



# Baltimore Real Estate Investment

By Seth Chart

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# Problem Statement

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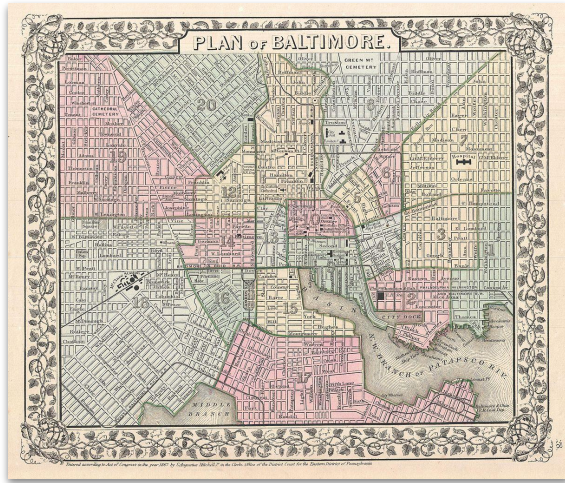


- Our client is an individual homebuyer who is moving to Baltimore Maryland.
- Our client plans to buy a single family home in the city of Baltimore, live in the home for two years, then sell the home.
- They want to select a house in a zip code that will maximize their expected return on investment.
- Our task is to identify the five best zip codes within the city of Baltimore for this type of investment.

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# Business Value

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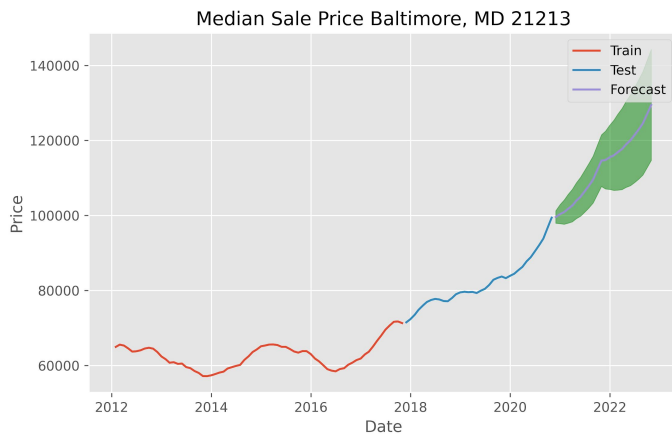
By identifying the five zip codes that are best suited to our client's investment strategy we expect to provide the following outcomes:

- Maximize return on investment by identifying zip codes with favorable property cost trends.

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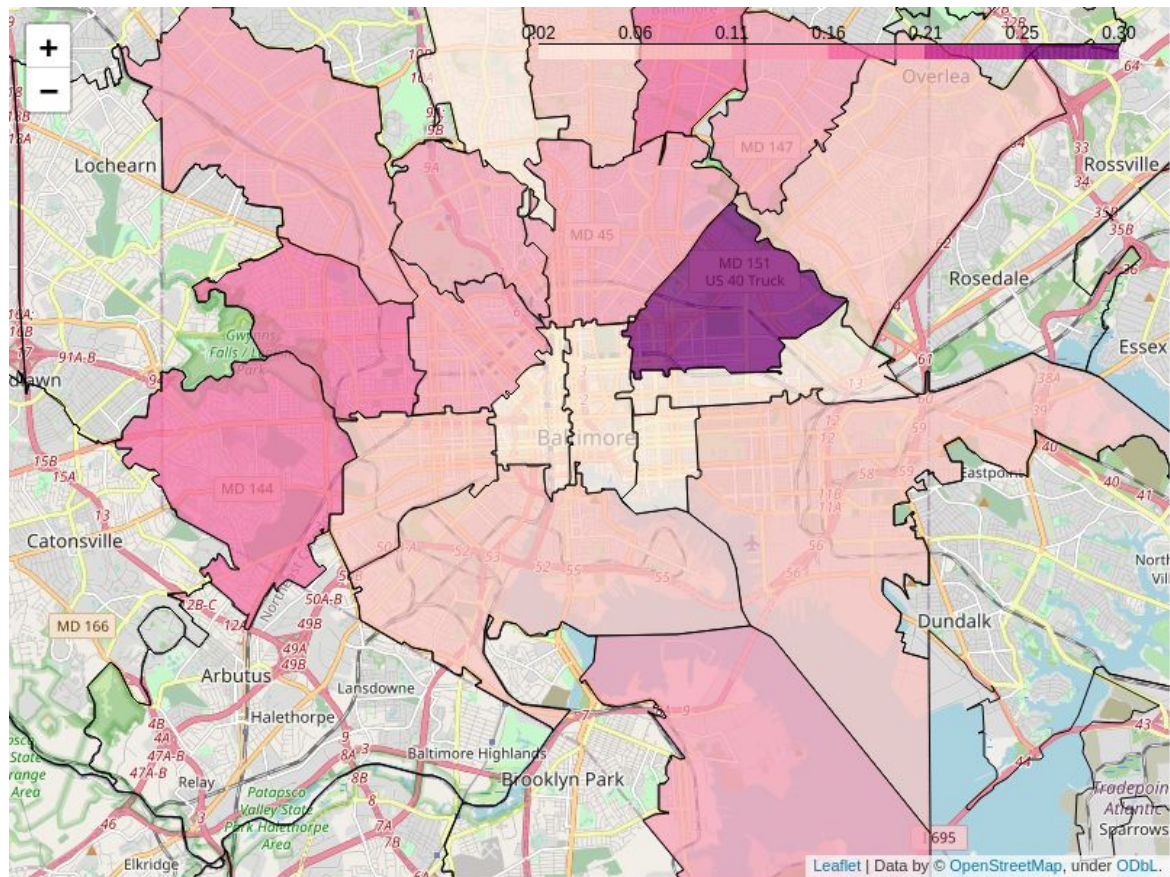
# Methodology

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- Collect historical median sale price by zip code from Zillow.
- Fit a time series model for each zip code in Baltimore.
- Use models to forecast median sale price for each zip code two years into the future.
- Select five zip codes with highest forecasted return on investment.





Map of Baltimore zip codes indicating projected return on investment.



# Recommendations



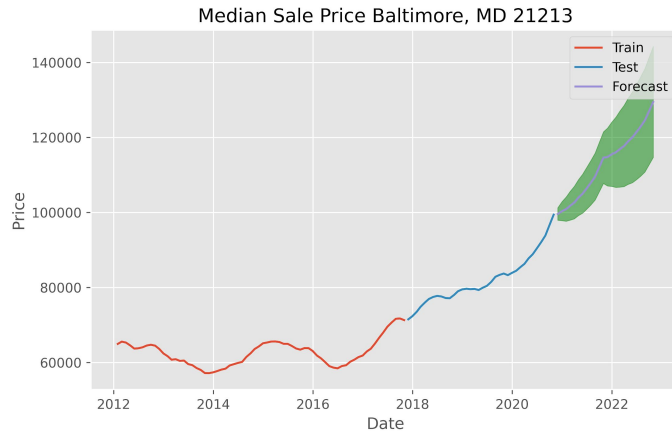
# Best Zip Code: 21213



## Belair-Edison Neighborhood:

- Median Sale Price: \$99,420
- Forecast Median Sale Price: \$129,461
- Two Year ROI: 30%
- Main Attraction: Herring Run Park

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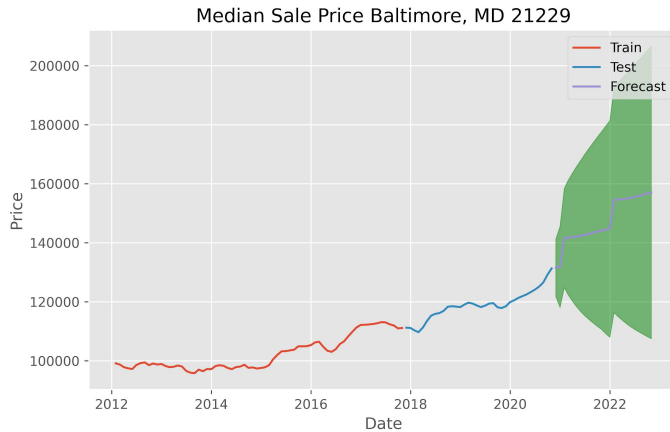
## Second Best Zip Code: 21229



Irvington Southwest Baltimore:

- Median Sale Price: \$131,301
- Forecast Median Sale Price: \$157,004
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### Irvington Southwest Baltimore:

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## Third Best Zip Code: 21216

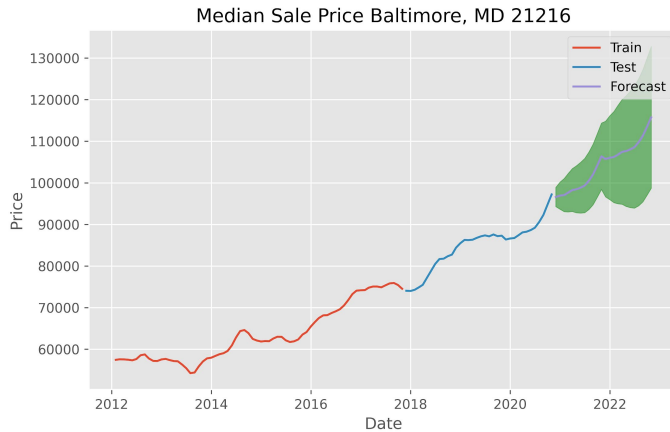


### Hanlon Longwood Neighborhood:

- Median Sale Price: \$97,222
- Forecast Median Sale Price: \$115,741
- Two Year ROI: 19%
- Main Attraction: Hanlon Park



# Third Best Zip Code: 21216



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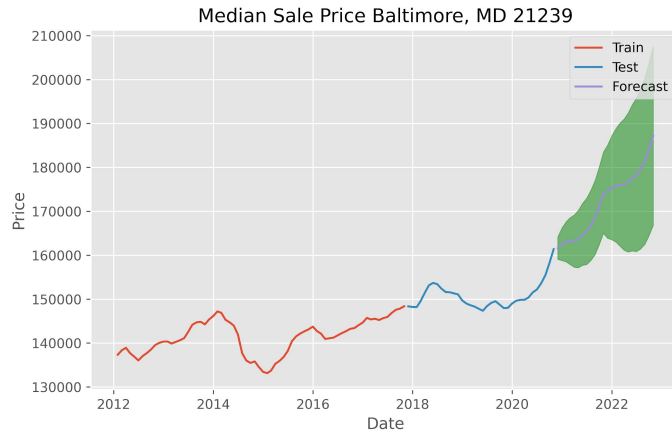
## Fourth Best Zip Code: 21239



### Idlewylde Neighborhood:

- Median Sale Price: \$161,381
- Forecast Median Sale Price: \$187,150
- Two Year ROI: 16%
- Main Attraction: Two Golf Courses
  - Country Club of Maryland
  - Mount Pleasant Golf Course

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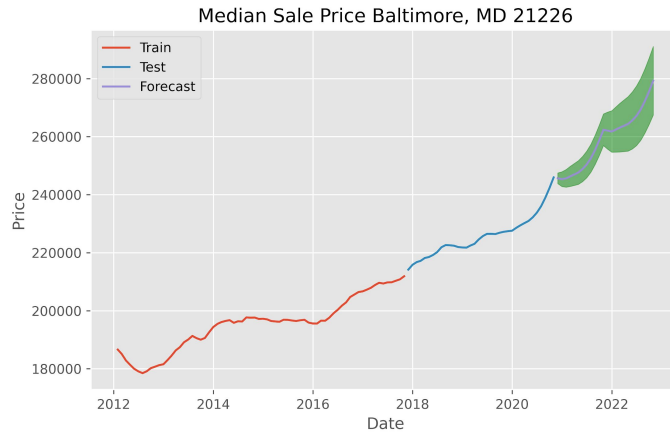
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- Main Attraction: Curtis Bay waterfront

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## Summary of Recommendations

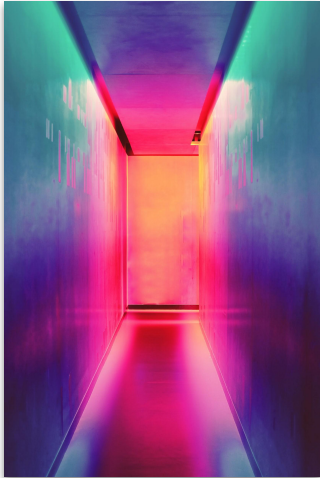
Zip Code	Median Price	Forecast Price	ROI
21213	\$99,420	\$129,461	30%
21229	\$131,301	\$157,004	20%
21216	\$97,222	\$115,747	19%
21239	\$161,381	\$187,150	16%
21226	\$245,953	\$279,256	14%



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# Future Work

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- Optimize and parallelize code for a nation-wide search.
- Try Long Short-Term Memory neural networks in place of SARIMA models.
- Incorporate exogenous variables.
  - School Districts
  - Proximity to Restaurants
- Model a more realistic investment strategy.
  - House flipping
  - Rental property investment
- Build project dashboard.



# Thank You!



Ways to find me:

- Website: [sethchart.com](https://sethchart.com)
- Twitter: [@sethchart](https://twitter.com/sethchart)
- LinkedIn: [sethchart](https://www.linkedin.com/company/sethchart)
- GitHub: [sethchart](https://github.com/sethchart)
- Email: [seth.chart@protonmail.com](mailto:seth.chart@protonmail.com)
- Project Repository: [Baltimore-Real-Estate-Investment](https://github.com/Baltimore-Real-Estate-Investment)

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# Appendix



# List of Images

- [city buildings near body of water photo](#) – [Free Building Image on Unsplash](#) by ActionVance
- [road near brown house photo](#) – [Free Street Image on Unsplash](#) by Erin White
- [Samuel Augustus Mitchell](#), Public domain, via Wikimedia Commons
- [multicolored hallway photo](#) – [Free Neon Image on Unsplash](#) by Efe Kurnaz
- By Belairedison (talk) - self-made, Public Domain,  
<https://en.wikipedia.org/w/index.php?curid=16090003>
- <http://www.gwynnsfallstrail.org/>
- Benjamin, Jancewicz <https://goo.gl/maps/vMF6oUF8Qpq77rDv8>
- <https://belvederesquare.com/directory/atwaters/>
- <https://www.ccofmd.com/Golf/Golf%20Shop.aspx>
- By Preservation Maryland - Curtis Bay, rowhomes, CC BY-SA 2.0,  
<https://commons.wikimedia.org/w/index.php?curid=47624400>