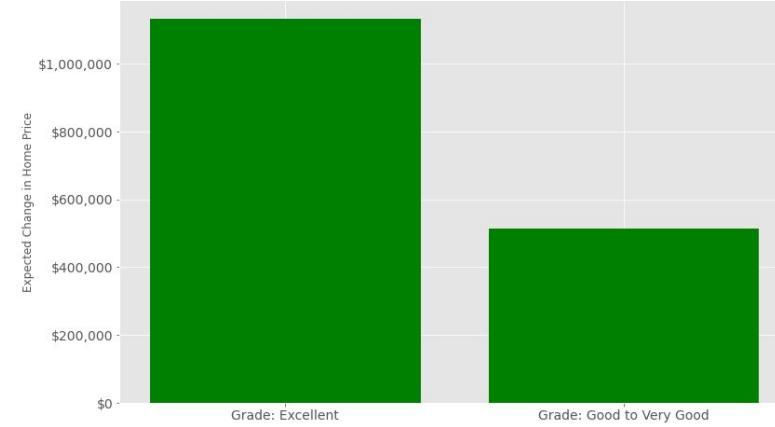
\$227,600

Difference in average home price for homes renovated in the last decade versus those that were not

How Living Area Sq Feet Affect Home Price (All Else Equal)



Effect of Home Grade on Price



These renovations have the biggest payoff

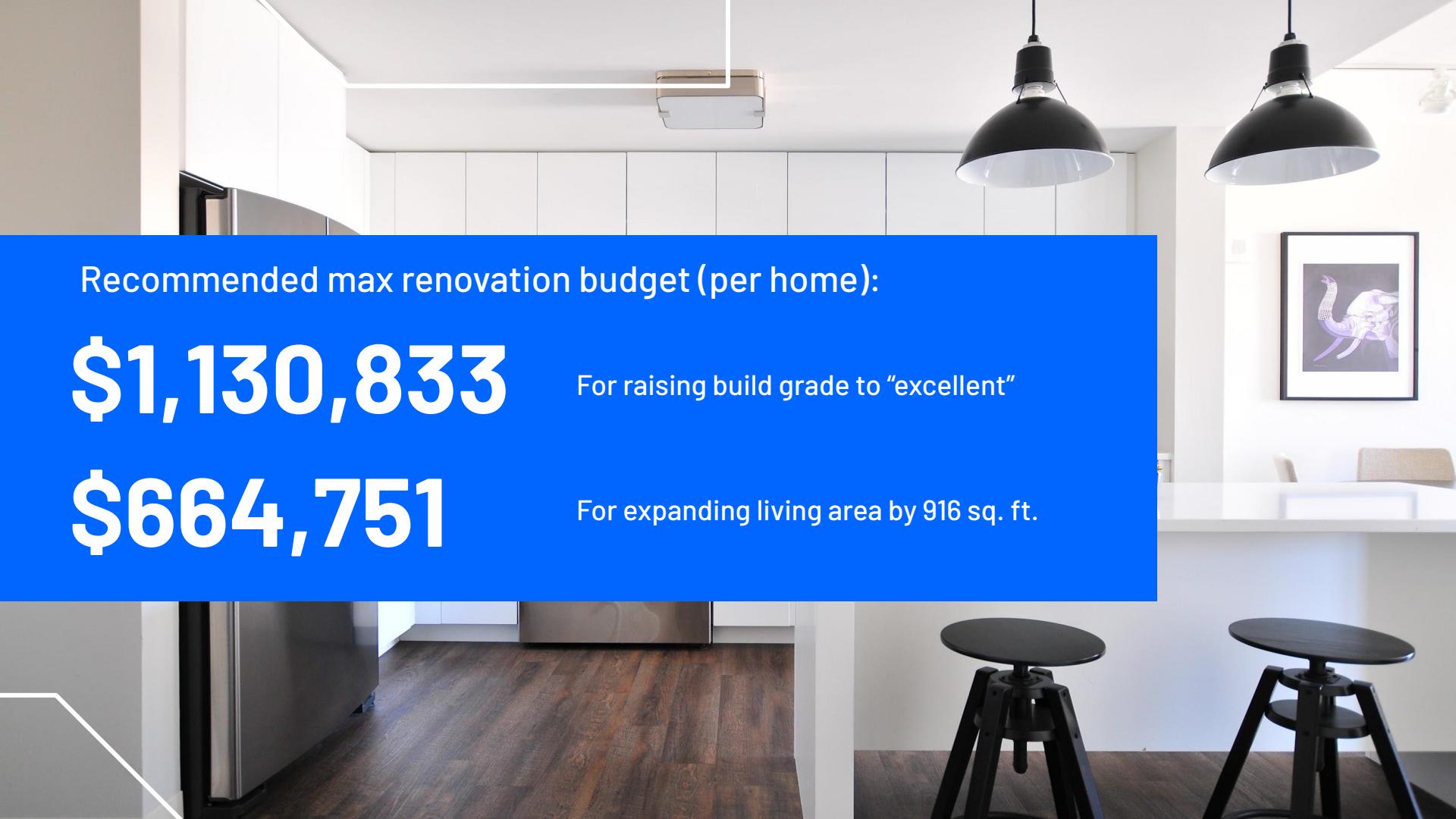
Increase Square Footage

Expand the living area by ~916 square feet

Improve Build Grade

Work to get a score of 'Excellent' better with King County assessors

According to the Assessor website, this includes having "[custom designs] and higher quality finish work with added amenities of solid woods, bathroom fixtures and more luxurious options". See [here](#) for more details



Recommended max renovation budget (per home):

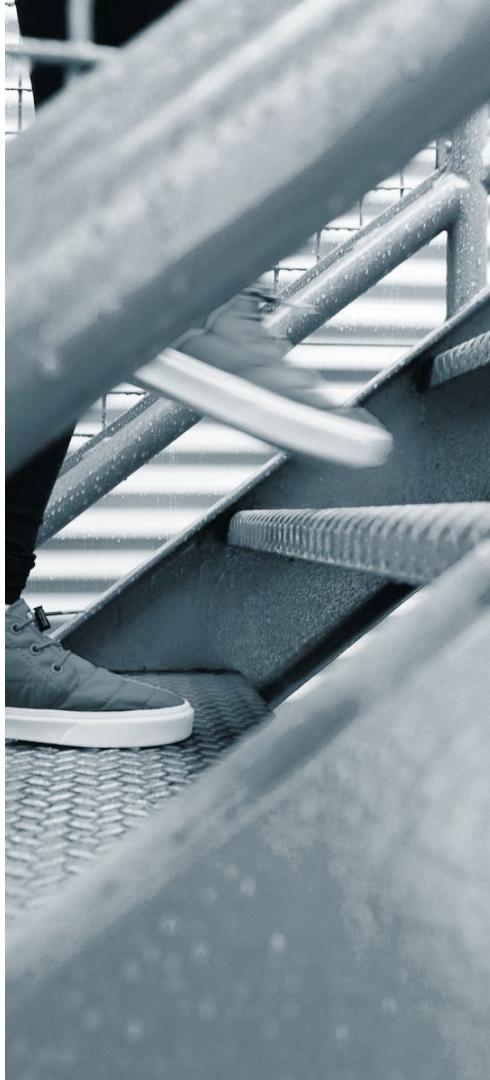
\$1,130,833

For raising build grade to "excellent"

\$664,751

For expanding living area by 916 sq. ft.

Next Steps

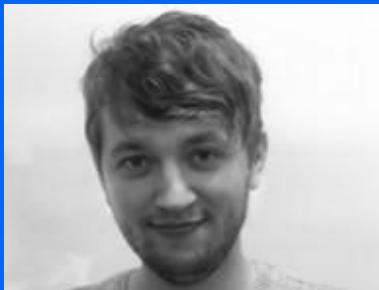




Conclusions

- It's recommended that ACME renovate the homes it buys in King County
- Focus on expanding the square footage of the living area, improving the build grade to 'Excellent' with King County assessors
- Keep renovation costs:
 - below \$1,130,833 for rising building grade to 'Excellent'
 - below \$664,751 for expanding sq. ft by 915

THANK YOU



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Any questions?



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