

# REAL ESTATE

## The value of change

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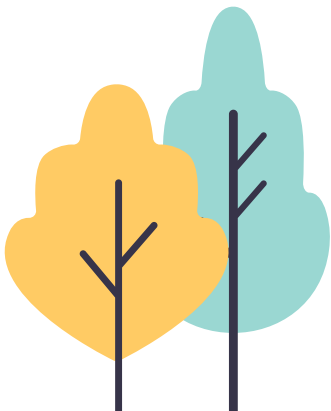
A look at housing features and their related market values.





## Sam Samson and Sons

- **Area:** Real estate development
- **Goal:** Become more data driven
- **Question:** Which upgrades yield the highest return?





## Topics



01

### ADDITION

Understand the value of adding living space to the footprint of a property



02

### BEDS & BATHS

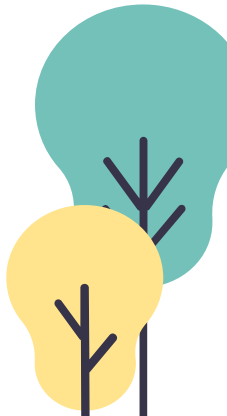
Understand the value of adding a Bedroom or Bathroom to the **existing footprint** of a property



03

### VALUE PREDICTION

Use prediction to understand how listing price relates to the market for similar properties.



## the DATA and the PROCESS



### **PROVIDED BY SS&S**



### **SCOPE**

King County  
home sales from  
May 2014 - May 2015  
inclusive



### **PROCESSING**

Remove irrelevant and  
redundant data,  
mathematically modify data  
to improve the model



### **NEW METRICS**

Created new metrics  
to answer the  
questions



### **MODEL**

Created a formula  
that can be used to  
calculate home value  
and answer the  
questions

## Additions - Living Space

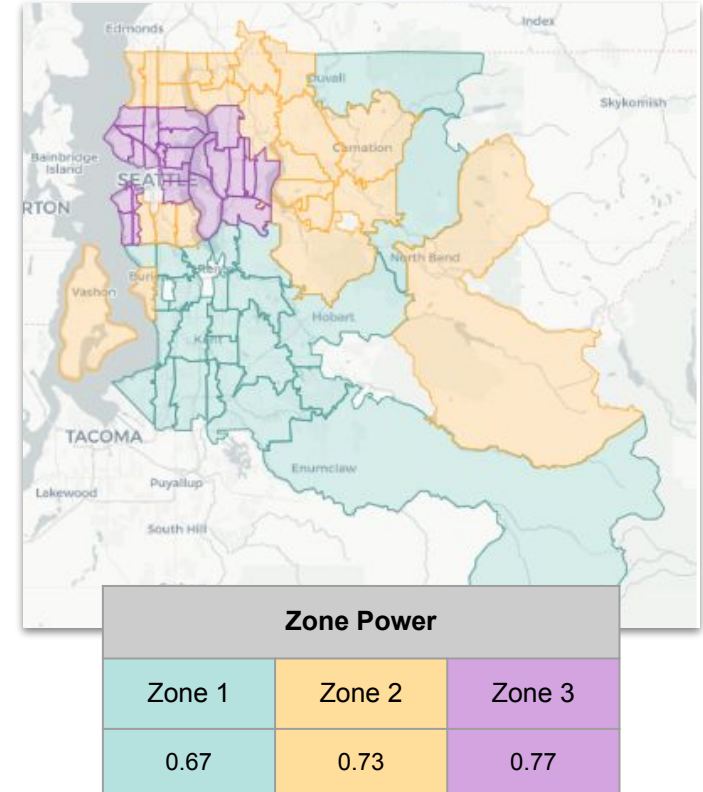
- Living space is space that is enclosed and heated.
- Varies by zone

### Example

$$\text{Starting Value} \times \left( \frac{\text{sqft after}}{\text{sqft before}} \right)^{\text{Zone Power}} = \text{New Price}$$

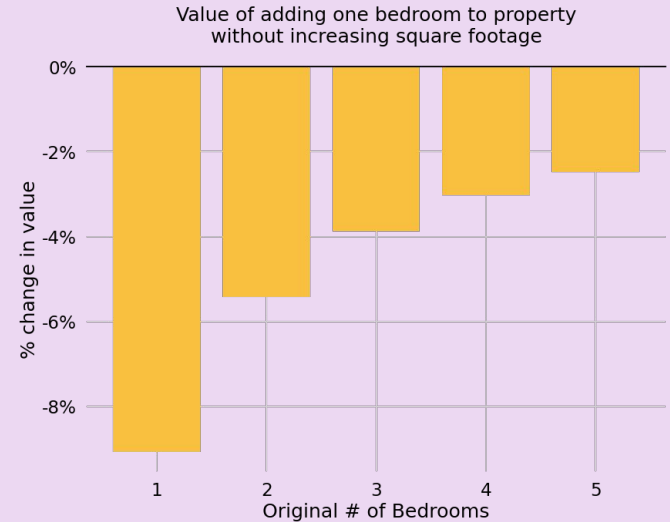
### Sample

$$\$ 500,000 \times \left( \frac{2000 \text{ sqft}}{1500 \text{ sqft}} \right)^{0.73} = \$ 616,844$$



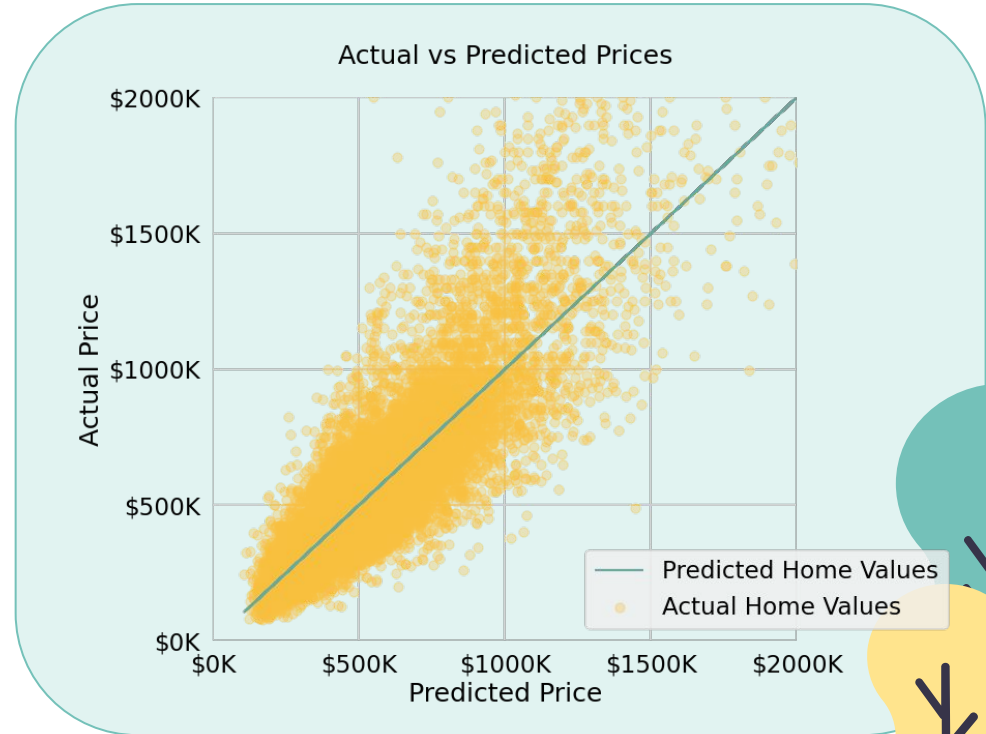
## Bedrooms and Bathrooms

- Change in number of bathrooms or bedrooms **without a change in sqft.**
- Change is proportional to the total number of bathrooms or bedrooms



## PREDICTIONS

- Predicts within 24% of the home value.
- 7 Characteristics
  1. Bedrooms
  2. Bathrooms
  3. View
  4. Waterfront
  5. Year renovated
  6. Zipcode
  7. Square Footage



## Summary of Insights and Recommendations



### **Addition: Living space**

**HIGH VALUE** - highest increase in value



### **Addition: Bedroom or Bathroom**

**NO VALUE** - changes in home value are likely to be negative



### **Prediction**

Can be used to get an “average” price based on home characteristics





## Further Work

### Condition

How does a change in the condition rating change home value



### Addition type

Determine the value of different sqft expansions.  
(Bedroom, Bathroom, Other)



### Improve Model

Gather more current data to understand changes over time





# Thank You



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Presentation template by Slidesgo  
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