



Making it Pencil: The Math Behind Housing Development

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Building new housing is complicated and costly. From land acquisition to project design to entitlement to financing, a developer must go through numerous steps before the first shovel ever hits the ground. However, the steps that a developer navigates to take new housing from idea to occupancy are not well understood by the public or by policy makers. As a result, some well-intentioned decisions—such as imposing inclusionary zoning requirements on new developments when those requirements are not supported by market fundamentals—may lead to the unintended consequence of fewer, rather than more, affordable housing units being built. The “math” underlying housing development is critical, but very few resources exist to explain that math to those outside the real estate industry.

We believe that demystifying the math that underpins whether a project “pencils” is an important step towards

forming a shared understanding of what it will take to move forward in solving California’s housing crisis. To that end, the Turner Center has undertaken an analysis of development scenarios in various regions in Northern California to shed light on the development process.

This brief will explain the steps a developer undertakes to design, finance, build, and set the rents for market-rate housing. We answer the following questions:

- › What are the various costs that go into the development of new housing?
- › How are new housing developments financed?
- › What are the benchmarks required by financial institutions and capital sources to invest in new housing?
- › How do various requirements impact the ability of developers to deliver projects?

Unpacking the factors that impact what a developer can build in today’s market helps in understanding why so much new housing is expensive, and why new supply is often only affordable for upper-income households.¹

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The Realities of Housing Development Math

“Turner Terrace” characteristics

- Market rate building – East Bay
- 120 units:
 - (48) studios
 - (40) 1 bdrm apartments
 - (32) 2 bdrm apartments
- 120 parking spaces
- 1,500 square feet of retail
- 5 over 1 construction (stick over podium)



Photograph courtesy of
BRIDGE Housing

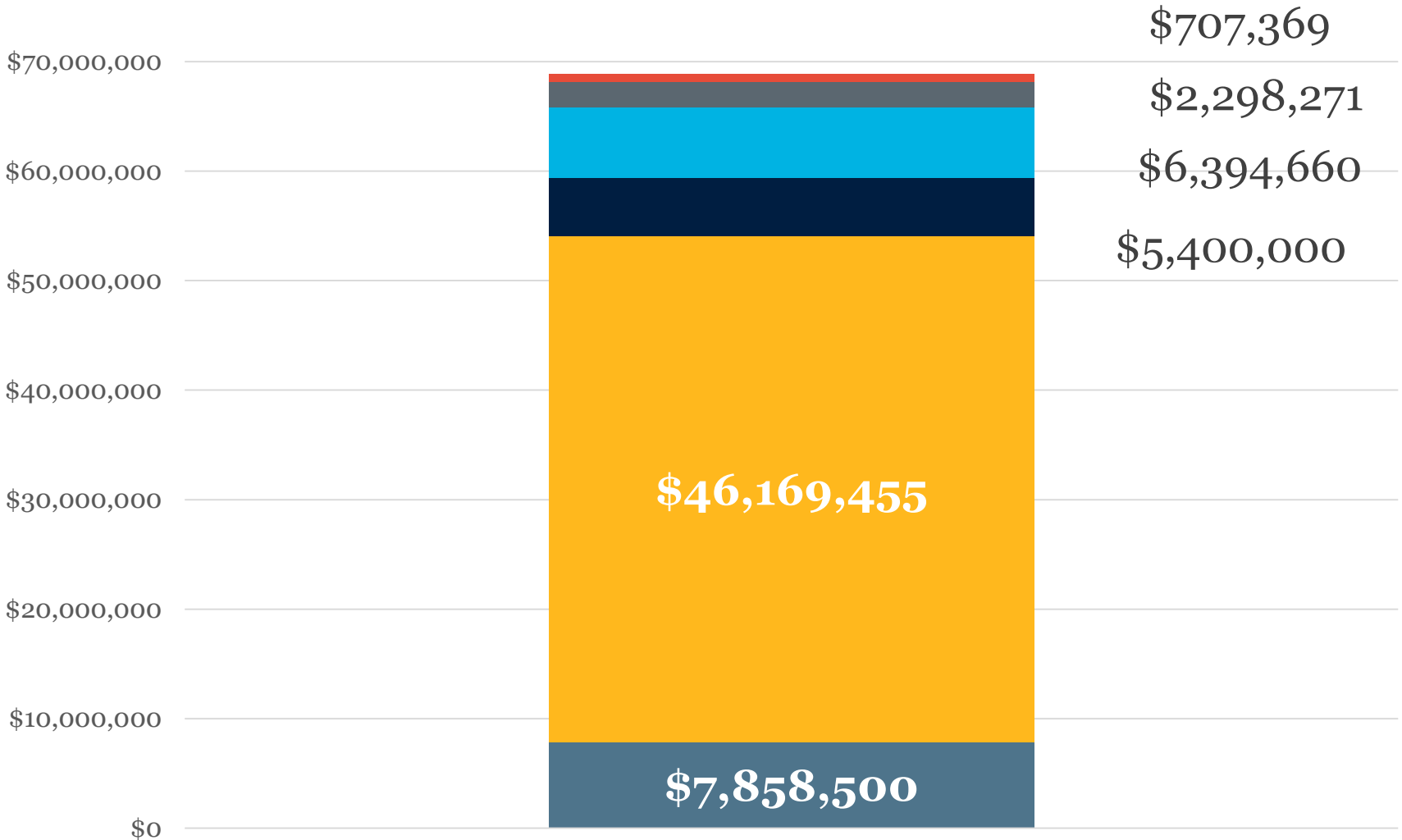
The Realities of Housing Development Math

Development assumptions:

- No EIR*
- No demolition*
- No environmental remediation*
- No offsite infrastructure improvements*
- No exactions*
- Standard approval times
- Standard wages
- \$40,000/unit in fees
- Q1-2019 Construction Costs

* It is rare that infill projects avoid these costs. Any combination of these costs plus current inflation could add as much as \$100,000/unit.

Total Cost to Build East Bay Prototype: **\$68,828,255**

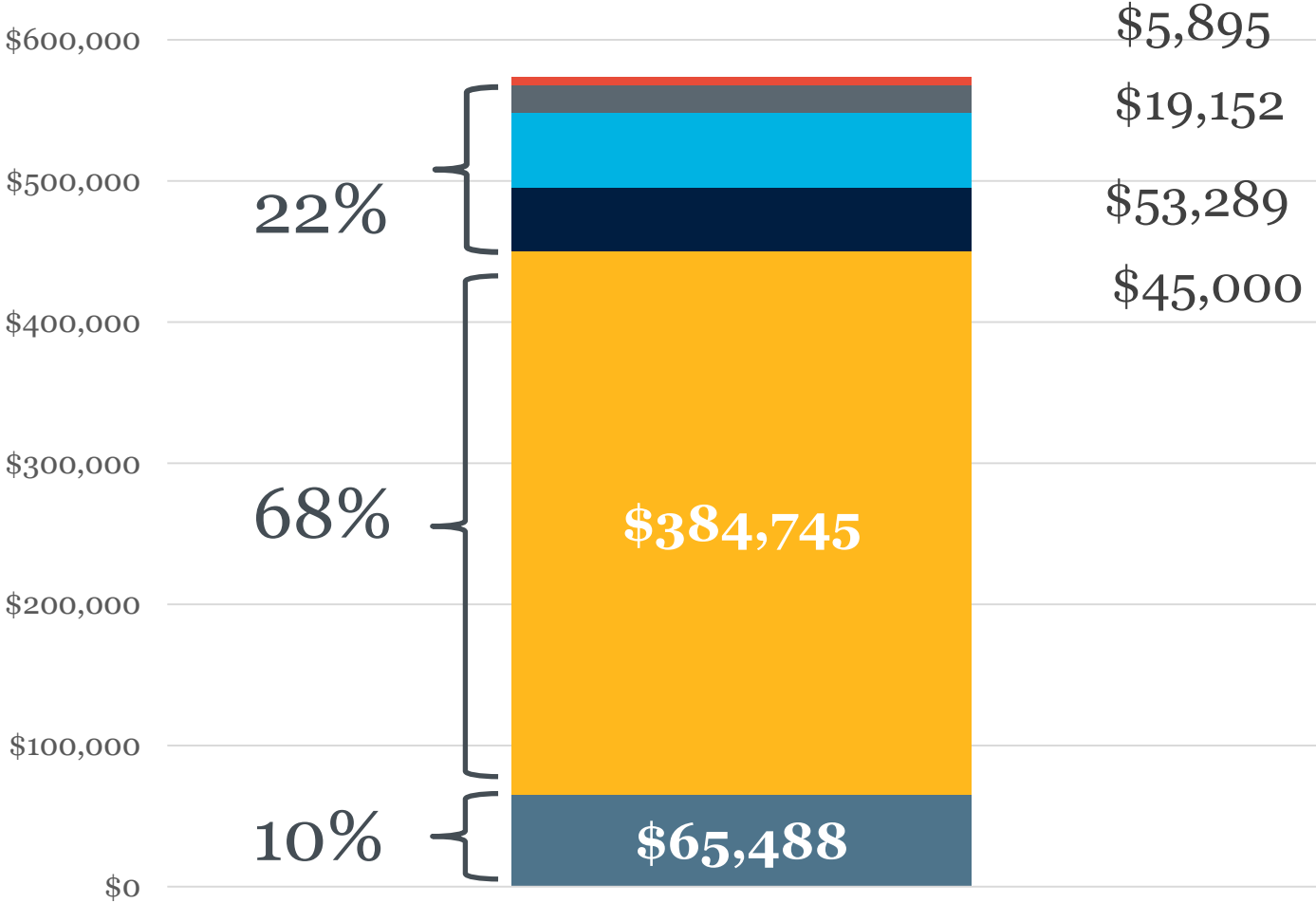


East Bay

- Land Cost
- Hard Cost
- Fees
- Financing
- Consultants
- Tax, Title, Insurance



Total Cost to Build East Bay Prototype: **\$573,569/unit**



■ Land Cost ■ Hard Cost ■ Fees ■ Financing ■ Consultants ■ Tax, Title, Insurance

What are the financing requirements
to make this project feasible?



Turner Terrace

Financing Requirements

How much debt can I raise?

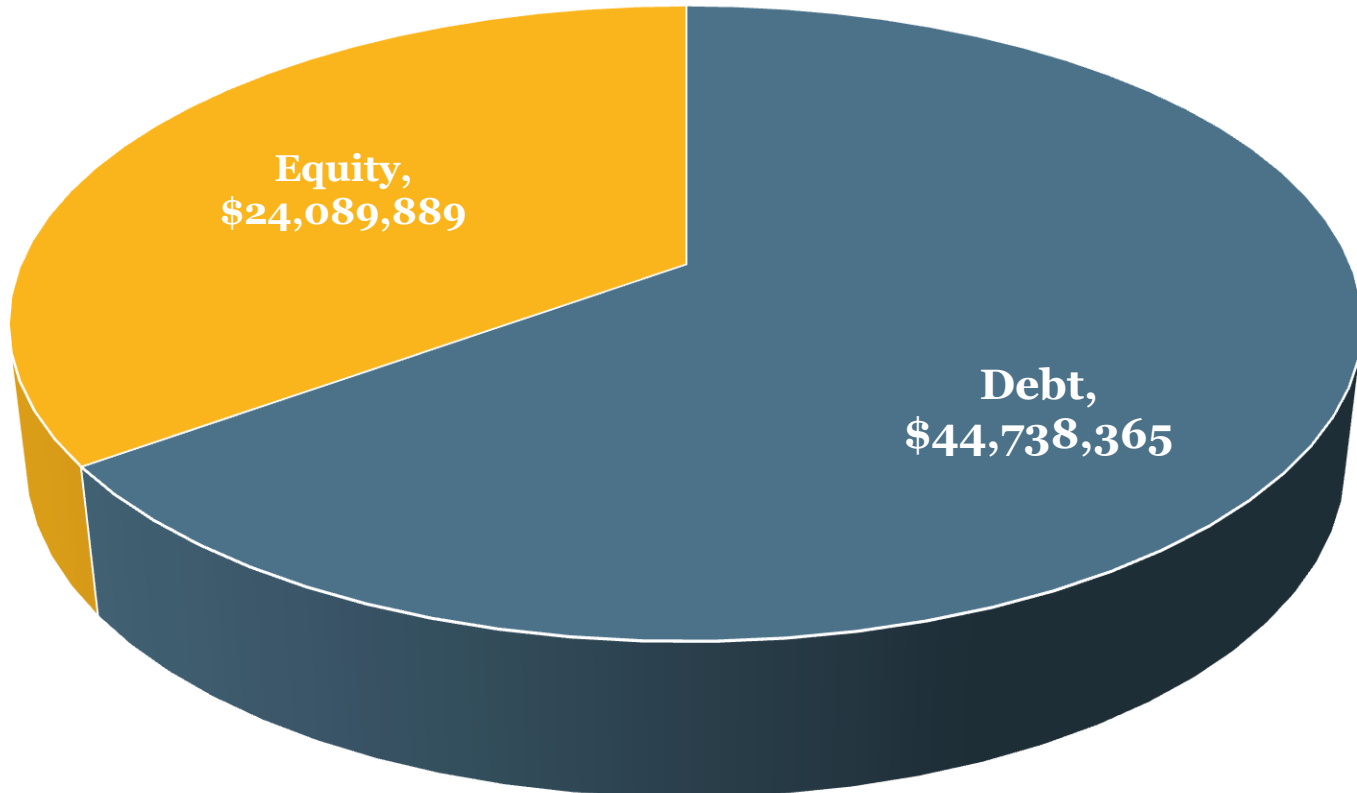
Debt Service Coverage Ratio (DSCR) is the Debt to Net Operating Income (NOI) required by our bank



Turner Terrace Financing Requirements

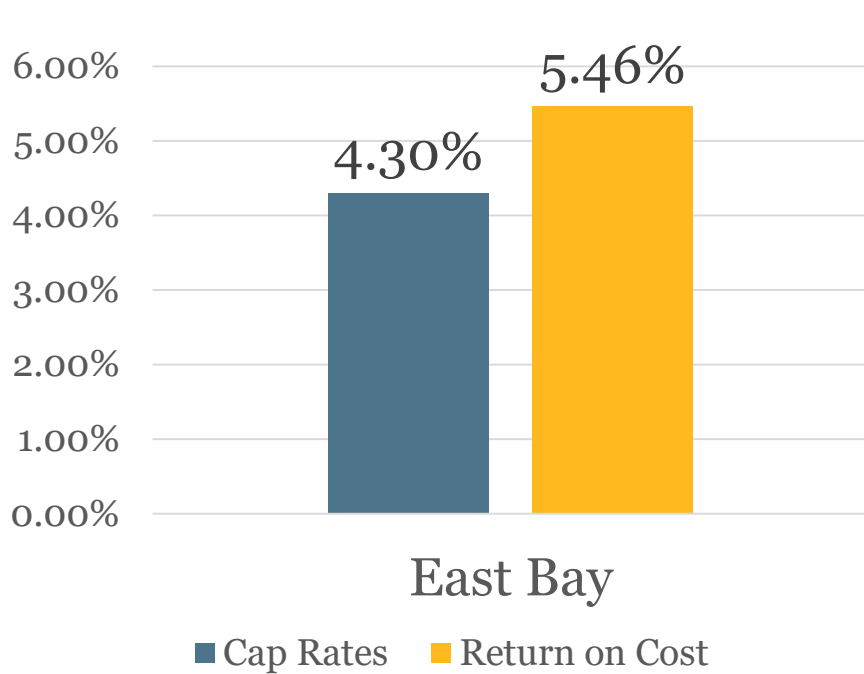
How much debt can I raise?

Financing breakdown for a 65% “Loan to Cost”:

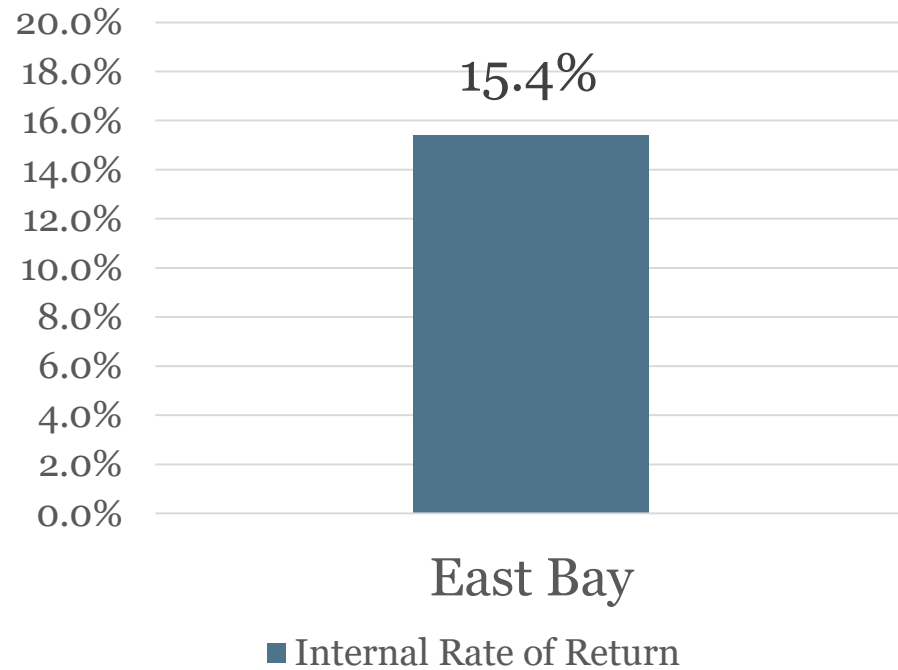


Terner Terrace Equity Requirements

Prototype ROC/Cap Rate Spread

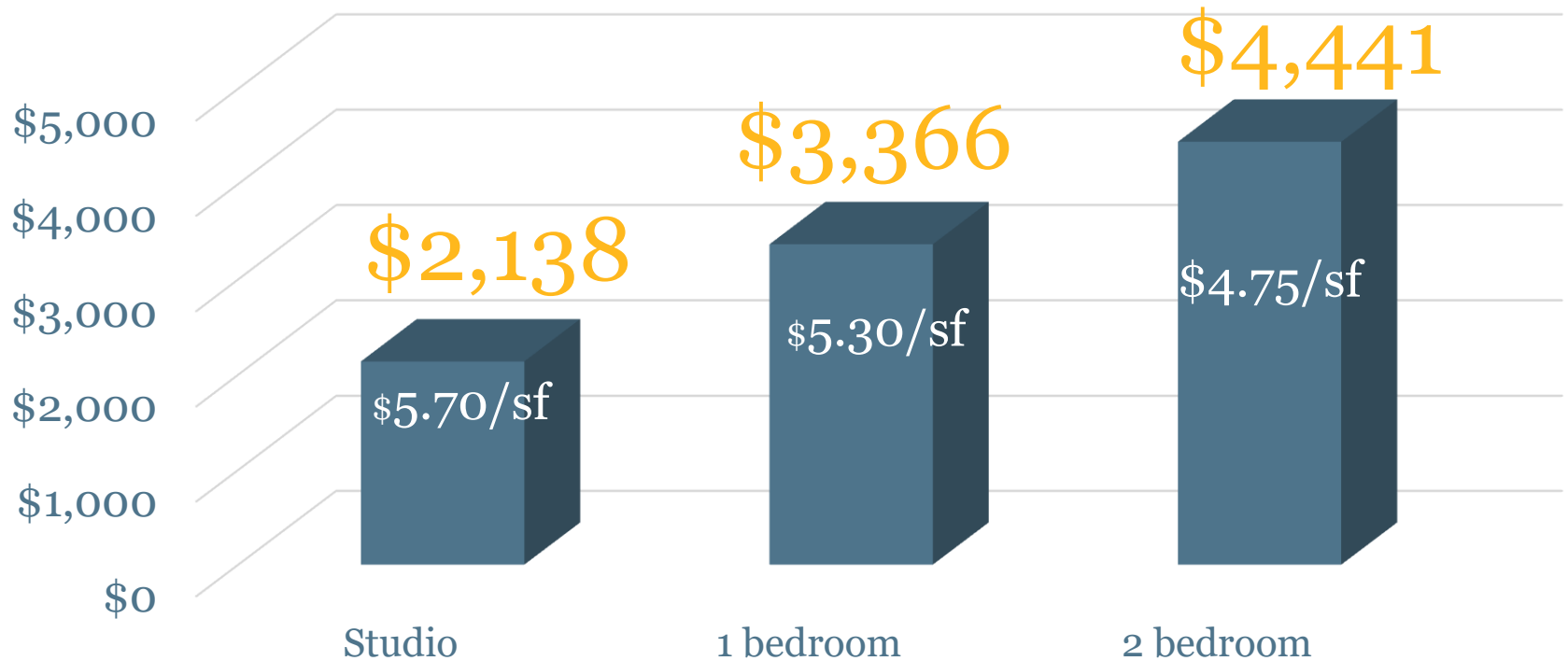


Internal Rate of Return



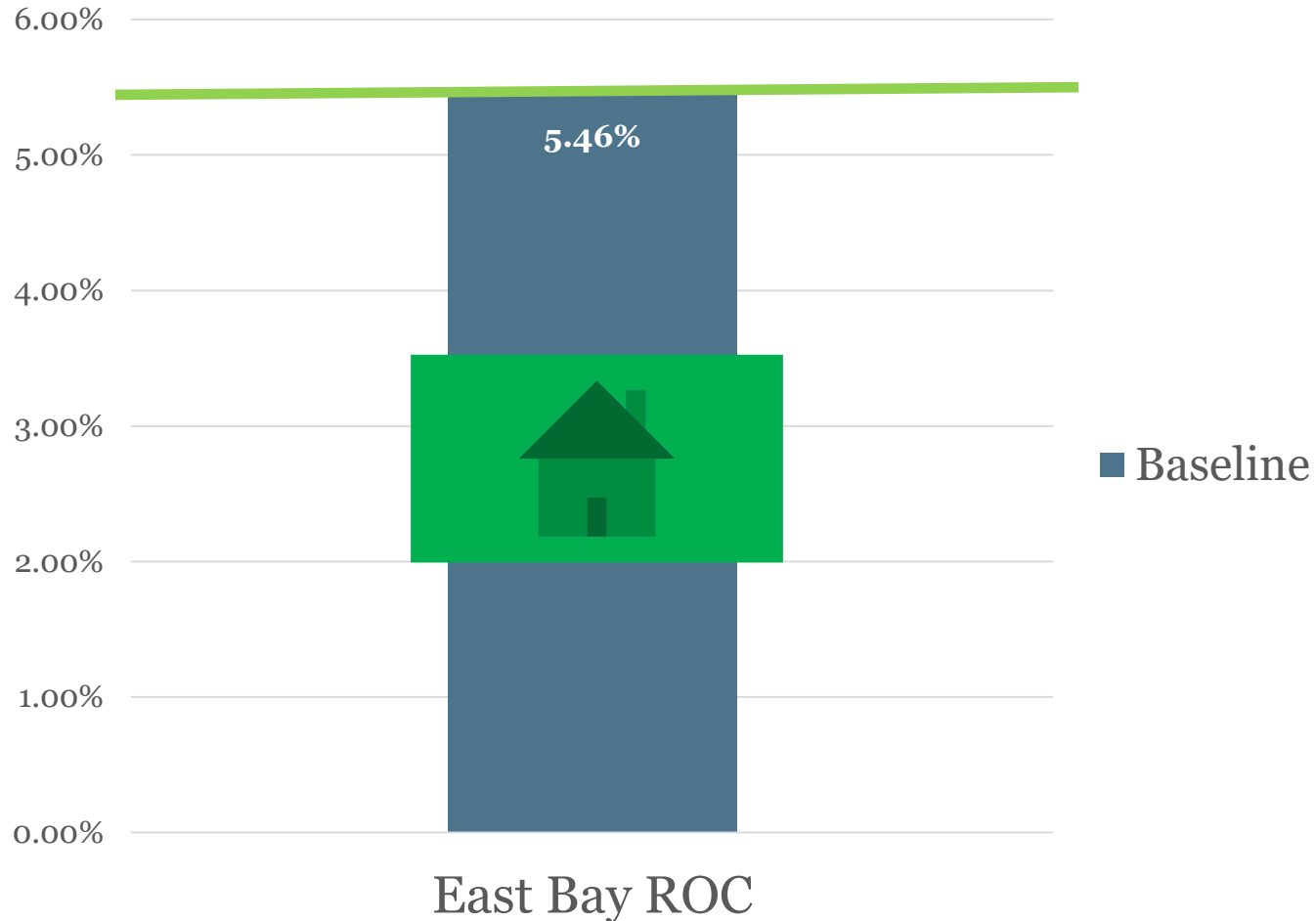
The Result: High Rents

To meet debt, operating expense, and investor requirements, Turner Terrace *monthly* rents must be:



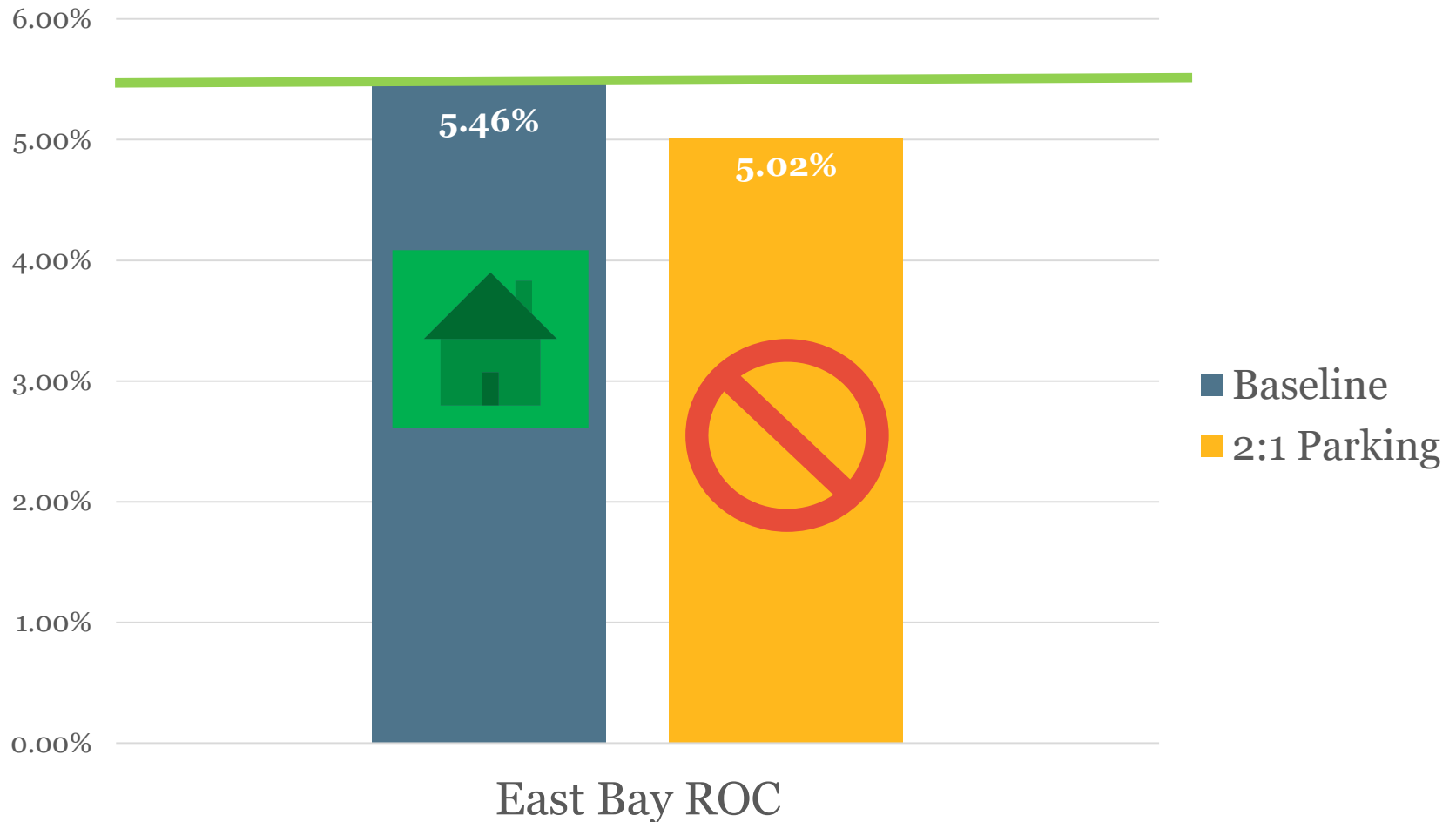
Cumulative Policy Impacts on Turner Terrace

The layering of many common city policies can result in either higher rents or stopping projects altogether



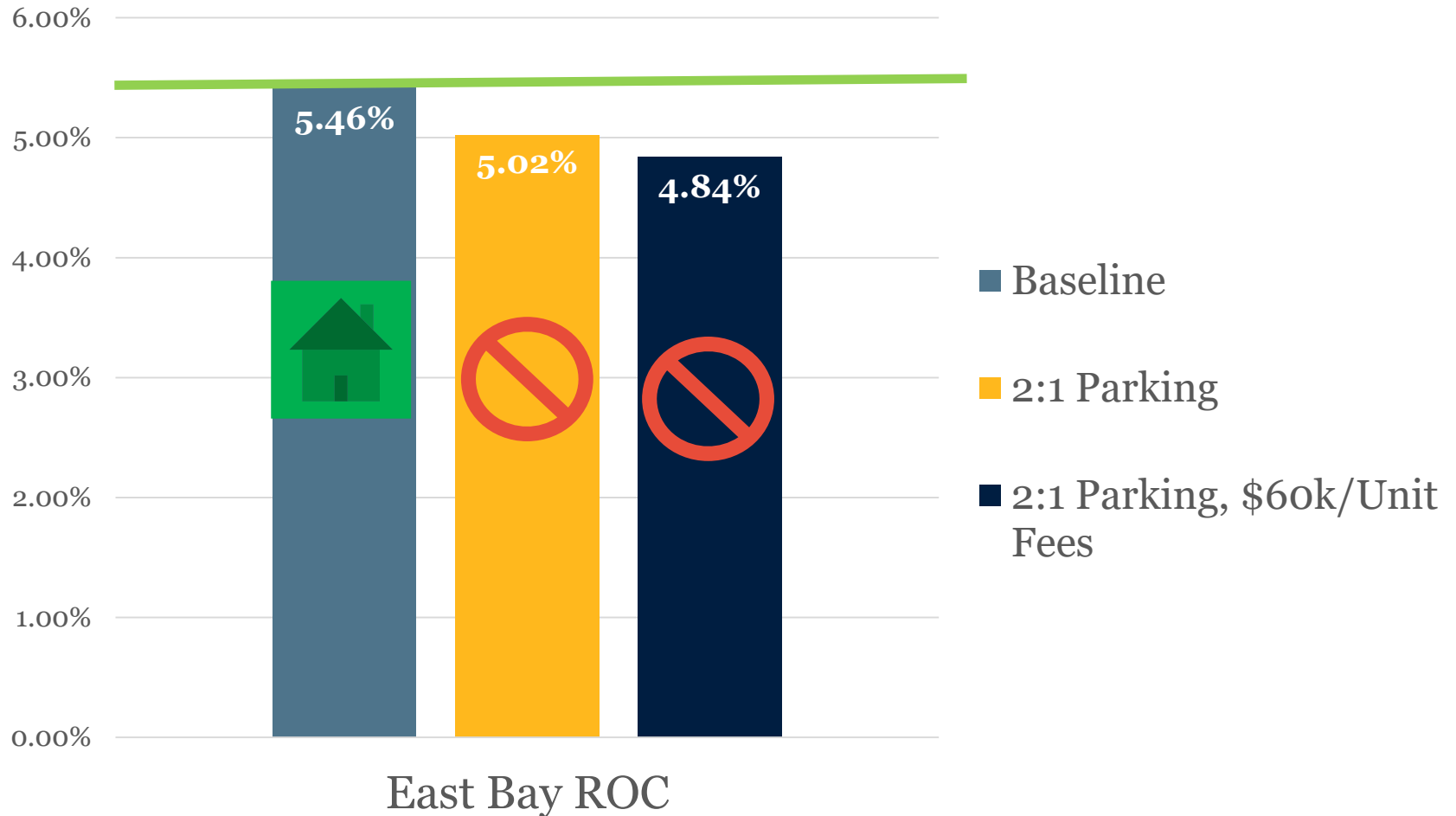
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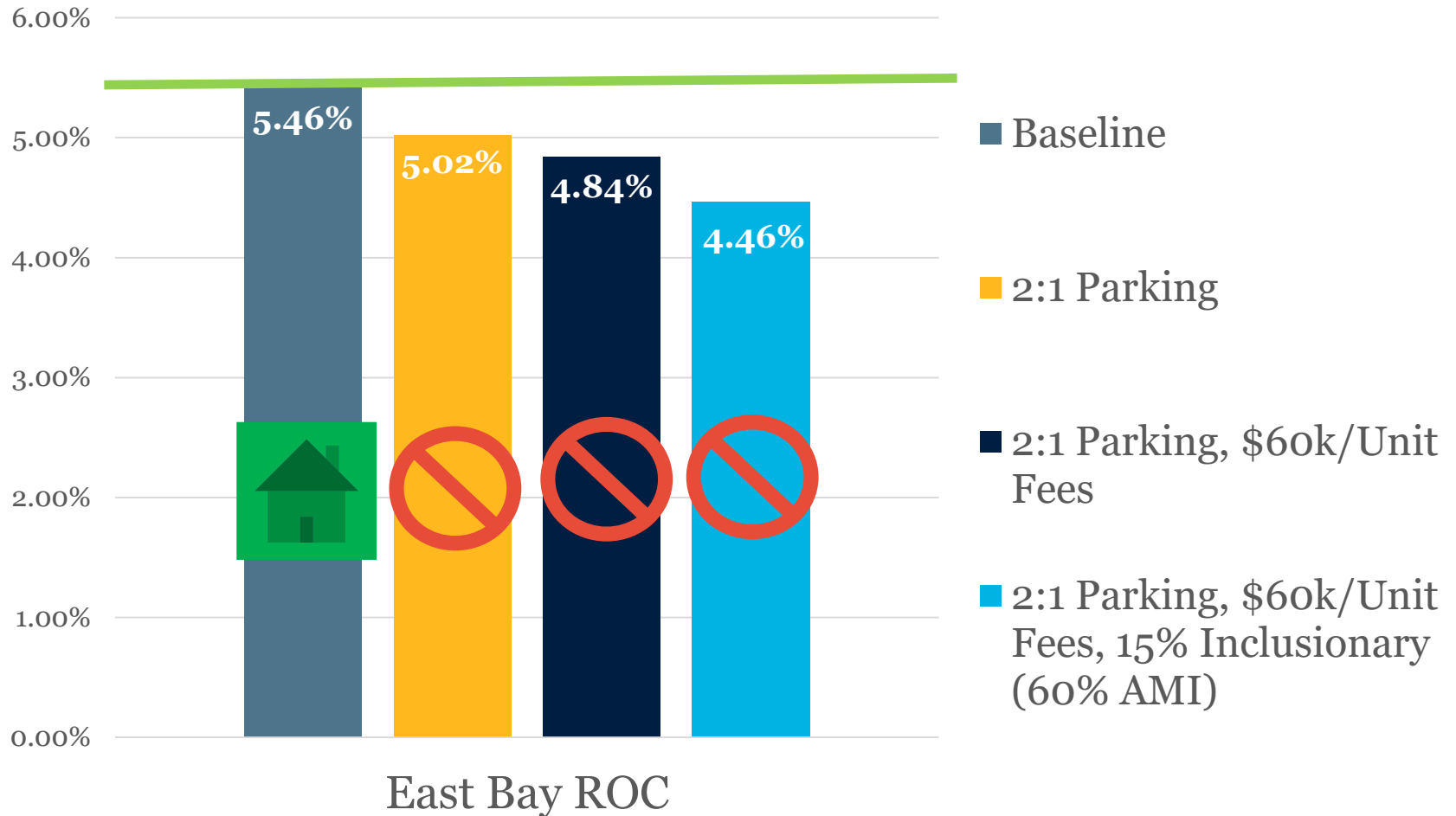
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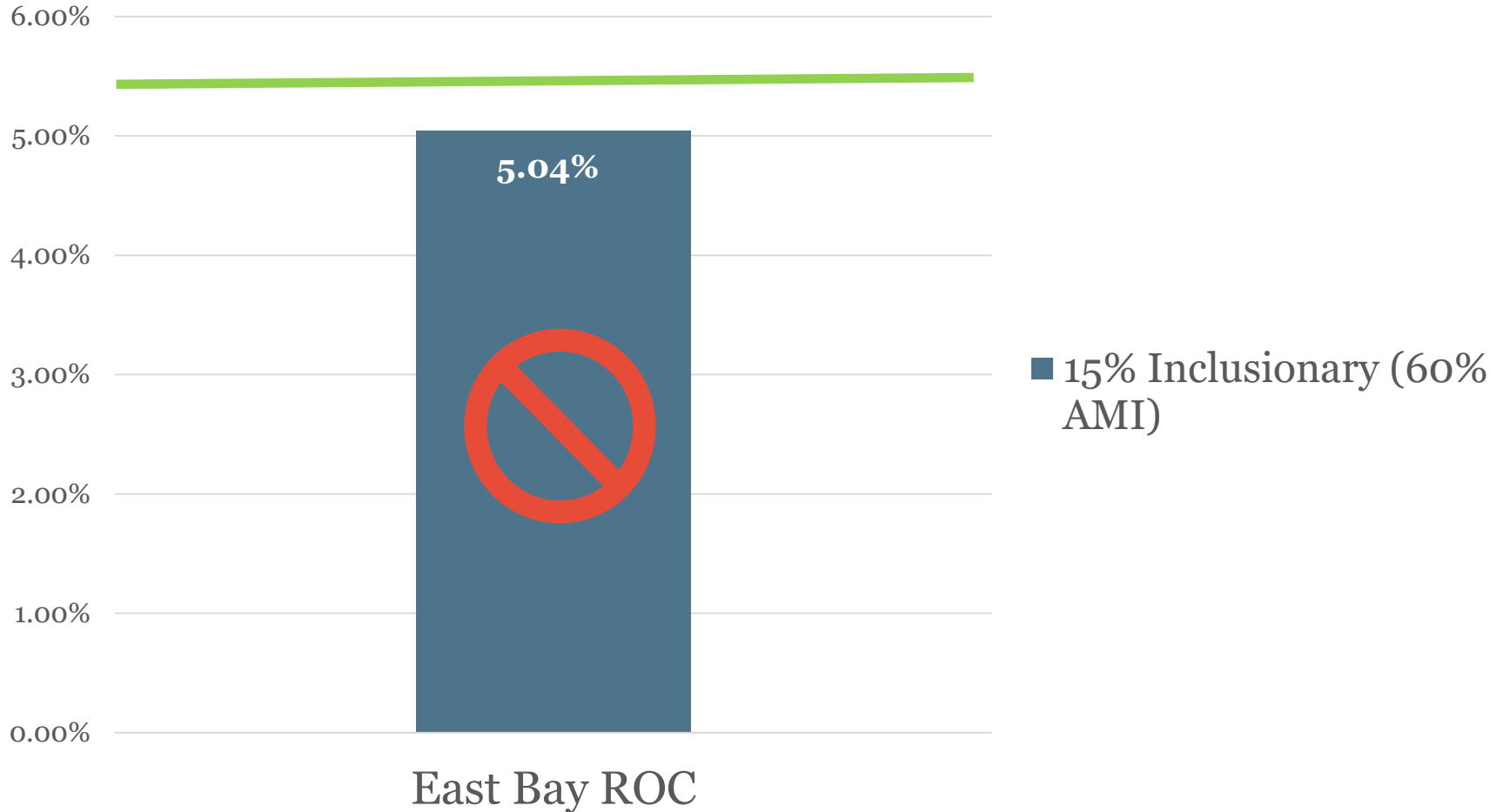
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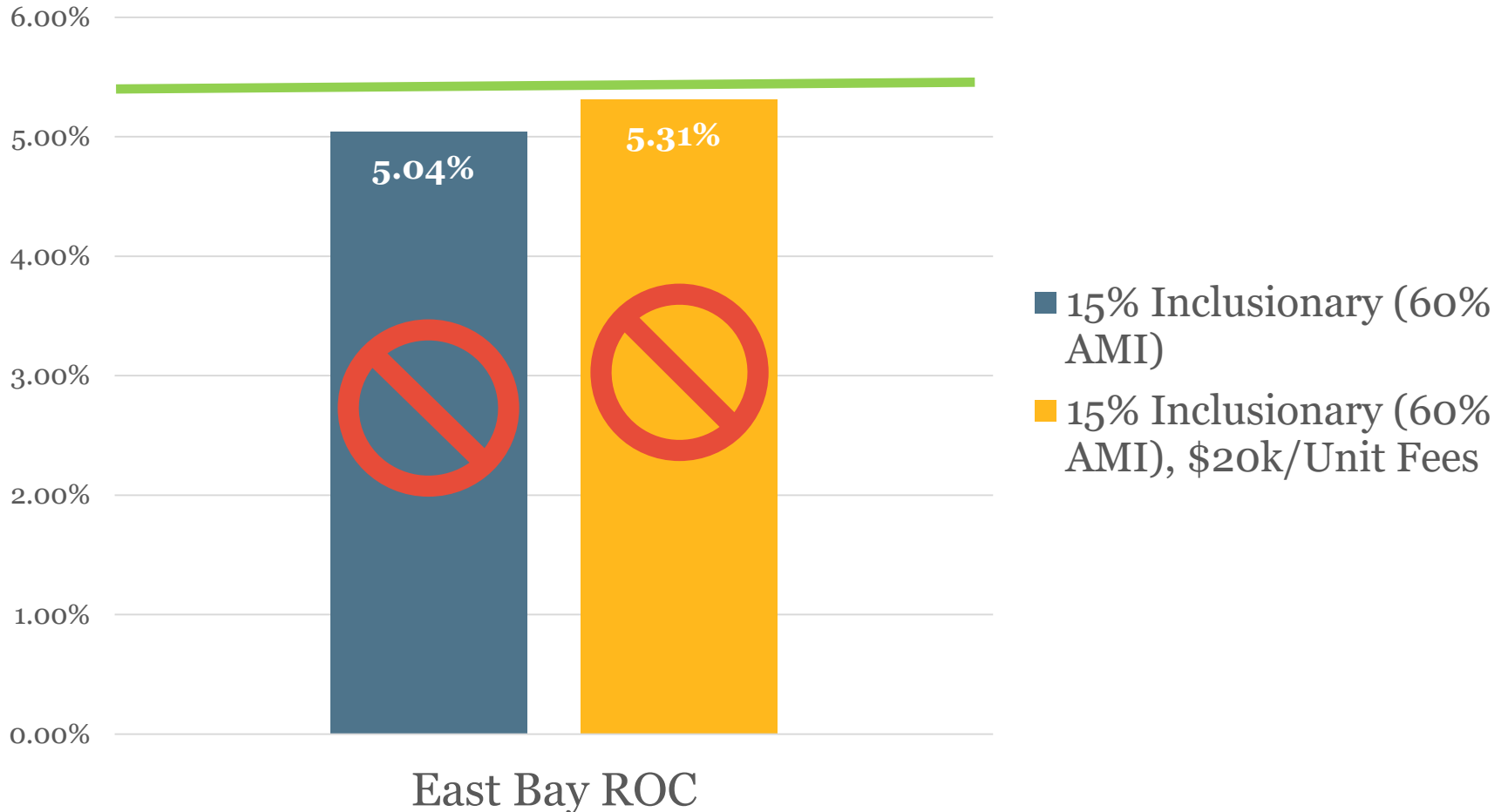
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Calibrating policies to work with the market can help projects pencil while achieving important goals



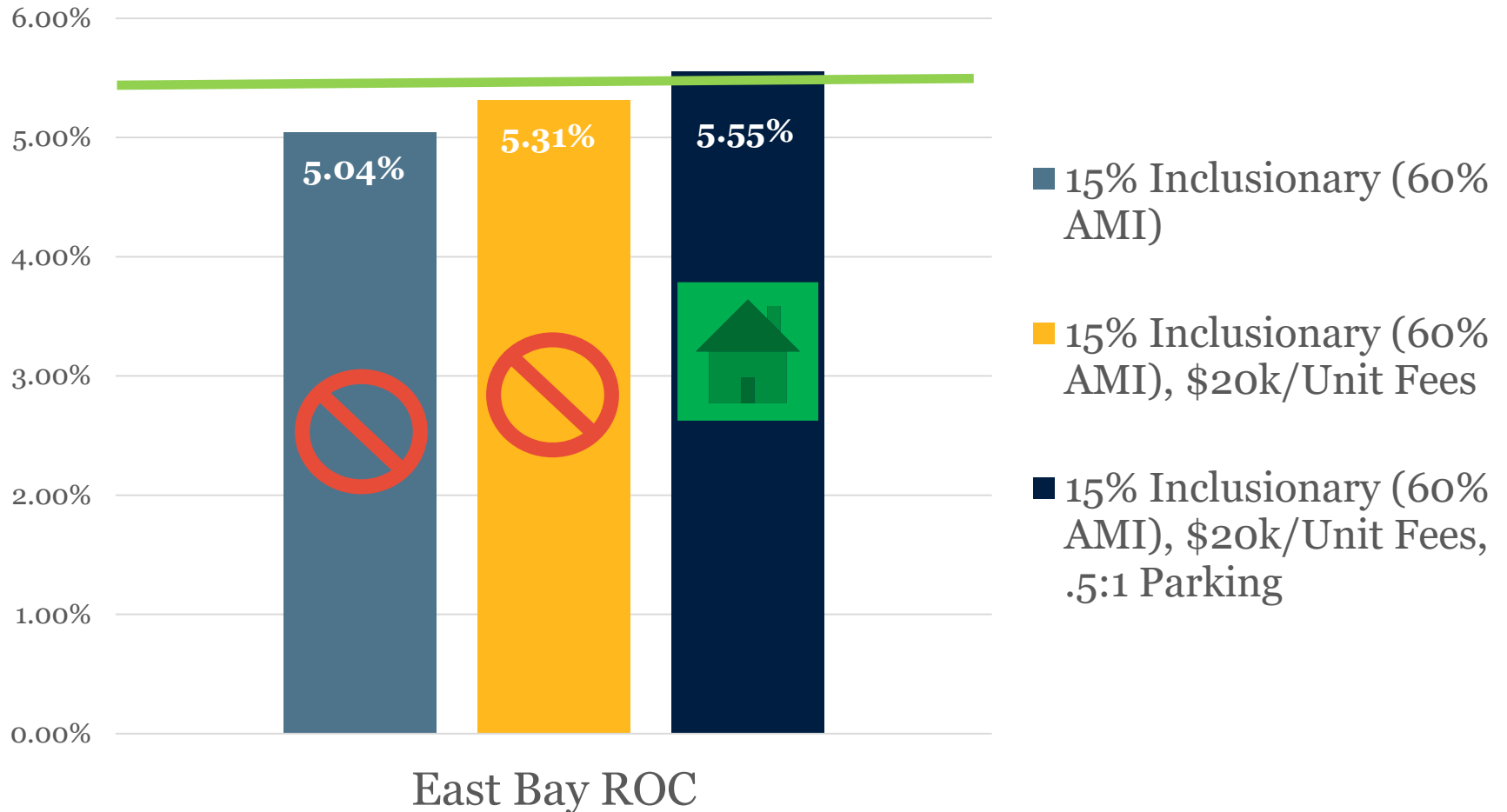
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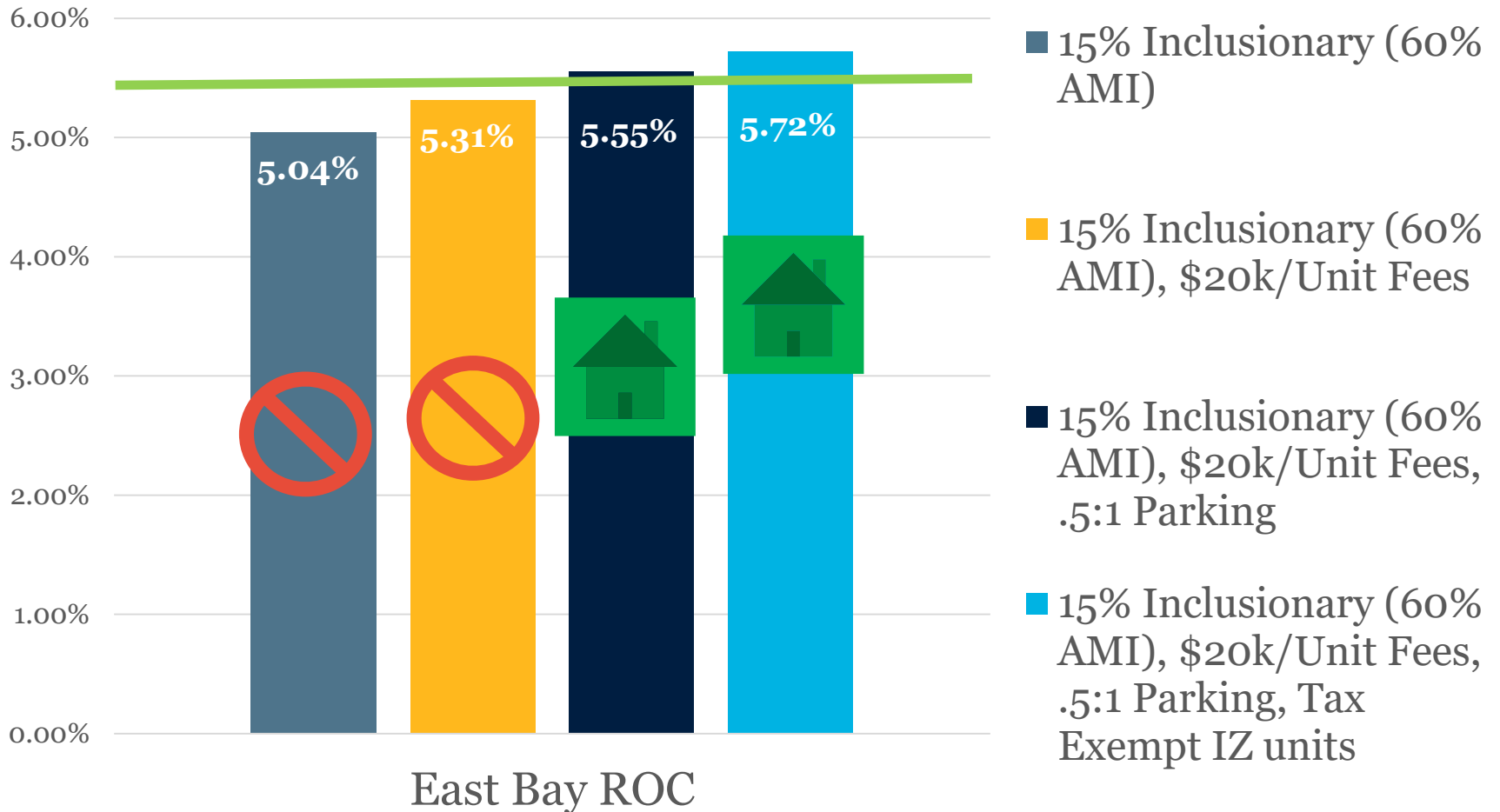
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Please visit www.ternercenter.berkeley.edu
for more information on our *Cost of Building Housing*
Research Series and our other work.

Thank you!

