

Funding URM Retrofits

Report to
City of Seattle
from National
Development
Council

May 2019

EXECUTIVE SUMMARY



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Additionally, we appreciate the support from the following organizations: Seattle Chinatown International District Preservation and Development Authority (SCIDpda), Historic Seattle, Capitol Hill Housing, 4Culture, and many others.



“Congratulations to the people of Alaska for being really prepared for this earthquake,” U.S. Geological Survey Geophysicist Paul Caruso said Saturday.

Gov. Bill Walker said sometimes people, including himself, grouse about stringent building codes. But he’s “really glad” they were in place as he only had minor water damage at his home. “Building codes mean something,” he said.

Mark Thiessen and Rachel D’Oro —*The Seattle Times*.
“Strict building codes helped Anchorage withstand quake,” *Seattle Times*, December 1, 2018.



EXECUTIVE SUMMARY

In 2012, the City of Seattle established an Unreinforced Masonry (URM) Policy Committee to develop recommendations for Seattle’s Department of Construction and Inspections (SDCI) on a mandatory URM seismic retrofit program. The committee provided recommendations to SDCI in 2017, though they have yet to be enacted. In July 2018, the City engaged the National Development Council (NDC) to identify potential financing and funding mechanisms, with an emphasis on strategies to assist property owners who would face financial difficulties related to URM retrofit requirements, and develop strategies to mitigate those financial impacts. NDC, along with experts in the fields of construction, finance, and economics, estimated retrofit costs, researched best practices in peer cities, examined economic impacts of retrofits, and studied a comprehensive set of potential funding sources. Our key findings include the following:

Retrofit policies must be mandatory and clearly defined. In the peer cities reviewed, successful policies limited ambiguity by providing clear retrofit guidelines and a compliance period that was enforced. This finding reaffirms what was found by the URM Policy Committee during their process. Even the successful cities had to adjust incentives and develop new solutions to account for the costs that mandatory policies impose on private building owners. Without a mandatory policy, however, there would be limited attempts at ingenuity and creativity needed to fully address this critical issue. In fact, most of the peer cities reviewed in California have moved beyond their URM inventory to address “soft-story” and other vulnerable building types.

A programmatic approach is necessary. Completing a seismic retrofit can be a daunting task for a private building owner with limited devel-

All Verified URM:

1145

Minus substantial alterations:

1012

Minus public owned:

944

opment experience or financial capacity. The City of Seattle can promote successful policy implementation by providing support to building owners that is both internal and external to the City. External advisory services can provide proactive outreach to building owners to educate them on the policy requirements, understand retrofit approaches, and identify potential financial resources. For building owners, having immediate access to resources for third-party design and engineering expertise could be an essential ingredient in moving a project forward. Additionally, creating a separate internal team at SDCI to expedite reviews and permitting for URM retrofits would speed implementation and demonstrate public commitment. Additionally, the City's Historic Preservation Program staff have already discussed opportunities for streamlining or simplifying their review of seismically retrofitting City landmarks and buildings within historic districts.

The URM inventory that would be affected by a mandatory policy is smaller than previously estimated. The initial database created by SDCI identifies 1,145 URM buildings. Further analysis shows that roughly 11% of the inventory have previously completed a substantial alteration and would likely comply with the proposed retrofit standards.¹ Of the remaining buildings, an additional 68 are owned by government agencies and therefore fall outside this analysis. As experienced in other cities, a number of URMs will likely be demolished instead of retrofitted – but that number is difficult to predict. As such, this analysis centers on 944 URM buildings totaling 20,196,995 square feet (sf). They are estimated to contain 10,401 residential units housing approximately 22,050 residents. Thirty-seven buildings house 1,559 designated affordable housing units, though because URMs are older buildings, many more are naturally occurring affordable to households of varied income levels.

Table 1: Retrofit Type

	Building Count	% of Total URMs	Square Feet	% of Total Sq Ft
Bolts+	215	23%	5,713,521	28%
Bolts++Frame	344	36%	4,247,524	21%
Full Seismic	385	41%	10,235,950	51%
Total URM Inventory	944	100%	20,196,995	100%

Retrofit costs will likely exceed the \$5-\$45/sf range used in prior studies. Prior cost estimates were limited to hard construction costs only. New

research, informed by extensive private development expertise, estimates total development costs, including hard costs, soft costs (fees and services), sales tax, contingency, and tenant relocation expenses. SDCI separates buildings in the URM inventory into 3 retrofit categories: Bolts Plus (Bolts+); Bolts Plus, Plus Frame (Bolts++Frame); and Full Seismic.² The average retrofit costs in the URM inventory range between \$32-\$95/sf depending on the level of retrofit required – though costs may be higher or lower depending on building specifics. Approximately 59% of the City's URM inventory are eligible for Bolts+ and Bolts++Frame retrofits, with costs estimated to average between \$32-\$35/sf.

Table 2: Average Costs (Per Square Foot) to Retrofit

Percent of URM inventory:	Bolts+ 23%	Bolts++ Frame 36%	Full Seismic 41%
Construction Costs			
Hard Costs ¹	\$17.32	\$19.24	\$61.99
Sales Tax (10.1%)	\$1.75	\$1.94	\$6.26
Hard Costs Contingency (10%)	\$1.91	\$2.12	\$6.83
Total Hard Costs	\$20.98	\$23.30	\$75.08
Soft Costs (15%) ²	\$3.15	\$3.50	\$11.26
Soft Costs Contingency (10%)	\$0.31	\$0.35	\$1.13
Total Soft Costs	\$3.46	\$3.85	\$12.39
Total Construction Expenses	\$24.44	\$27.15	\$87.47
Relocation Expenses³			
	\$8.00	\$8.00	\$8.00
TOTAL (Including Relocation)	\$32.44	\$35.15	\$95.47

Notes:

1. Previous work estimates hard costs to range between \$5–40 per square foot.
2. Soft costs are estimated at 15% of hard costs, and include A&E, permits, inspections, insurance, bonds, testing, inc.
3. Relocation costs will vary depending on the use of space—whether residential or commercial—and on specific tenant needs. This case assumes commercial relocation estimated at \$20,000 per unit, and a typical unit of 2,500 square feet.

1. Substantial Alteration is a Seattle Existing Building Code process applied when a building undergoes a significant renovation, change in use, or re-occupancy after being vacant. For URMs, improvements to the seismic force resisting system are required to address the building's seismic safety deficiencies. In most cases, these upgrades exceed the proposed technical standard for the URM Policy and significantly mitigate life safety risks.

2. The URM Technical Committee proposed a modified Bolts Plus (Bolts+) standard similar to those adopted by many California jurisdictions. Bolts+ retrofits require that walls are tied to the floors and roof, parapets are braced, diaphragms are reinforced, and tall brick walls are strong backed to prevent out-of-plane bending failure. A subset of the inventory qualifies for Bolts+ retrofits with the addition of a steel frame or shear walls to strengthen the building (Bolts++Frame). Buildings that do not qualify for Bolts+ or Bolts++Frame require a full seismic retrofit.



Table 3: Full URM Inventory Retrofit Costs

	Total	Bolts+	Bolts++	Full Seismic
Number of Buildings	944	215	344	385
% of Total URMs	100%	23%	36%	41%
Hard Costs	\$819,800,000	\$90,800,000	\$96,100,000	\$632,900,000
Sales Tax (10.1%)	\$91,000,000	\$10,000,000	\$10,700,000	\$70,300,000
Hard Costs Contingency (10%)	\$82,000,000	\$9,100,000	\$9,600,000	\$63,300,000
Total Hard Costs	\$992,800,000	\$109,900,000	\$116,400,000	\$766,500,000
Soft Costs (15%)	\$149,000,000	\$16,500,000	\$17,500,000	\$115,000,000
Soft Costs Contingency (10%)	\$14,800,000	\$1,600,000	\$1,700,000	\$11,500,000
Total Soft Costs	\$163,800,000	\$18,100,000	\$19,200,000	\$126,500,000
Total Construction Expenses	\$1,156,600,000	\$128,000,000	\$135,600,000	\$893,000,000
Relocation (Commercial)	\$105,200,000	\$19,500,000	\$25,000,000	\$60,700,000
Relocation (Residential)	14,300,000	\$4,700,000	\$3,500,000	\$6,100,000
TOTAL (Including Relocation)	\$1,276,100,000	\$152,200,000	\$164,100,000	\$959,800,000

The 944 buildings, containing 20,196,995 square feet, have an estimated retrofit cost totaling \$1.28 billion.

In order to simplify the presentation of project costs and financing options, we created a hypothetical retrofit project that reflects an average URM building in terms of square feet and number of stories. That prototype is a 3-story, 22,000 square foot mixed-use building with commercial space on the ground floor and 20 residential units above. Our estimates suggest it would cost approximately \$642,000 to retrofit this hypothetical building to a Bolts+ standard. (See page 5, Table 4.)

Seismic retrofits do not, in and of themselves, increase the economic value of buildings. The fundamental objective of a mandatory retrofit program is improved public health and safety during a catastrophic event. In general, building improvements increase value and that increased value could offset the costs for the retrofit. In our research, however, we have not found evidence that retrofitted buildings currently command higher rental rates in the rental market. This is likely to change as public awareness increases. There could, however, be a higher future sales value generated due to the improvements. The above statement applies to seismic retrofit work alone;

building improvements that result in more rentable square footage, energy savings, or improved unit quality would increase building value.

Insurance costs are likely to go up rather than down in the short run. Washington State does not require earthquake insurance, and as a result, data on insurance premium impacts are difficult to discern. The Office of the Insurance Commissioner recently surveyed earthquake insurance in Washington State.³ They found that while there are few insurers in Washington that provide earthquake insurance, the state, and in particular King County, compares favorably with other high-risk states. The survey confirms that King County, which represents 28.1% of all policies in the state commercial market, has 45.2% coverage. However, insurers and building owners are limiting coverage in order to reduce the additional expense of earthquake coverage. A majority of insurers (57.2%) offered coverage on a ground up/full value basis but it was paired with a primary/loss limit. This confirms that insurers and building owners were limiting actual coverage from any catastrophic event in order to reduce premium costs and limit insurance payouts.

Many URM buildings in the inventory would likely face difficulties acquiring earthquake insurance due to the structural state of the building. It is

³ Washington State Office of the Insurance Commissioner. 2017 Earthquake Data Call Report.



Table 4: Prototype URM Building Example

Assumptions	
Building size:	3 stories; 22,000 square feet
Building use:	Mixed Use: Ground floor commercial with 20 residential units above
Retrofit type:	Bolts+
Estimated Rehabilitation Costs	
Hard Costs	\$400,000
Sales Tax (10.1%)	\$40,400
Hard Costs Contingency (10%)	\$44,040
Total Hard Costs	\$484,440
Soft Costs (15%)	\$72,666
Soft Costs Contingency (10%)	\$7,267
Total Soft Costs	\$79,933
Total Construction Expenses	\$564,373
Relocation Expenses	
Commercial ¹	\$58,667
Residential ²	\$19,240
TOTAL (Including Relocation)	\$642,280
Construction Cost per SF	\$25.65
Total Cost per SF	\$29.19
Notes:	
1.	Estimated at \$20,000 per unit moving cost; typical commercial unit size of 2,500 SF.
2.	We assume some usage of Seattle's Tenant Relocation Assistance Ordinance (TRAO). In this case, we assume 25% of residential units qualify for relocation assistance of \$3,848 per TRAO requirements.

possible that the structural improvements provided by the retrofit could allow building owners access to the earthquake insurance market. It is in the public interest to advance measures that increase insurance coverage. As seen in many other catastrophic events, the financial benefits from insurance coverage reduces the overall public expense in recovery efforts.

Through conversations with Washington State Insurance Commission staff, numerous insurance brokers, public risk officers and building owners, we conclude that basic property and casualty insurance would decrease due to building improvements. Structural improvements to a building should reduce the risk and, therefore, the premium costs for basic property insurance. However, the building would not be insured for earthquake dam-

age without a separate insurance rider. This rider can cost about 50% of the basic building property casualty and loss policy. In other words, basic policy premiums would likely decrease, but the addition of earthquake coverage would increase total insurance premium costs.

Existing requirements for the Special Valuation incentive should be modified to enhance their financial benefit for retrofits. "Special Valuation", available for certain landmark buildings, provides a key financial benefit to owners of landmark buildings. Special Valuation revises the assessed value of a historic property, subtracting rehabilitation costs (for up to 10 years) that are approved by the local review board. Eligible costs are limited to the hard and soft costs directly associated with retrofit construction. Relocation expenses, which can be substantial, are excluded from this program. Reduced property taxes increase cash flow to a building owner and increase the building's value. Considering the hypothetical building, the present value of the Special Valuation over the 10-year program period is \$83,656 with a present value of \$63,834. The Special Valuation savings provide 10% of the total retrofit budget.

Fig 1: Hypothetical Special Valuation Estimated Value

Hypothetical Special Valuation Estimated Value			
22,000 sq ft • 3 story building			
Bolts+ Retrofit Budget		Cost/sf	Amount Credited Against Property Assessment
Total-Hard & Soft Costs	\$564,373	\$25.65	\$564,373
Total-with Relocation	\$642,279	\$29.19	\$12.93
			\$7,297
			\$83,656
			\$63,834

The City should explore modifications to the Special Valuation incentive. While modifications would require State legislative approval, they could increase the financial benefit of Special Valuation in several ways:

- Extend the duration of the program to match the 12-year deferral period provided by the Multi-Family Tax Exemption program.
- Allow all seismic retrofit costs to be used in reducing the buildings value. Current program guidelines only include construction costs and exclude other project expenses such as relocation.
- Allow buildings on the Historic Resource Survey to qualify for Special Valuation. While 29% of buildings in the modified inventory



have historic or landmark designations, an additional 20% are estimated to be on the Historic Resource Survey.⁴

- Eliminate the requirement that rehabilitation costs must exceed 25% of the property's current improvement value. Many smaller retrofits might not exceed this threshold but meet the balance of program requirements.

These adjustments would increase the financial benefit to \$117,860 over the 12-year period. This has a present value of \$85,573, which represents 13% of the total retrofit costs.

There are current efforts underway that could assist Seattle in seeking legislative changes to Special Valuation. The State of Washington is evaluating the number of URMs throughout the state. In the past Washington State Legislative session there was a bill drafted to use property tax abatement as a means to offset retrofit costs. The bill was modified to, instead, create a study process. Additionally, there is a group active in Washington State's legislative process for adoption of a Property Assessed Clean Energy (PACE) financing mechanism that could include seismic retrofits. The Shift Zero Pacer Task Force is an alliance of public, private and non-profit organizations focused on moving buildings towards a zero net carbon footprint. Both efforts could facilitate a broad coalition effort that could include these program changes.

Public funding will be required to assist non-profit owners of URM buildings.

Buildings that serve a social purpose will need additional assistance to fund retrofits. In affordable housing buildings, for example, rent limits diminish the owner's ability to support additional debt through private financing solutions. In addition, non-profit owners are already tax-exempt and therefore do not benefit from existing resources such as Special Valuation. From an equity standpoint, it is imperative to improve the safety of existing affordable housing units that serve low-income and other vulnerable populations.

Seattle's Transfer of Development Rights (TDR) Program needs retuning. The City of Seattle has six different land use programs that allow for the transfer of development rights or potential (commonly referred to as "TDR"). Depending on program criteria, TDR allows buildings with excess development capacity—zoned development capacity minus existing development—to transfer that development capacity from the "sending site" to a project that is able to use that development capacity (a "receiving site").

The value of those development rights allows the sending site to recoup some of the economic value of unused development capacity. Based on an analysis of the City of Seattle's development capacity model—a parcel level tool that identifies remaining development capacity of par-

cells—ECONorthwest summarized remaining development capacity on TDR eligible buildings. The analysis concludes that available TDR sending sites, under the various city programs, have 18.5 million square feet in development capacity as potentially transferable.⁵

210 buildings in the current URM inventory (22%) have capacity to transfer. That capacity is estimated at 2.6 million square feet in TDR capacity or 14% of the current program capacity.

The value of this URM TDR capacity could be a significant revenue stream to funding seismic retrofits. However, it is challenging to quantify the value of the remaining TDR capacity due to several considerations that determine its financial value:

- The TDR value is not fixed but fluctuates and is a function of supply and demand. While existing rules create significant "sending" capacity (an estimated 18.5 million square feet) to transfer development potential, there are limited "receiving sites" where credits can be placed. This limit reduces the potential value of the development credit.
- Seattle's Land Use Code and incentive zoning allows for multiple methods for increasing development. Other policy priorities for affordable housing, open space, and design enhancements compete with TDRs, and developers typically seek the lowest cost option to increase density. *As a benchmark, the city's incentive zoning program (of which TDR is a component) has only placed 2.1 million square feet since 2001.*
- Some prices for development potential are set, while others fluctuate. The City has set rules for TDR pricing in certain areas via fees-in-lieu or other administrative actions. This "regulated" market sits next to a more open ("unregulated") private market for transfers. This results in little consistency, and lower pricing, concerning the market price for transferred potential.

Historical fees-in-lieu, as part of the city's past incentive zoning programs, have ranged from \$5-\$22 per square foot of sending site valuation. The 2.6 million of URM TDR "sending site" capacity would be valued between \$13 and \$57 million (assuming there is demand for their placement in receiving areas).

The URM TDR program is a way to cost-offset retrofit improvements using new private development to fund retrofit needs. However, it will require several policy issues to be addressed:

- **Specification of receiving areas.** All things being equal, the size of the receiving area – measured both in terms of geographic extent

⁴ Initiated in 2000, the Historic Resources Survey is a coordinated, multi-year effort by the City of Seattle to survey and inventory the city's known historic resources. Surveyed sites and buildings were evaluated based on age, physical integrity, architectural style, and known historic significance.

⁵ Seattle OPCD Study. These figures are in draft stage and are subject to change pending further review by the City.



and development entitlements – create the marketplace for the demand for transfers. The City could add new “receiving areas” which do not have current incentive zoning in place, such as Seattle’s near-in industrial areas. There is also a current collaboration with King County on using TDR for open-space preservation. Perhaps expanding close-in unincorporated areas, such as White Center, could be designated “receiving areas” for further density.

- **Prioritization of URM potential relative to other sources.** As described above, URM TDR potential “competes” with other zoning incentives that increase development potential. Changes to zoning incentives can make URM potential a more attractive source to buyers and increase its value.
- **Velocity and flow of transactions.** Demand for URM transfers is a function of the issues listed above, yet only so much demand can be expected during any given investment cycle. Development fluctuations destabilizes the value of TDRs. A public entity could stabilize values by holding development credits until the market shifts and the value paid. In the past, the City has been an intermediary for TDR transactions through management of a “TDR Bank”. The last projects using Housing TDR are being finalized as the program is phased out in lieu of Multi-family Housing Affordability (MHA) regulations. The value of those TDRs was \$30/sf – well above the values seen in private transactions. At that value, nearly \$78 million in TDR revenue would be available for seismic retrofits. The City should explore remaining as a sole intermediary or help establish a separate intermediary for the buying and selling of URM TDRs that can generate the needed cash flow that URM retrofits will require. Public controls would also ensure that TDR funding is committed for retrofit needs.

Development Credits could Expand TDR Impact. In addition to the TDR adjustments identified above, there are other opportunities for Seattle to look at future development as a source for funding seismic retrofits. Local developers, Peter Nitze and Brad Padden, have developed an alternative program to create a broader development credit program. This would expand the applicability of development credits and would prioritize URM retrofits as Seattle evaluates land areas not already subject to incentive zoning. These are likely Seattle’s close-in industrial areas, or it could lead to a collaboration with King County on growing close-in communities, such as White Center and Burien. The proposal seeks to provide a relatively straightforward program that expands the scope of Seattle’s TDR efforts. It warrants further attention and might additionally require some public-sector intermediary to function similar to that described in the TDR section above.

New Public Projects Can Include Assistance for Retrofits. Seattle is experiencing a significant convergence of public infrastructure work, including Waterfront Park and Seattle Tunnel activity, and actions on future WSDOT land holdings in Pioneer Square and Sound Transit expansion through the downtown to West Seattle and Ballard. These projects use federal funds

and, as such, require a Section 106 Review (National Historic Preservation Act) as part of the National Environmental Protection Act (NEPA) review. Nearly 30% of the URM inventory are landmarks or in landmark districts. The City should require that all environmental reviews fully address impacts on these landmarks and landmark districts and identify mitigation efforts that could include assistance for seismic retrofits.

Table 5: Prototype URM Building Example with Landmark Resources

Assumptions		
Building size:	3 stories; 22,000 square feet	
Building use:	Mixed Use: Ground floor commercial with 20 residential units above	
Retrofit type:	Bolts+	
Estimated Rehabilitation Costs		
Hard Costs		\$400,000
Sales Tax (10.1%)		\$40,400
Hard Costs Contingency (10%)		\$44,040
Total Hard Costs		\$484,440
Soft Costs (15%)		\$72,666
Soft Costs Contingency (10%)		\$7,267
Total Soft Costs		\$79,933
Total Construction Expenses		\$564,373
Relocation Expenses		
Commercial ¹		\$58,667
Residential ²		\$19,240
TOTAL (Including Relocation)		\$642,280
Potential Fund Sources		% of Project
City of Seattle TRAO support ³	\$9,620	2%
Special Property Valuation	\$63,834	10%
Federal Historic Tax Credit Value ⁴	\$84,656	13%
Total Resources	\$158,110	25%

Notes:

1. Estimated at \$20,000 per unit moving cost; typical commercial unit size of 2,500 SF.
2. Assuming 25% of residential units qualify for relocation assistance of \$3,848 per unit per TRAO requirements.
3. City of Seattle provides 50% of TRAO assistance.
4. Tax credit value is estimated by taking 20% of construction costs x \$0.75 in value



Table 6: Prototype URM Building Example with Affordable Housing Resources

Assumptions		
Building size:	3 stories; 22,000 square feet	
Building use:	Mixed Use: Ground floor commercial with 20 residential units above	
Retrofit type:	Bolts+	
Estimated Rehabilitation Costs		
Hard Costs		\$400,000
Sales Tax (10.1%)		\$40,400
Hard Costs Contingency (10%)		\$44,040
Total Hard Costs		\$484,440
Soft Costs (15%)		\$72,666
Soft Costs Contingency (10%)		\$7,267
Total Soft Costs		\$79,933
Total Construction Expenses		\$564,373
Relocation Expenses		
Commercial ¹		\$58,667
Residential ²		\$76,960
TOTAL (Including Relocation)		\$700,000
Potential Fund Sources		% of Project
City of Seattle TRA0 support ³	\$38,480	5%
4% LIHTC ⁴	\$203,174	29%
Total Resources	\$241,654	34%

Notes:

1. Estimated at \$20,000 per unit moving cost; typical commercial unit size of 2,500 SF.
2. Assuming 100% of residential units qualify for relocation assistance of \$3,848 per unit per TRA0 requirements.
3. City of Seattle provides 50% of TRA0 assistance.
4. Tax Credit Value is estimated at Construction Costs x 4% x 10 Years x \$0.90 in value

Federal tax credits can be a significant fund source for retrofits but small projects will need help. Many of the URM buildings can benefit from federal tax credits to provide financial resources to their rehabilitation. The Rehabilitation Tax Credit (RTC) provides a federal tax credit that offsets federal taxes, which reduces the expense of the building and increases value. Many owners, however, prefer to monetize the credit to use as a source of proj-

ect funding. This process can be complex and expensive for many building owners. It can also be difficult to attract investor attention for small projects (less than \$2 million in project costs). However, a number of small deal funds have been established that could partner with the City of Seattle to facilitate funding seismic retrofits. Assisting building owners to package their projects for investment could help more of them utilize credits. Seattle could also work with local partners to establish a Seattle-specific fund.

If the prototype building is a landmark, we estimate that 13% of the seismic retrofit costs could be funded through Historic Tax Credits. When combined with the Special Property Valuation Program and the City's Tenant Relocation Assistance Ordinance (TRA0) funding, an estimated 25% of seismic retrofit costs are funded. (See page 7, Table 5.)

A second federal credit likely to assist seismic retrofit costs is the Low-Income Housing Tax Credit (LIHTC). Administered by the Washington State Finance Commission, LIHTC offers a 9% or 4% tax credit for buildings with affordable housing (below 60% AMI). There are 37 buildings in the revised inventory containing designated affordable housing units. The 4% credit is less restrictive and more readily available to support retrofits. It provides a tax credit of 4% of total construction expenses for 10 years.⁶ Building owners monetize the credit by collaborating with investors. The 4% tax credit is typically coupled with tax-exempt bond financing, which has favorable terms that lower financing costs for affordable housing projects.

Seattle and its many non-profit developers have been very successful in utilizing the program and would likely continue to use it as key funding source. *Looking at our prototype as an affordable housing building, we estimate that 29% of the seismic retrofit costs could be funded from the 4% LIHTC program. When combined with the City's Tenant Relocation Assistance Ordinance (TRA0) funding, an estimated 34% of seismic retrofit costs are funded. (See left, Table 6.)*

Many other smaller grant programs can be used with the above program sources on a case-by-case basis to support seismic retrofit projects. These are typically for community facilities or landmark preservation and are available through the Washington State Capital Budget or public historic preservation agencies. We have not assumed use of other public funds in this analysis. Without assuming adjustments to the Special Valuation Program or the Transfer Development Rights programs, approximately 20% of the seismic retrofit costs for the URM inventory can be funded. Subsets of the inventory, such as landmark buildings and affordable housing, have a higher percentage of their retrofit costs covered.

The remaining balance of seismic funding would come from building owner funding or financing which can be amortized over the seven to thirteen years recommended by the URM Policy Committee for building owners to complete the upgrades. Some owners might choose to

6 For example, \$100,000 in construction expenses x 4% credit = \$4,000 in credits per year x 10 years = \$40,000 total federal tax credits.



finance over a shorter lease term (5-7 years) or a longer term (over 20 years) to balance annual debt services costs with building cash flow.

A complete financing strategy will include a variety of public, non-profit and private resources. Having a comprehensive financing strategy in place will help move projects from idea to action:

Existing public and non-profit programs are already available that can fund a portion of retrofit costs. While insufficient to fully fund seismic retrofits, they provide a public contribution to offset private sources of capital.

- Many communities surveyed for this report use pre-disaster mitigation grant funding from the Federal Emergency Management Agency (FEMA). Grants require a local match (which can be provided by private building owners), but when combined with other local and state grant support, would increase the public funding available for retrofits making them less costly to the private owner.
- Local and regional foundations are likely to provide some support. The need to address URMs is acknowledged locally, but funding interest is likely to be directed towards specific building types, such as affordable housing development, mixed-use buildings with local community-oriented commercial space, and community facilities.
- There is limited interest from national philanthropy to fund seismic retrofits. While many are active in resilience and climate change investments, they do not yet view earthquake preparedness as part of their resilience strategy. This may change as more cities expand their collaboration with philanthropy and capital markets and promote seismic retrofits as a resiliency issue.

Public-sponsored/privately-paid financing systems are essential to facilitating building owners' investment in URM retrofits; however, they may have limited usage. As noted above, public/nonprofit resources can reduce the financial costs of seismic retrofits, but a private component will remain. Having publicly facilitated financing options in place can help a building owner select a preferred path and move to project completion more quickly. Ultimately, building owners may elect to use their own savings or local bank to fund retrofits. Decisions depend on the cost of capital and the process and requirements for any publicly-sourced funds. The Washington State Constitution limits what the City can do with public funds, so further work will require a legal review. Generally, public financing options bring the benefit of lower interest rates and longer borrowing terms.

PFM, a national financial advisory company, evaluated the cost of various financing options. Rates are accurate as of May 2019 and **will change**, so numbers are for comparative purposes only. A Seattle General Obligation rate was estimated for comparison purposes; there is not a current proposal to use a public financing mechanism to generate resources for seismic retrofits. Financing alternatives evaluated include:

Property Assessed Clean Energy (PACE) financing: PACE financing establishes a public financing surrogate approved by government, but financial risks are born by the private party receiving the financing. Repayments on the loan are paid via property taxes and then provided to the PACE lender. In this way, it is similar to an assessment district but applies only to specific buildings. While not currently available in Washington State, PACE is used extensively in California for energy upgrades for real estate projects and has funded a small percentage of seismic retrofits. As shown above, PACE funding can be more expensive than other options, depending on the original capital costs to the PACE lender and their mark-up for expenses. There is a local consortium, of interest parties - PACER - working with the State legislature to legalize use of PACE financing so it may be an option. Legislation did not pass this most recent legislative session though there was strong support for the program. PACE financing can be a more expensive, but potentially more accessible, financing source than other options.

Assessment District: Assessment financing requires approval from property owners. It has the benefit of accessing lower rates than private financing and potentially longer terms. This would allow the building owner to spread the costs of the retrofit over a longer term reducing the reduction of their cash flow. The City of Long Beach, CA supported early seismic retrofits by forming an assessment district that included all URM buildings whose owners opted to join—approximately 25% of their URM inventory. An assessment district approach is similar to the PACE effort. Financing is repaid by building owners with the public collecting funds via property tax payments through the special assessment. PACE typically utilizes private lenders whereas an assessment district has a public source of funding. With assessment financing, there needs to be joint benefits that accrue beyond a single property owner to meet legal and policy tests. This question would need to be explored more in the context of URM retrofits to determine if this would be an option for funding.

Affordable Housing Note: As noted in the discussion of LIHTC tax credit support, the federal credit is paired with a Private Activity Bond. The financing typically has advantageous rates and terms that reduce debt service costs to the building owner.

Private Bank Loan: Many building owners will work with local banks to finance retrofits. In San Francisco, the City worked with local lenders to establish a group of local banks willing to provide access to loans for building retrofits. The City worked with building owners and packaged materials for lenders, but the funding was private. A similar initiative could be formed in Seattle.

HUD 108 Loan: The U.S. Department of Housing and Urban Development (HUD) Section 108 Program provides the least expensive cost of funds. Through this lending program, which is within the federal CDBG Program, HUD borrows and relends to the City, which then relends proceeds to a project. The City of Seattle has an estimated \$35 million in borrowing capacity, and future community development block grant



FIG 2: COMPARISON OF FINANCING ALTERNATIVES FOR SEISMIC IMPROVEMENTS

Scenarios	Cash / Debt Financing Options ¹	Property Assessed Clean Energy (PACE) ²	Assessment District ³	Public Agency Conduit Financing ⁴	Affordable Housing Note ⁵	Seattle CDBG 108 Loan Program ⁶	Private Bank Loan
Term	30 Year	25 Year	30 Year	30 Year	35 Year	20 Year	20 Year
Type	Public Debt	Public/Private Bonds or Loans	Public Sale Bonds	Private Placement	Private Placement	Public Loan	Private Loan
City's Balance Sheet Impact	Yes	None	None	None	None	NONE	None
Estimated Interest Rate	3.65% ⁷	6.55% ⁸	4.95% ⁹	5.08% ¹⁰	4.93% ¹¹	3.15% ¹²	5.50% ¹³
Estimated Annual Repayment ¹⁴	\$46,824	\$57,672	\$54,692	\$52,171	\$38,879	\$43,709	\$55,415
1	Assumes legal authority for public funds to be used for retrofit costs. Financing is assumed to be repaid from the City General Fund. As such they would compete with other General Fund priorities.		7	AAA Taxable Rates as of 05/13/2019. The rates are based on the scale of the City of Seattle Limited Tax General Obligation Improvement Bonds, 2018B.			
2	Requires legislative authority. Financing is typically privately sourced with repayments made from additionally created property assessments.		8	Indicative Rate. Assessment created to repay debt which could be from a public or private source. Typically a higher rate than private bank financing.			
3	Requires a legal determination of joint benefits from the proceeds rather than benefits solely benefiting a single property owner.		9	BBB Special Tax Scale as of 5/9/2019. The actual rate is based on the size and diversity of the district.			
4	Requires a quasi-governmental agency. Financing typically privately placed with repayments from project. Rate is estimated at a taxable rate as of 05/09/2019.		10	BBB COPs 30-Year taxable rate as of 5/13/2019. The actual rate is based on characteristics of the conduit lender.			
5	Tax-exempt Private Activity Bond Financing		11	Tax-exempt financing through WSFC Private Activity Bond Program. Rate reflects an average over 2018 - present.			
6	Federal Program Allows Seattle to Borrow from HUD and Relend to Eligible Projects		12	Fixed Rate Debt Based on Recent HUD Bond Debenture. Generally estimated at 10-YR Treasury + .75 bps.			
			13	Estimate from recent project financings and lender interviews.			
			14	Assuming the prototype project amount is \$642,279 with a single borrowing.			

revenues secure the loans. The program is best used with affordable housing or community development projects due to federal regulations. The program allows the City to either pass through costs to the project or use some of its annual CDBG Entitlement grant to offset debt service costs. Seattle uses the program, although more sparingly in recent years. Utilizing 108 capacity for URM retrofits would limit use for other projects and reflect a prioritization of URM retrofits. As loans are repaid that capacity could be used for other City priorities. To ease the impact of debt for affordable housing projects, Seattle could use a portion of its annual CDBG Entitlement funding to offset debt service costs. This reduces the financial impact on building affordable housing units. Like the 108 capacity, this would limit use of grant funds for other purposes.

Additional areas that could benefit from a public approach to financing include:

CDFI Consortium: Similar to PACE, a lending consortium approach is under evaluation that would utilize alternative financing entities known as Community Development Financial Institutions (CDFI). CDFIs are typically public-oriented alternative lenders with more flexibility in their lending activities. The Seattle Chinatown International District Preservation and Development Authority (SCIDPDA) has received a grant to evaluate the concept. The key is to determine if CDFIs can access funding that lowers borrowing costs or provides lending flexibility unavailable through other means. If PACE legislation is adopted, this consortium could function like a PACE conduit lender.

Impact Investing: As noted above, there has been limited interest from national philanthropy in seismic retrofits, and most local foundation interest would likely be limited to specific types of projects. However, an approach utilizing impact investing might be more beneficial. In impact

investing, foundations and/or high net wealth donors provide low-cost financing in order to facilitate a public benefit. This double bottom-line activity provides some limited return to the investor while meeting a social need. While not yet to scale, there have been examples with Bellwether's housing development and Forterra's community equity borrowing that were funded through impact investments.

Opportunity Zones: This new community investment tool, introduced in the 2017 Tax Cuts and Jobs Act, provides tax advantages to private investors who invest capital gains proceeds in designated Opportunity Zones. An estimated 229 URM buildings fall within State-designated Opportunity Zone boundaries. While regulations for the program are not final, use of Opportunity Zone-sourced equity in URMs is promising and warrants further exploration. When coupled with federal Rehabilitation Tax Credits, the two federal benefits could significantly lower the cost of capital to fund retrofits. This could help smaller property owners retain their buildings and potentially limit displacement created by retrofit actions.

URM retrofits could lead to cost effective energy efficiency upgrades.

Our research indicates it would be cost effective for property owners to undertake other building system upgrades at the same time as retrofits. While increasing the overall project scope, these enhancements often lead to higher income due to reduced utility costs. There are also system subsidies to offset the costs for these energy and utility upgrades that exceed current standards. This allows a URM retrofit to more easily fit within Seattle's resilience policy framework. This strategy could result in additional support as Seattle moves forward on its resiliency goals. The 2030 Pilot project is an initial start to this approach but limits eligible projects to downtown Seattle. Still, the concept is promising to encourage more robust building renovations that meet both seismic and resilience goals.



MOVING FORWARD

The approach to retrofitting 944 buildings in Seattle requires a comprehensive strategy. With a new policy mandating retrofits, building owners may be concerned about requirements, approaches, and especially, costs. No single approach can solve this complex problem. Public funding is needed to pay internal and external program staff to implement a mandatory retrofit policy and equip building owners with the resources they need to comply. Re-use or adjustment of permit fees and Seattle's share of the sales tax collected on URM retrofits (estimated at \$7.7 million for the entire inventory) could be allocated to program costs. Existing public resources, if improved upon and directed appropriately to building owners, can provide significant support to building owners – though additional funding will be needed for non-profit owners that cannot utilize many of the existing resources. A publicly-facilitated financing system would provide lower-cost, more flexible capital resources to private building owners. At a minimum, it will provide an option to private owners that are unable to access other sources.

It remains apparent that, at least in the short term, the costs and benefits resulting from mandated URM retrofits are asymmetric between public and private parties. In the long term, building owners and tenants benefit from greater safety and potentially lower recovery costs for a retrofitted building, and the greater public benefits from increased safety and resilience in the event of an earthquake. The immediate financial cost, however, largely falls onto private building owners who, at least in the short term, do not receive significant economic benefits from seismic retrofits. As a result, a successful policy approach will involve a combination of public and private resources. This will ease its financial burden, facilitate support and compliance, and lead to a safer and more resilient Seattle.