

How to Increase Home Prices

In King County, WA

Prepared for Acme Real Estate Agency

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Agenda

- Business Challenge and Our Approach
- Considerations and Caveats
- Analysis
 - Top 10 factors that increase home price
 - What can homeowners do to increase home value?
- Conclusion
 - Summary of recommendations
 - Suggestions for further analysis

Business Challenge

Acme Real Estate Association would like to use data to understand how they can serve their customers better. They would like to create marketing and educational materials around factors that affect home prices, as well as enable their team of agents to make informed recommendations to customers what they can do to increase the value of their home.

Our Approach

- We started with data for about 21,000 homes that were sold in King County from mid-2014 to mid-2015.
- We fit a multiple linear regression model to understand not only which features from our data set were correlated with home price separately, but to understand how the features work together. This enabled us to identify the features which have the most impact on price.

Assumptions and Caveats

- For our analysis, we exclude zip codes 98104, 98101, 98121, 98174, 98154, 98164, which are in downtown Seattle. This analysis represents other zip codes in King County.
- Dollar amounts mentioned in our model should be understood in relation to our model's baseline. The model's baseline is a house that costs about \$223k and has the following characteristics:
 - 0 sq ft living, 0 bedrooms, 0 bathrooms, no basement, no views, not on the waterfront
 - Located in a zip code with average home prices, with average grade , average condition, and single storey.
- This model is suitable for inference, not prediction. All changes in price compared to baseline mentioned here are estimates, and may not accurately describe the increase in price of a house that differs from the baseline.

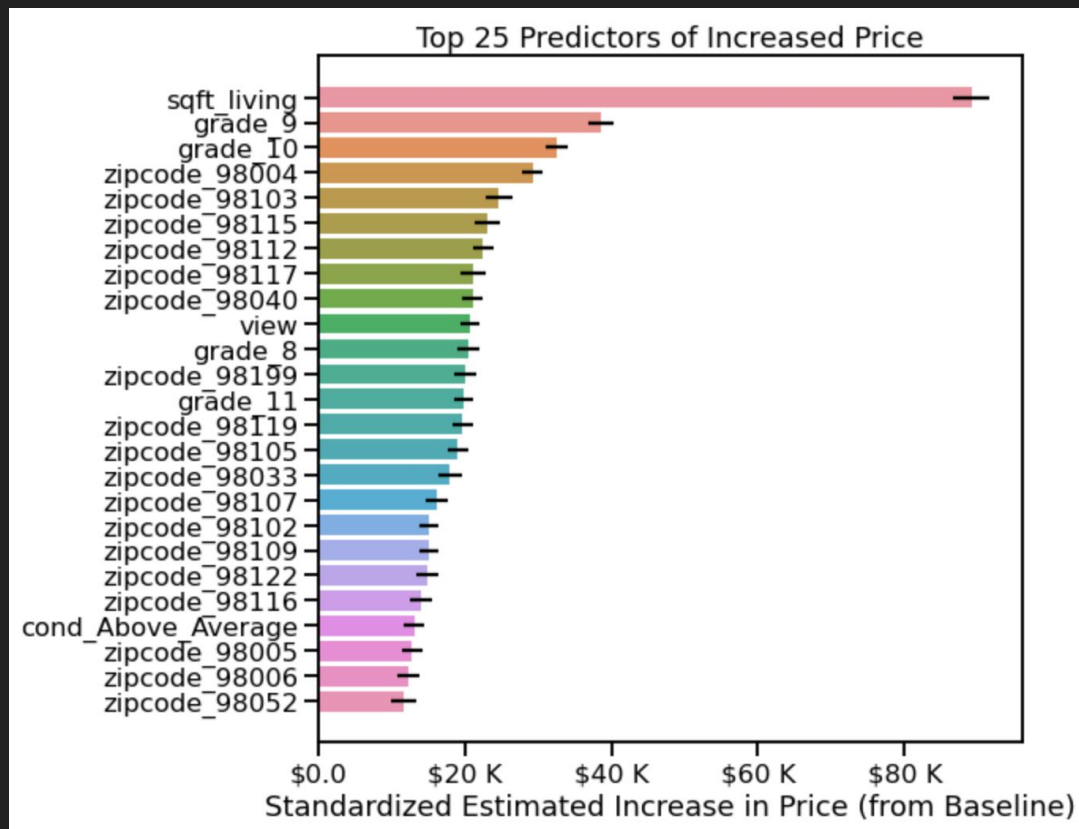
Analysis

Data Descriptions and Definitions

- **Sq Ft Living:** Square feet of living space. Does not include unfinished spaces.
- **Grade:** Numerical score from 1 to 12 where 7 is average. Represents quality of architecture, craftsmanship, and finishings.
- **Condition:** Numerical score from 1 to 5 where 3 is average. Represents whether repairs are needed and degree to which home has been regularly maintained. For our model, organized into above average, average, and below average.
- **Floors:** Number of floors, or stories
- **Bedrooms:** Number of bedrooms
- **Bathrooms:** Number of bathrooms, including half or $\frac{3}{4}$ bathrooms
- **Has basement:** Indicates whether home has a finished basement; does not include homes with unfinished basements.
- **Zip code:** Residential zip code
- **View:** Whether there is a scenic view from the home's property
- **Waterfront:** Whether the house is located on a waterway

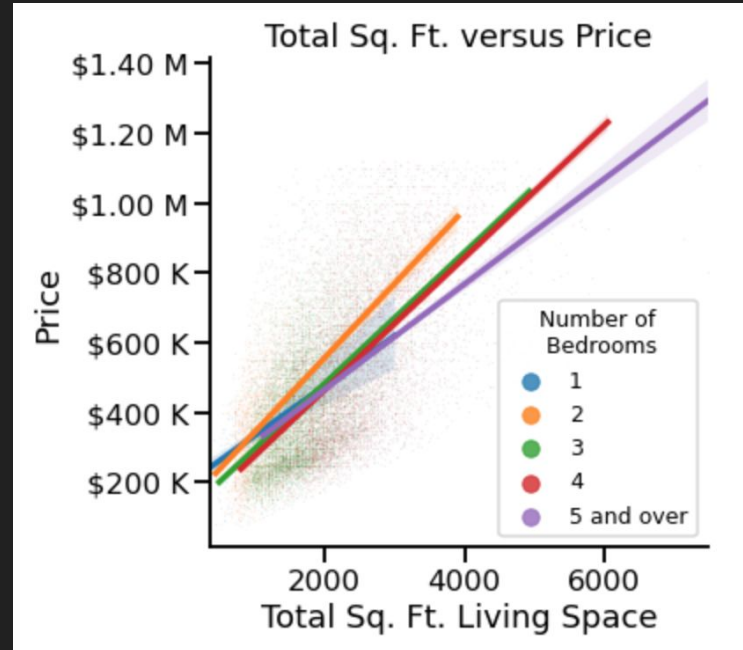
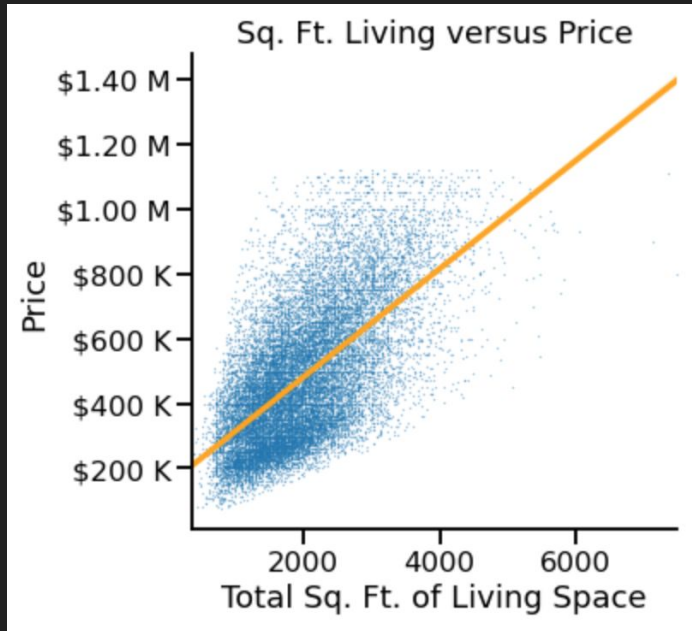
Top 25 Characteristics that Increase Price

- Sq Ft living has the largest impact, followed by above average grades of 9 or 10
- Living in certain zip codes can also increase price, but zip code is not under homeowners' control



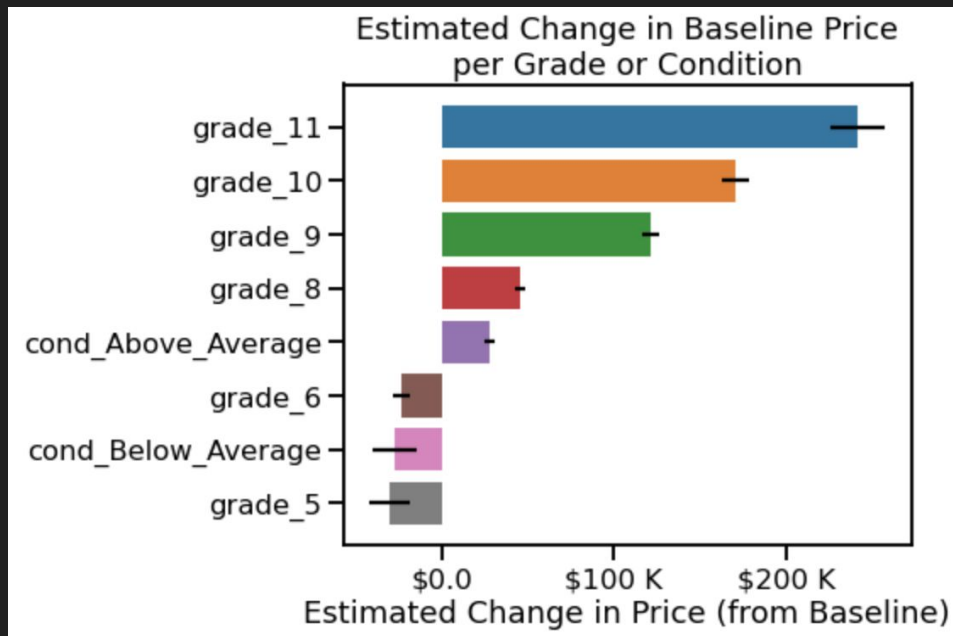
Adding Square Feet of living space increases Price the most

- Price increases by an average of \$115 per additional square foot
- Price increases per square foot at about the same rate regardless of number of bedrooms



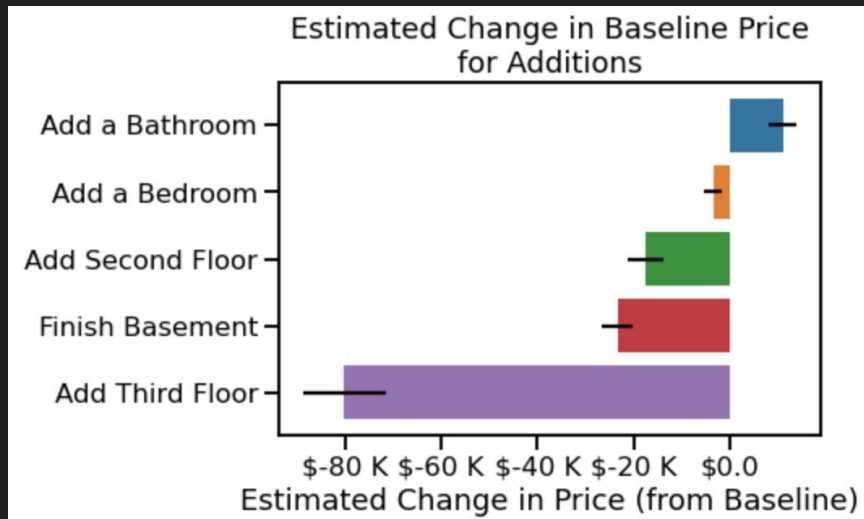
Increasing Grade may be the most cost effective way to increase home value

- Average Grade is 7
- As grade score increases above average, price increases with each level
- As grade score goes below average, price decreases
- Above average condition also impacts price, but not as much as grade



Considerations for room additions

- Adding rooms without adding square feet actually decreases Price in most cases
- To overcome this, homeowners should add a minimum number of square feet when adding bedrooms, floors, or finishing a basement



	Suggested Minimum Square Feet to Add
Add a bedroom	30.5
Add a second floor	153.5
Finish Basement	203.8
Add a third floor	696

Summary of Recommendations

- Homeowners looking to increase sale price should consider adding more square footage to their home (another bedroom, finished basement, etc).
 - Be sure to add an appropriate number of square feet for the room, unless adding only a bathroom
- However, increasing the Grade score can also have a significant impact on price. Ways to increase Grade may include:
 - Upgrade kitchen finishings such as cabinet and countertop materials
 - Replace lower quality flooring or carpeting with higher quality
 - Renovate to create a more open floor plan
 - Add high quality crown and base molding

Potential Next Steps

- Fit model for prediction, so Acme can help customers estimate the impact of changes to their specific home

Appendix

Grade Score Descriptions

- Grades 1 - 3 Falls short of minimum building standards. Normally cabin or inferior structure.
- Grade 4 Generally older low quality construction. Does not meet code.
- Grade 5 Lower construction costs and workmanship. Small, simple design.
- Grade 6 Lowest grade currently meeting building codes. Low quality materials, simple designs.
- Grade 7 Average grade of construction and design. Commonly seen in plats and older subdivisions.
- Grade 8 Just above average in construction and design. Usually better materials in both the exterior and interior finishes.
- Grade 9 Better architectural design, with extra exterior and interior design and quality.
- Grade 10 Homes of this quality generally have high quality features. Finish work is better, and more design quality is seen in the floor plans and larger square footage.
- Grade 11 Custom design and higher quality finish work, with added amenities of solid woods, bathroom fixtures and more luxurious options.
- Grade 12 Custom design and excellent builders. All materials are of the highest quality and all conveniences are present.
- Grade 13 Generally custom designed and built. Approaching the Mansion level. Large amount of highest quality cabinet work, wood trim and marble; large entries

<https://www.kingcounty.gov/depts/assessor/Reports/area-reports/2020/residential-westcentral/~media/depts/assessor/documents/AreaReports/2020/Residential/013.ashx>

Condition Score Descriptions

Condition: Relative to Age and Grade

- 1= Poor Many repairs needed. Showing serious deterioration.
- 2= Fair Some repairs needed immediately. Much deferred maintenance.
- 3= Average Depending upon age of improvement; normal amount of upkeep for the age of the home.
- 4= Good Condition above the norm for the age of the home. Indicates extra attention and care has been taken to maintain.
- 5= Very Good Excellent maintenance and updating on home. Not a total renovation.

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