

Building Towards a Resilient Virginia: Using C-PACE Financing to Improve the Resiliency of Commercial Buildings



Photo courtesy of the Virginia PACE Alliance

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About the Virginia Coastal Policy Center

The Virginia Coastal Policy Center (VCPC) at the College of William & Mary Law School provides science-based legal and policy analysis of ecological issues affecting the state's coastal resources, by offering education and advice to a host of Virginia's decision-makers, from government officials and legal scholars to non-profit and business leaders.

With two nationally prominent science partners – the Virginia Institute of Marine Science and Virginia Sea Grant – VCPC works with scientists, local and state political figures, community leaders, the military, and others to integrate the latest science with legal and policy analysis to solve coastal resource management issues. VCPC activities are inherently interdisciplinary, drawing on scientific, economic, public policy, sociological, and other expertise from within the University and across the country. With access to internationally recognized scientists at VIMS, to Sea Grant's national network of legal and science scholars, and to elected and appointed officials across the nation, VCPC engages in a host of information exchanges and collaborative partnerships.

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VCPC grounds its pedagogical goals in the law school's philosophy of the citizen lawyer. VCPC students' highly diverse interactions beyond the borders of the legal community provide the framework for their efforts in solving the complex coastal resource management issues that currently face Virginia and the nation.

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I. INTRODUCTION

When discussing how to combat problems caused by climate change and rising sea levels, the focus is often on developing and using alternative sources of clean energy. However, while slowing climate change is a worthy goal, it is too late to prevent climate change impacts in many areas in Virginia. Vulnerable flood zones all over the state are already being inundated with periodic flooding. This flooding causes extensive damage to commercial structures in the area. For example, it is estimated that Hurricane Florence alone caused between \$200¹ million and \$1 billion in flood damage in Virginia.² Commercial property owners can mitigate the damage caused by flooding by building structures or modifying existing structures to better withstand flooding and more effectively manage storm water. However, building or modifying a structure to be flood resilient is often too costly of an endeavor for many commercial property owners to undertake without some sort of assistance. In 2019, Virginia's state code regarding C-PACE (Commercial Property Assessed Clean Energy) financing programs, was amended to allow for resilience measures, including flood mitigation and storm water management, to qualify for funding, offering a solution to this problem.³ This paper provides a brief overview of C-PACE program development in Virginia, a survey of some resiliency measures that can be used to mitigate commercial property damage caused by flooding, an example of resiliency measures in action, and recommendations for further promotion of C-PACE financing in Virginia.

II. WHAT IS C-PACE FINANCING?

C-PACE is a financing mechanism that provides commercial and multifamily⁴ building owners with funding to upgrade their structures with energy efficient and environmentally resilient modifications.⁵ C-PACE is unique because the property owners, governments, and contractors who implement and use C-PACE financing receive a variety of benefits at very low risk.⁶ First, C-PACE financing provides commercial building owners with 100% of the upfront cost, financed with a long-term, low, fixed interest rate,⁷ which enables property owners to overcome the largest hurdle in the way of creating a more sustainable building. As opposed to a bank loan, C-PACE

¹ *NHC: Hurricane Florence 9th Most Destructive Storm, Caused \$24B in Damage*, INS. JOURNAL (May 7, 2019), <https://www.insurancejournal.com/news/southeast/2019/05/07/525734.htm>.

² *Hurricane Florence Causes Estimated \$45 Billion in Property Damage*, KUSI (Oct. 7, 2018, 7:56 AM), <https://www.kusi.com/hurricane-florence-causes-estimated-45-billion-in-property-damage/> (stating that the \$1 billion estimate applies to damage to commercial property in Virginia caused by flooding).

³ See Va. Code Ann. § 15.2-958.3(a) (2019).

⁴ C-PACE financing is available to multifamily property owners who own a building containing five or more units. Jessica Greene, *Commercial Property Assessed Clean Energy (C-PACE) Available for Implementation*, VA. CHAMBER (Aug. 29, 2017), <https://www.vachamber.com/2017/08/29/commercial-property-assessed-clean-energy-c-pace-available-for-implementation/>. However, the General Assembly as recently proposed removing the five-unit restriction. See S.B. 1061, 2020 Leg. Sess. (Va. 2020) (bill continued to 2021 legislative session).

⁵ *What Is C-PACE? C-PACE 101*, VA. PACE AUTH., <https://virginiapace.com/what-is-pace/> (last visited Apr. 2, 2020).

⁶ See *What Is C-PACE? C-PACE 101*, *supra* note 5.

⁷ See *What Is C-PACE: For Lenders*, VA. PACE AUTH., <https://virginiapace.com/wp-content/uploads/2019/11/Screen-Shot-2019-11-11-at-1.23.26-PM.png> (last visited Apr. 2, 2020).

financing requires no down payment.⁸ This allows for a capital improvement project to be cash flow positive from the start, with the property owner immediately capturing the annual savings of the project.⁹ Calculators are available for free through C-PACE administrator’s websites to assist property owners in gaining a more tangible understanding of these financial benefits.¹⁰ Additionally, C-PACE loans are secured because they attach as a lien on the property tax assessment.¹¹ This makes the loan a safer investment and yields more desirable terms from lenders.¹² C-PACE financing also provides benefits to localities by creating more jobs for local trades, increasing the property tax base, drawing in developers, and facilitating the achievement of economic development and sustainability goals.¹³

The General Assembly of Virginia passed C-PACE legislation in 2009.¹⁴ Originally, C-PACE financing was available only for clean energy projects, however, the General Assembly amended the legislation in 2019 to make C-PACE financing available for resiliency property improvements and stormwater management projects.¹⁵ In 2020, C-PACE legislation was further amended to enable a statewide program option.¹⁶ As noted in the Introduction, C-PACE financing is governed by Section 15.2-958.3 of the Code of Virginia.¹⁷ The statute gives a locality the authority to “authorize contracts to provide loans for initial acquisition and installation of clean energy, resiliency, or stormwater management improvements.”¹⁸ Resiliency improvements include, but may not be limited to, “mitigation of flooding or the impacts of flooding or stormwater management improvements.”¹⁹ Thirty-seven states plus the District of Columbia have active C-PACE enabling legislation.²⁰ Although the U.S. Department of Energy claims that a number of states allow C-PACE financing to be used for resiliency efforts,²¹ C-PACE administrators in a few of those states have said that is inaccurate.²²

⁸ Jessa Coleman, Senior Manager of Programs, PACE Fin. Servicing, C-PACE for Fairfax County Webinar (Apr. 17, 2020) [hereinafter VA PACE Webinar].

⁹ *Id.* For a side-by-side comparison of C-PACE financing versus traditional loan financing, see *The Case for C-PACE in the Lending Community*, VA. ENERGY EFFICIENCY COUNCIL (Apr. 16, 2020), <https://vaeec.org/the-case-for-c-pace-in-the-lending-community/>.

¹⁰ See *Scenario Comparison Calculator*, TEX. PACE AUTH., <https://www.texaspaceauthority.org/pace-vs-traditional-financing/> (last visited Oct. 19, 2020) (providing an interactive calculator to compare cash flow outcomes of self-funded, bank loan funded, and C-PACE funded projects).

¹¹ *What Is C-PACE: For Lenders*, *supra* note 7.

¹² VA PACE Webinar, *supra* note 8.

¹³ *Id.*

¹⁴ *Where Is PACE in the Mid-Atlantic?*, MID-ATLANTIC PACE ALL., <https://www.pacealliance.org> (last visited Apr. 2, 2020).

¹⁵ SB 1400, 2019 Leg. Sess. (Va. 2019); SB 1559, 2019 Leg. Sess. (Va. 2019); *C-PACE Momentum is Building*, VA. ENERGY EFFICIENCY COUNCIL (Mar. 5, 2019), <https://vaeec.org/c-pace-momentum-is-growing/>.

¹⁶ HB 654, 2020 Leg. Sess. (Va. 2020).

¹⁷ See Va. Code Ann. § 15.2-958.3(a) (2019).

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *PACE Programs*, PACENATION, <https://pacenation.org/pace-programs/> (last visited June 22, 2020).

²¹ Sean Williamson, *Better Buildings Residential Network Peer Exchange Call Series: Efficiency and Resiliency Improvements with PACE Financing*, U.S. DEP’T ENERGY (Mar. 14, 2019), <https://www.energy.gov/sites/prod/files/2019/04/f61/bbrn-peer-exchange-pace-031419.pdf>.

²² Email from Charlene Heydinger, President, Tex. PACE Administrator, to author (Mar. 2, 2020, 15:21 EST) (on file with author); Email from Devesh Nirmul, Vice President, CounterpointSRE, to author (Mar. 2, 2020, 19:51 EST) (on file with author); Email from Michelle Pitale, Managing Director, CounterpointSRE, to author (Mar. 3,

III. LOCALITIES WITH C-PACE FINANCING

Under the Dillon Rule, a locality only has the powers expressly granted to it by the General Assembly.²³ It became incumbent upon each locality to pass and implement its own C-PACE financing program after the General Assembly passed the C-PACE enabling legislation in 2009. Since then, Arlington County, Fairfax County, Loudoun County, the City of Fredericksburg, the City of Lynchburg, the City of Richmond, the city of Norfolk, the Town of Dumfries, and the City of Petersburg have all passed C-PACE ordinances. Of these localities, Fairfax County, Loudoun County, Arlington County, the City of Fredericksburg, and the Town of Dumfries have active C-PACE programs.²⁴ The City of Petersburg has hired a program administrator and is anticipated to be open the fall of 2020. Additional localities, including the City of Roanoke and the City of Alexandria, are in the process of developing an ordinance.²⁵ Thus, C-PACE financing is only available in a limited number of localities.²⁶ Each locality can choose to either administer its own program or hire an outside third party administrator.²⁷ To date, no Virginia locality has completed a C-PACE project, however, Fairfax County and the City of Fredericksburg are in the process of implementing their first projects.²⁸

One locality that uses a third party administrator is Fairfax County, which approved its C-PACE financing program in March 2019 and launched the program less than a year later in February 2020.²⁹ Fairfax County was the first locality to make resiliency measures eligible for C-PACE financing.³⁰ After a competitive bid process, Fairfax County selected the Virginia PACE Authority (VPA) as its C-PACE program administrator.³¹ As the program administrator, the VPA receives a low administration fee to market the program on behalf of the jurisdiction, underwrite and approve projects based on requirements in the Program Guide.³² As requested, VPA also supports the County in servicing the C-PACE loans post-closing.³³ Additionally, the VPA registers qualified project design firms, energy audit firms, and private lenders that the commercial property owner may then choose from to complete its PACE-eligible project.³⁴ This ensures a high quality

2020 11:09 EST) (on file with author). Emails reflect statements from PACE administrators in Texas, Alabama, and Florida.

²³ *The Dillon Rule*, BLACK'S LAW DICTIONARY (9th ed. 2009).

²⁴ *See C-PACE*, VA. ENERGY EFFICIENCY COUNCIL, <https://vaeec.org/pace/> (last visited Apr. 4, 2020).

²⁵ *See id.*

²⁶ *Id.*

²⁷ Va. Code Ann. § 15.958.3(a)(5) (2020).

²⁸ Elizabeth McGowan, *Virginia church's efficiency retrofit poised to be state's first PACE project*, ENERGY NEWS (Mar. 12, 2020), <https://energynews.us/2020/03/12/southeast/virginia-churchs-efficiency-retrofit-poised-to-be-states-first-pace-project/>. The COVID-19 pandemic has slowed progress on the implementation of C-PACE projects.

²⁹ *Id.*

³⁰ *Id.*

³¹ *Commercial Property Assessed Clean Energy and Resiliency Program*, FAIRFAX COUNTY, <https://www.fairfaxcounty.gov/environment-energy-coordination/c-pace> (last visited June 4, 2020).

³² *See Service Offering: PACE Administration*, VA. PACE AUTH., https://virginiapace.com/service-offering/#our_approach_to_pace (last visited Apr. 2, 2020).

³³ *Id.*

³⁴ *See id.*

output, while at the same time encourage competition between firms to keep costs low for the commercial property owner.³⁵

One Virginia locality that administers its own C-PACE program is the City of Fredericksburg, which approved its C-PACE financing program in November 2018 and launched it a month later in December 2018.³⁶ The C-PACE program implemented by the City of Fredericksburg differs from the program implemented by Fairfax County in two ways. First, the Fredericksburg City Manager acts as the program administrator and certifies that all proposed projects meet the C-PACE financing eligibility criteria.³⁷ Second, resiliency projects are not eligible for C-PACE financing because the City of Fredericksburg passed and launched its program before the General Assembly amended the PACE legislation in 2019 to make resiliency projects eligible for C-PACE financing.³⁸ While the City has yet to amend its ordinance to include resiliency projects, it recently approved the Virginia PACE Authority as a new program administrator and anticipates eligibility requirements to expand to include resiliency with this transition.³⁹

IV. ORGANIZATIONS INVOLVED IN INCREASING THE USE OF C-PACE IN VIRGINIA

Many state agencies, local governments, non-profits, private companies, and group partnerships have had a hand in developing Virginia’s C-PACE market. Some of these organizations devote resources to help localities implement their own C-PACE financing programs, while other organizations help develop guidelines for each locality to follow in order to have a successful program. Although these organizations have differing mission statements, they share a common goal – to increase awareness of C-PACE financing and its benefits.

A. Virginia Department of Mines, Minerals, and Energy

The purpose of the Virginia Department of Mines, Minerals, and Energy (DMME) is to “enhance the development and conservation of energy and mineral resources in a safe and environmentally sound manner in order to support a more productive economy in Virginia.”⁴⁰ When the General Assembly updated C-PACE financing in 2015, DMME was required to work with key stakeholders to develop uniform statewide financial underwriting guidelines for C-PACE

³⁵ *See id.*

³⁶ *See C-PACE, supra* note 24.

³⁷ *See* FREDERICKSBURG, VA., CODE ch. 38, art. V (2018); *C-PACE Program*, FREDERICKSBURG, VA. ECON. DEV. & TOURISM, <https://fredericksburgva.com/286/C-PACE-Program> (last visited Apr. 2, 2020).

³⁸ *See* Fredericksburg, Va., Ordinance 18-19 (Nov.13, 2018). However, both Norfolk and Petersburg include resiliency in their C-PACE ordinances. *See* NORFOLK, VA., CODE § 45.8-3(a) (2020); PETERSBURG, VA., CODE § 107-3 (2020).

³⁹ Memorandum from Kathleen Dooley, Fredericksburg City Attorney, and Bill Freehling, Dir. of Econ. Dev. and Tourism, City of Fredericksburg, to the Mayor of Fredericksburg and City Council (June 4, 2020) (on file with the City of Fredericksburg); Email from Kathleen Dooley, Fredericksburg City Attorney, to author (June 19, 2020) (on file with author).

⁴⁰ *History of DMME*, VA. DEP’T OF MINES, MINERALS AND ENERGY, <https://www.dmme.virginia.gov/dmme/history.shtml> (last visited Apr. 2, 2020).

programs developed by localities.⁴¹ The guidelines allow localities to have some discretion when developing their C-PACE programs, while also outlining statewide uniform guidance to promote the use of C-PACE financing across Virginia.⁴² DMME also obtained a U.S. Department of Energy grant in 2016 to initiate and lead the Mid-Atlantic PACE Alliance (MAPA) which is described in more detail in section D below.⁴³

B. Virginia Energy Efficiency Council

The Virginia Energy Efficiency Council (VAEEC) is a coalition of private organizations, local governments, and state agencies whose goal is to promote energy efficient policies and practices in Virginia.⁴⁴ The VAEEC works directly with localities from Virginia to help them implement C-PACE financing programs by identifying barriers localities face when implementing C-PACE programs and lobbying to fix those issues before the General Assembly.⁴⁵ The VAEEC has uniquely positioned itself as a neutral and well-integrated partner in C-PACE discussions, making it a trusted resource to localities, nonprofits, and commercial entities.⁴⁶ Resources provided by the VAEEC include GIS maps of C-PACE eligible properties, model ordinances, request for proposal templates, letter of support templates, and more.⁴⁷ Additionally, the VAEEC is a member of the Mid Atlantic PACE Alliance and is committed to promoting regional adoption of C-PACE.⁴⁸

C. Virginia PACE Authority

As previously discussed, the VPA is a nonprofit organization that provides administrative services for localities in Virginia that choose to implement a C-PACE financing program with a third-party administrator.⁴⁹ As the administrator, the VPA charges a modest fee to certify that the proposed project meets the C-PACE financing eligibility requirements, while also ensuring low project costs by encouraging competition between qualified project design firms, energy audit firms, and private lenders.⁵⁰ In June of 2020, VPA was selected as one of five winners in the RISE Challenge.⁵¹ Their winning Challenge was to develop an online platform, identify a pilot project, and develop financial and marketing tools to jumpstart the use of C-PACE for resiliency projects in Hampton Roads, Virginia.⁵²

⁴¹ See VA. DEP'T OF MINES, MINERALS AND ENERGY, FINAL UNIFORM STATEWIDE FINANCIAL UNDERWRITING GUIDELINES FOR CLEAN ENERGY LOANS MADE BY LOCALITIES UNDER §15.2-958.3 OF THE CODE OF VIRGINIA (2015) [hereinafter DMME Underwriting Guidelines].

⁴² See *id.*

⁴³ Press Release, Va. Dep't of Mines, Minerals, and Energy, Governor McAuliffe Announces New Program to Create More Clean Energy Jobs in the Commonwealth (Feb. 20, 2017) (on file with the Dep't of Mines, Minerals, and Energy).

⁴⁴ *What We Do*, VA. ENERGY EFFICIENCY COUNCIL, <https://vaeec.org/about/> (last visited Apr. 2, 2020).

⁴⁵ See *C-PACE*, *supra* note 24.

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ See *About VPA*, VA. PACE AUTH., <https://virginiapace.com/about-vpa/> (last visited Apr. 2, 2020).

⁵⁰ See *id.*

⁵¹ Press Release, RISE Resilience Innovations, RISE Announces Five Winners of the 2020 Coastal Community Resilience Challenges (May 18, 2020) (on file with RISE Resilience Innovations).

⁵² *Id.*

D. Mid-Atlantic PACE Alliance

The Mid-Atlantic PACE Alliance (MAPA) is a partnership between state agencies, nonprofit organizations, and private businesses in Virginia, Maryland, and the District of Columbia.⁵³ MAPA’s focus is to accelerate the utilization of C-PACE financing programs in the Mid-Atlantic region.⁵⁴ According to its website, MAPA’s goal is “to be a comprehensive resource on all things Commercial PACE for local governments, property owners, energy contractors, and capital providers working in the DMV region.”⁵⁵ Additionally, MAPA works to increase the number of C-PACE projects by providing outreach and education to key stakeholder groups, and supports localities with a C-PACE toolkit, which includes program development tips and guidance to help to help localities implement programs.⁵⁶

V. RESILIENT BUILDING ADAPTATIONS AND MEASURES

Building or retrofitting a commercial structure with flood resiliency measures can be significantly more expensive than using conventional construction methods, but can prevent damage that is very costly to repair. By covering the upfront construction or retrofit cost with low interest financing, C-PACE financing can encourage building owners to use flood-resilient construction techniques on their commercial structures.⁵⁷ Although by no means a comprehensive list, the following is an overview of some effective flood mitigation and storm water management measures that can be financed via C-PACE financing, as well as cost estimates associated with their utilization.

A. Green Roofs

One low impact flood resiliency measure available to an owner of an existing commercial structure is a green roof, or living roof, which is a traditional roof covered with interlocking panels of plants.⁵⁸ Although the cost of installation varies depending on the size and complexity of the job, a typical green roof costs between \$25 per square foot and \$45 per square foot.⁵⁹ Installation of a green roof is more expensive than a conventional roof. However, a green roof provides a variety of benefits to commercial building owners, including reduced heating and cooling loads, biodiversity habitats, urban heat island mitigation, improved aesthetics, plastic waste reduction because of the use of recycled plastic in construction of the roof, and fire prevention.⁶⁰

⁵³ Virginia’s program administrators, including VPA and SRS Counterpoint, are among MAPA’S members.

⁵⁴ See *Where Is PACE in the Mid-Atlantic?*, *supra* note 14.

⁵⁵ *Id.*

⁵⁶ See *id.*

⁵⁷ Telephone Interview with Sydney Covey, Sustainability Solutions Manager, Structr Advisors (Feb. 28, 2020) [hereinafter Interview with Sydney Covey].

⁵⁸ *Id.*

⁵⁹ Email from Jennifer Giunta, Dir. of Sales, Riverbend Greenroofs, to author (Mar. 4, 2020, 15:39 EST) [hereinafter Email from Jennifer Giunta] (on file with author).

⁶⁰ *Green Roof Benefits*, RIVERBEND GREENROOFS, <https://riverbendgreenroofs.com/benefits/> (last visited Apr. 13, 2020).

Additionally, a green roof mitigates flooding and improves stormwater management by acting like a sponge that absorbs up to 90% of excess rainwater runoff.⁶¹ An added benefit of green roofs is their ability to pair well with other resiliency and energy efficiency measures, such as solar PV and battery storage.⁶² This works particularly well in C-PACE projects as both resiliency and energy efficiency measures are eligible for C-PACE financing in Virginia.⁶³

Voiding of existing roofing manufacturer warranties is something to be aware of when installing a green roof.⁶⁴ Typically, the green roof installer will work with the roofing manufacturer to ensure that no warranties are breached.⁶⁵ This usually comes in the form of a letter of support from the roofing manufacturer.⁶⁶ However, some roofing manufacturers may require a slip or scrim sheet between the roofing membrane and the green roof materials as an extra layer of protection.⁶⁷ Though this may add some cost, it will reduce the likelihood of voiding the roofing warranty.⁶⁸ An additional consideration when retrofitting an existing structure with a green roof is whether or not the building will be able to handle the increased structural load.⁶⁹ Although many older structures may not be able to support a heavier roof, green roofs remain a viable resiliency option for those structures that are able to handle the increased structural load.⁷⁰

B. Flood Walls

The second low impact flood resiliency measure that could be funded by C-PACE financing for commercial structures is a flood wall, which is a barrier that comes up out of the ground or can be quickly deployed during storms, and is designed to contain and divert flood water away from structures.⁷¹ The cost of installing flood walls varies by the height of the wall and the type and extent of flood wall system selected. The chart below details the average cost of a flood wall according to its height above ground.

Height Above Ground (Feet)	Price per Linear Foot (Dollars)
2	92
3	110
4	140
5	165
6	195
10	410

Barriers, FEMA, https://www.fema.gov/media-library-data/20130726-1608-20490-6445/fema551_ch_05.pdf (last visited Apr 12, 2020); *Costs and Benefits of Floodproofing Methods*, FEMA, https://www.fema.gov/media-library-data/20130726-1649-20490-2887/fema_102_chapter_5.pdf (last visited Apr. 12, 2020).

⁶¹ *Id.*

⁶² See *DC United Audi Field*, DC PACE, <https://dcpace.com/projects/dc-united-audi-field/> (last visited June 17, 2020) (providing an example of a green roof and solar panel system implemented in the same C-PACE project).

⁶³ See Va. Code Ann. § 15.2-958.3(a) (2019).

⁶⁴ Interview with Sydney Covey, *supra* note 57.

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ Email from Jennifer Giunta, *supra* note 59.

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ Interview with Sydney Covey, *supra* note 57.

C. Natural Hydrology

Another low-impact flood resiliency measure that could be funded by C-PACE financing is to substitute measures that respect natural hydrology for concrete or hardscape structures and surfaces.⁷² Mitigation measures that factor in natural hydrology are a cost-effective way to implement flood resiliency.⁷³ One way to respect the natural hydrology is to use green infrastructure on the site around a commercial structure.⁷⁴ While green infrastructure has many definitions, the EPA defines it as “measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater.”⁷⁵ In other words, green infrastructure holds water on site to manage flood risk.⁷⁶ Some green infrastructure measures include rain gardens, permeable pavements, and stormwater ponds.⁷⁷ The cost of green infrastructure projects varies according to the size and complexity of the project. The chart below details the average cost of natural hydrology resiliency measures.

Natural Hydrology Resiliency Measure	Cost
Rain Garden	\$10/sq ft-\$40/sq ft
Permeable Concrete	\$2/sq ft-\$6.50/sq ft
Permeable Asphalt	\$0.50/sq ft-\$1.00/sq ft
Stormwater Pond	\$0.50/cu ft-\$1.00/cu ft

How to Create a Rain Garden, ICPRB, <https://www.potomacriver.org/resources/get-involved/water/rain-garden/> (last visited Apr. 13, 2020); *Create a Rain Garden: Preventing Water Pollution in Your Community*, UNIV. OF R.I., https://web.uri.edu/riss/files/Abridged_ServiceManual.pdf (last visited Apr. 13, 2020); *Permeable Pavement Fact Sheet*, UNIV. OF MD., https://extension.umd.edu/sites/extension.umd.edu/files/docs/programs/master-gardeners/Howardcounty/Baywise/PermeablePavingHowardCountyMasterGardeners10_5_11%20Final.pdf (last visited Apr. 13, 2020); *Permeable Pavement*, VA. POLYTECHNIC AND STATE UNIV. (Mar. 1, 2018), https://www.swbmp.vwrrc.vt.edu/wp-content/uploads/2017/11/BMP-Spec-No-7_PERMEABLE-PAVEMENT_v1-8_03012011.pdf; *Costs and Benefits of Storm Water BMPs*, ENVTL. PROT. AGENCY, https://www3.epa.gov/npdes/pubs/usw_d.pdf (last visited Apr. 13, 2020).

D. Flood Resistant Construction Materials

An additional low-impact flood resiliency measure is to substitute conventional construction materials with flood resistant construction materials. Flood resistant construction materials are capable of withstanding direct contact with water for at least 72 hours without sustaining significant damage beyond cosmetic damage.⁷⁸ For example, some flood resistant materials include metal, treated wood, and vinyl.⁷⁹ Thus, in an existing commercial structure,

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ *Green Infrastructure: What is Green Infrastructure*, ENVTL. PROT. AGENCY, <https://www.epa.gov/green-infrastructure/what-green-infrastructure> (last visited Apr. 12, 2020).

⁷⁶ *Id.*

⁷⁷ *See Green Infrastructure: Manage Flood Risk*, ENVTL. PROT. AGENCY, <https://www.epa.gov/green-infrastructure/manage-flood-risk> (last visited Apr. 12, 2020).

⁷⁸ *Flood Resistant Material*, FED. EMERGENCY MGMT. AGENCY, <https://www.fema.gov/flood-resistant-material> (last visited Apr. 13, 2020).

⁷⁹ VA. DEP’T OF CONSERVATION AND RECREATION, VIRGINIA FLOOD RISK GUIDE FOR LOCAL OFFICIALS 29 (2019), <https://www.dcr.virginia.gov/dam-safety-and-floodplains/document/fp-va-silver-jackets-guide.pdf>.

wooden doors should be replaced with metal doors, carpet should be replaced with ceramic tile or vinyl, and wall paneling should be replaced with cement board or pressure-treated wood.⁸⁰ Although calculating the exact cost is difficult due to the vast differences in quality of product, some rough estimates are given below.

	Metal Door	Wooden Door	Ceramic Tile (sqft)	Carpet (sqft)	Cement Board (sqft)	Wall Paneling
Unit Price	\$190-\$280	\$120-\$140	\$1.09-\$2.79	\$0.65-\$0.94	\$0.31-\$0.38	\$0.31-\$0.56
Installation	N/A	N/A	\$6.50	\$1.00	\$1.50	\$0.50

These prices come from searching Home Depot’s online catalog and taking the highest and lowest models available and removing models that were extremely pricey due to accessories like decorations. Additionally, these numbers do not include bulk discounts.

E. LEED Certification Standards

Leadership in Energy and Environmental Design (LEED) is a globally recognized certification standard administered by the United States Green Building Council (USGBC).⁸¹ The LEED rating systems are designed for all types of buildings and retrofits.⁸² Different levels of certification are available depending on the number of points earned from incorporating energy efficient and environmentally conscious measures into building design.⁸³ The USGBC has identified nearly 3,000 measures that can be implemented to earn points towards LEED certification depending on the type of project.⁸⁴ These measures cover a wide array of categories including awareness and education, energy efficiency, transportation, construction materials, and water efficiency.⁸⁵

One such category is reliability and resiliency.⁸⁶ USGBC has more specifically targeted resilience in the LEED certification with a measure for design for enhanced resilience.⁸⁷ In order to earn credit for this measure, a hazard assessment must be conducted to identify risks associated with the building and design.⁸⁸ Once hazards are identified, USGBC has suggested resilience measures to undertake to mitigate the risks of flooding, sea level rise, hurricanes, and more.⁸⁹ With an increased focus on resiliency in credit earning measures, the LEED certification is a useful tool

⁸⁰ *Id.*; DEWBERRY, INDIVIDUAL BUILDING AND SITE-LEVEL FLOOD RISK REDUCTION STRATEGIES, 19-20 (2019), <https://www.vbgov.com/government/departments/public-works/comp-sea-level-rise/Documents/bldg-site-level-flood-risk-strategies-05-01-19.pdf>.

⁸¹ *Why LEED*, U.S. GREEN BLDG. COUNCIL, <https://www.usgbc.org/leed/why-leed> (last visited Apr. 15, 2020).

⁸² *LEED Rating System*, U.S. GREEN BLDG. COUNCIL, <https://www.usgbc.org/leed> (last visited Apr. 15, 2020).

⁸³ *Id.*

⁸⁴ *LEED Credit Library*, U.S. GREEN BLDG. COUNCIL, <https://www.usgbc.org/credits> (last visited Apr. 15, 2020).

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ *Design for Enhanced Resilience*, U.S. GREEN BLDG. COUNCIL, <https://www.usgbc.org/credits/new-construction-core-and-shell-schools-new-construction-retail-new-construction-healthca-84> (last visited Apr. 15, 2020).

⁸⁸ *Id.*

⁸⁹ *Id.*

to ensure that building retrofits and reconstruction are capable of withstanding natural pressures.⁹⁰ Though LEED certification measures may cost more to implement, C-PACE financing can be used to offset those costs.⁹¹ Additionally, a noteworthy benefit of a LEED certified building is its increased marketability for leasing and resale.⁹²

VI. CASE STUDY – VIA DESIGN ARCHITECTS

The Essex Building, on the corner of Plume and Bank Streets in downtown Norfolk, has served as a commercial property to a host of businesses since its construction in 1910.⁹³ Recently, the Essex sat vacant from 2009 to 2017, when it was purchased by business partners Scott Campbell and Donna Phaneuf.⁹⁴ After seeing over a century of businesses come and go, the building had been significantly altered and had fallen into a state of disrepair.⁹⁵ Phaneuf and Campbell purchased the property for \$750,000, and, after several million dollars of additional investment, renovated the building and made it home to their architecture firm, VIA Design Architects.⁹⁶

Phaneuf and Campbell wanted to restore the Essex building in a manner that would maintain its original appearance but also showcase how historic structures can be renovated in a modern style with an eye toward resiliency and energy efficiency.⁹⁷ They financed the renovation project through traditional construction loans coupled with state and federal historic preservation tax credits.⁹⁸ The renovation included several features that could have been financed through a C-PACE program, had one been available in Norfolk at the time of the project.

The Essex Building renovation included the installation of a smart system from Siemens.⁹⁹ From a central mainframe located in a small room on the second floor of the building, the smart system controls the building's LED lights, power outlets, fans, fire alarm, and HVAC system.¹⁰⁰ The lights turn off when no one is in the room and the system adjusts to utilize natural light when possible.¹⁰¹ If an outlet is not in use the system keeps electrical current from running through it.¹⁰²

⁹⁰ *See id.*

⁹¹ *See id.*

⁹² *Why Leed*, *supra* note 81.

⁹³ Kimberly Pierceall, *A 110-year-old Norfolk Building Becomes a Tech-savvy Hub for Architecture Firm*, VIRGINIAN-PILOT, May 12, 2019, https://www.pilotonline.com/business/article_81f63a9e-6d10-11e9-8016-1314ceb777f7.html.

⁹⁴ *Id.*

⁹⁵ *See The Essex*, VIA DESIGN ARCHITECTS, <https://viadesignarchitects.com/vias-projects/the-essex-project-page/> (last visited July 24, 2020).

⁹⁶ Pierceall, *supra* note 93.

⁹⁷ *See id.*

⁹⁸ Interview with Scott Campbell, Principal, VIA Design Architects, in Norfolk, Va. (July 9, 2020). For information on Virginia Historic Tax Credits see *Rehabilitation Tax Credits*, VA. DEP'T OF HIST. RES., <https://www.dhr.virginia.gov/tax-credits/> (last visited July 24, 2020). For information on Federal Historic Tax Credits see *Tax Incentives for Preserving Historic Properties*, NAT'L PARK SERV., <https://www.nps.gov/tps/tax-incentives.htm> (last visited July 24, 2020).

⁹⁹ Interview with Scott Campbell, *supra* note 98.

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *Id.*

If no one is in a room, the system also reduces the heating or cooling in that area in an effort to consume less power.¹⁰³ Phaneuf partnered with a representative of Siemens to install the smart system as a way for VIA Design and Siemens to showcase available energy efficiency technologies.¹⁰⁴ The HVAC system in the Essex Building is a choice example of one such measure.

Phaneuf and Campbell elected to install a variable refrigerant flow (VRF) HVAC system.¹⁰⁵ VRF systems incorporate multiple indoor heating and cooling units connected to one central outdoor unit.¹⁰⁶ The multiple indoor units allow temperature control in individualized zones within a building, providing heating or cooling only where it is needed.¹⁰⁷ The reduced load capabilities, along with other factors specific to VRF systems,¹⁰⁸ result in average energy savings of twenty to thirty percent compared to a traditional HVAC system.¹⁰⁹ However, the energy savings attributable to VRF systems come at a higher initial price than a standard HVAC system.¹¹⁰ The cost of an installed VRF system is roughly \$18 per square foot of conditioned space, while the installed cost of a conventional HVAC system is approximately \$12 to \$15 per square foot served.¹¹¹ For new construction, or a building with an HVAC system at the end of its useful life, the payoff time for a VRF system is approximately sixteen years.¹¹² C-PACE financing could incentivize building owners on the fence about installing the more efficient technology to make the long-term investment by removing the burden of the higher upfront cost for a VRF system and allowing the property owner to immediately realize savings from the technology while paying it off over time.

While the Essex Building renovation included numerous energy efficiency measures, there were many additional features that could have been implemented. During the renovation, Phaneuf and Campbell found that rainwater was pooling in the back alley.¹¹³ The alley had to be raised, regraded, and the drainage tied into the city stormwater system.¹¹⁴ Campbell, who had been interested in implementing a rainwater retention and recycling system, stated that, had C-PACE financing been available at the time of the project, they may have invested in a rainwater retention and recycling system.¹¹⁵

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ Interview with Scott Campbell, *supra* note 98.

¹⁰⁶ Alex Jankovic, *Back to Basics: VRF Systems*, CONSULTING SPECIFYING ENG'R (Sept. 27, 2016), <https://www.csemag.com/articles/back-to-basics-vrf-systems/>.

¹⁰⁷ *Id.*

¹⁰⁸ See *Variable Refrigerant Flow (VRF) Heat Pumps*, WASH. STATE UNIV., <http://e3tnw.org/ItemDetail.aspx?id=200> (last visited July 29, 2020) (Other factors contributing to VRF's increased efficiency compared to conventional HVAC systems include "heat recovery, smaller zones, and reduced duct loss.").

¹⁰⁹ Jankovic, *supra* note 106.

¹¹⁰ See Cindy Strecker et al., *Utility Program Cost Effectiveness of Variable Refrigerant Flow Systems*, Am. Council for an Energy-Efficient Econ. 1, 6 (2016), https://www.aceee.org/files/proceedings/2016/data/papers/3_345.pdf.

¹¹¹ *Id.*

¹¹² See *Variable Refrigerant Flow (VRF) Heat Pumps*, *supra* note 108.

¹¹³ Interview with Scott Campbell, *supra* note 98.

¹¹⁴ *Id.*

¹¹⁵ *Id.*

C-PACE financing was not available in Norfolk during the Essex Building renovation, however, it will be an option for future commercial property projects. On May 26, 2020 Norfolk City Council unanimously passed an ordinance to establish a C-PACE financing program.¹¹⁶ The Ordinance allows C-PACE financing for projects ranging from \$50 thousand to \$25 million,¹¹⁷ and loan terms up to thirty years.¹¹⁸ The Norfolk Economic Development Department is working to finalize the program guidelines and expects the program to be operating “in the coming months.”¹¹⁹

VII. CASE STUDY – VIRGINIA BEACH CITY PUBLIC SCHOOL SYSTEM

The authors recognize that the Virginia Beach City Public School System is not eligible for C-PACE financing, as they are a government entity. However, a private school would be eligible for C-PACE financing, as it is not a government entity. This case study is provided as an example of a building reconstruction comparable in size to a typical commercial property project. The benefits garnered from implementing resilience measures and the challenges faced in doing so are transferable to implementation of resilience measures in commercial buildings. Additionally, this case study will conclude with an analysis of how a similar, non-government project could have been improved if C-PACE financing had been utilized.

Tasked with creating a suitable learning environment for thousands of students in Virginia Beach, Virginia Beach City Public Schools made resiliency and sustainability key goals as they undertook school retrofits and new construction. In 2010, the School Board of the City of Virginia Beach enacted Policy 3-67.¹²⁰ This policy requires all new construction or substantial retrofits be designed to a minimum LEED standard or equivalent.¹²¹ Since the enactment of this policy, it has been the goal of the Facilities Design department to follow through on the LEED certification, not just design to the standards.¹²² This follow through is an attempt to ensure all standards are being met in application beyond the design phase.¹²³ Current buildings range from a basic LEED certification level to a LEED Platinum level, with the goal for all buildings to achieve LEED Silver certification.¹²⁴ In addition to basic LEED certification standards, the school system is also diligent

¹¹⁶ Kaylynn Stephens, *City of Norfolk Approves Commercial Clean Energy Loan Program*, WAVY 10 (June 12, 2020), <https://www.wavy.com/news/local-news/norfolk/city-of-norfolk-approves-commercial-clean-energy-loan-program/>.

¹¹⁷ Norfolk, Va., Ordinance 48,012 (May 26, 2020) (The maximum loan amount is \$25 million or 30% of the stabilized value of the property, whichever is greater), <https://www.norfolk.gov/DocumentCenter/View/61593/Ord-48012?bidId=>.

¹¹⁸ Norfolk, Va., Ordinance 48,012 (May 26, 2020) (The maximum loan term is thirty years, or the useful life of the project, whichever is shorter) <https://www.norfolk.gov/DocumentCenter/View/61593/Ord-48012?bidId=>.

¹¹⁹ *Norfolk Approves Commercial Property Assessed Clean Energy (C-PACE) Financing Program*, CITY OF NORFOLK (June 12, 2020), <https://www.norfolk.gov/CivicAlerts.aspx?AID=4907>.

¹²⁰ *Environmental Sustainability Practices 3-67*, SCH. BD. OF THE CITY OF VIRGINIA BEACH (Sept. 11, 2014), https://www.vbschools.com/about_us/our_leadership/school_board/policies_and_regulations/section_3/3-67.

¹²¹ *Id.*

¹²² Email from Tim Cole, Sustainability Dir., Virginia Beach City Public Schools, to author (Apr. 10, 2020, 14:43 EST) [hereinafter Tim Cole Email 1] (on file with author).

¹²³ *Id.*

¹²⁴ Email from Tim Cole, Sustainability Dir., Virginia Beach City Public Schools (May 4, 2020, 15:39 EST) [hereinafter Tim Cole Email 2] (on file with author).

about how they execute stormwater management on site.¹²⁵ All building sites have been designed to manage ten-year storms, with a few capable of managing one hundred-year storms.¹²⁶ These efforts have not been implemented without resistance, though. During the design phase, the team engages in a value engineering (VE) process.¹²⁷ It is during this VE process that cost/benefit optimization occurs;¹²⁸ meaning, it is the stage ripe for challenges to stormwater management measures that exceed code requirements.¹²⁹ These challenges are discussed in greater detail below. The Facilities Design team remains undeterred and has managed to include proposed stormwater management measures in all building designs to this point.¹³⁰

A prime example of Virginia Beach City Public Schools' commitment to resilient infrastructure is the reconstruction of Old Donation School.¹³¹ Standing at over 225,000 square feet and serving nearly 1,400 students in second through eighth grades, Old Donation serves as an example of Policy 3-67 in action.¹³² Design for the project began in November 2011 and construction was completed in the fall of 2017.¹³³ Costs for the capital improvement project totaled \$63,615,000.¹³⁴ Resilience and energy efficiency measures implemented in the project include all those required for a LEED Gold certification, as well as green roofing, underground stormwater storage, and a rainwater collection system.¹³⁵

In addition to satisfying the guidelines set forth in Policy 3-67, the reconstruction of Old Donation School also had meaningful impacts on the delivery of education services to the students.¹³⁶ Students reported benefits ranging from a sense of stimulus from more light in the classrooms to the opportunity to conduct new science experiments utilizing the rainwater collection system and green roof.¹³⁷ Old Donation School serves as an example of how resilient infrastructure can not only positively impact the bottom line, but also the quality of work and achievement of goals that take place within the building.¹³⁸

While there is little doubt that the reconstruction of Old Donation School was a major success and benefited many stakeholders, it did not come without challenges. Most notably, the

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ *Id.* For more on value engineering, see Scott W. Cullen, *Value Engineering*, WHOLE BLDG. DESIGN GUIDE (Aug. 2, 2016), <https://www.wbdg.org/resources/value-engineering>.

¹²⁸ *Id.*

¹²⁹ Tim Cole Email 1, *supra* note 122.

¹³⁰ *Id.*

¹³¹ *Old Donation School Replacement*, VIRGINIA BEACH CITY PUBLIC SCHOOLS, https://www.vbschools.com/about_us/departments/facilities_services/completed/OldDonationSchool (last visited Apr. 15, 2020).

¹³² *Id.*

¹³³ *Id.*

¹³⁴ *Id.*

¹³⁵ Tim Cole Email 1, *supra* note 122.

¹³⁶ Joe Tennis, *Old Donation School's Innovative Environment in Virginia Beach*, COASTAL VA. MAG. (April 2018), <http://www.coastalvirginiamag.com/March-April-2018/Old-Donation-Schools-Innovative-Environment-in-Virginia-Beach/>.

¹³⁷ *Id.*

¹³⁸ *See id.*

Facilities Design team faced the common challenges of funding and political support.¹³⁹ These challenges and how C-PACE financing can be utilized to mitigate them are discussed below.

Solar power is one measure that Virginia Beach City Public Schools have struggled to include in new construction and retrofit projects.¹⁴⁰ The main cause for this is the upfront expense.¹⁴¹ While solar panels have been included as bid alternatives in most, if not all, projects, this design element has often been cut due to funding constraints.¹⁴² To address this issue, the school system has engaged in solar power purchase agreements (PPAs) so that solar panels can be added to the buildings post-construction.¹⁴³ This is all in an attempt to have buildings at, or near, net-zero energy consumption.¹⁴⁴

While PPAs may achieve the goal of creating net-zero buildings and are attractive for their lack of upfront costs, they can bring their own challenges.¹⁴⁵ Most notably, PPAs do not eliminate the presence of a utility or utility-like payment.¹⁴⁶ Instead, they create the possibility of a long-term contract with a third-party provider, as well as limited utility cost stability for the building owner.¹⁴⁷ C-PACE financing could be a viable alternative to PPAs: While also requiring zero down payment to receive financing, C-PACE would enable commercial owners to purchase and install solar panels on their building without the presence of a third-party utility.¹⁴⁸ The owners would receive the full cost benefit from the solar panels and be able to pay off the cost of the project in manageable amounts through special assessment taxes over a number of years.¹⁴⁹ A hybrid option is also available for commercial property owners in which they can pair C-PACE financing alongside PPAs.¹⁵⁰ This may be ideal for a property owner who does not want to own or maintain the solar array.¹⁵¹

Another challenge facing Virginia Beach City Public Schools in their retrofit projects is the need to justify resilience and sustainable building measures to various political entities.¹⁵² While this is not a challenge that many eligible for C-PACE financing will encounter, a similar challenge may be faced in presenting building plans to a board of directors or shareholders. Virginia Beach City Public Schools staff have addressed this challenge by creating detailed presentations describing the benefits and reasoning behind their design decisions.¹⁵³ Of particular

¹³⁹ Tim Cole Email 1, *supra* note 122.

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ Philippe Hartley, *Why a Solar PPA is a Bad Long, Long Term Deal*, MEDIUM (Jan. 30, 2015), <https://medium.com/@phatmedia/why-a-solar-ppa-is-a-bad-long-long-term-deal-376ce850315a>.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ *See What is C-PACE? For Lenders*, *supra* note 7.

¹⁴⁹ *Id.*

¹⁵⁰ Taimur Jamil, Managing Dir. PACE Hybrid Transactions, CounterpointSRE, USGBC Financing Sustainable and Resilient Buildings webinar (May 20, 2020).

¹⁵¹ *See id.*

¹⁵² Tim Cole Email 1, *supra* note 122.

¹⁵³ *Id.*

focus in the presentations are cost savings as well as the reduction in greenhouse gas production from the implementation of sustainable and resilience building measures.¹⁵⁴ Key goals of these presentations are to be informative but to also communicate the cost savings associated with building sustainable and resilient assets.¹⁵⁵ Commercial entities can follow a similar tactic in assuaging resistance from decision makers regarding the implementation of resilient building measures. As the Recommendations section of this paper suggests, the use of and stability provided by C-PACE financing should be a focus in any such presentation.

VIII. RECOMMENDATIONS FOR BROADER IMPLEMENTATION OF C-PACE PROGRAMS IN VIRGINIA

Recently, conversations with researchers at Old Dominion University revealed that the majority of professionals in the construction, engineering, and commercial development industry were unaware of C-PACE financing.¹⁵⁶ Due to this, it is not surprising that C-PACE has been applied limitedly throughout the Commonwealth. However, many entities, including DMME and Virginia PACE Authority, have been working diligently with local governments to encourage adoption of C-PACE ordinances at the local level, as well as to support the administration of C-PACE programs.¹⁵⁷ Yet C-PACE program adoption by local governments has been slow and often lacking. Developing interest in the program at the industry level could add the spark needed to propel C-PACE into widespread adoption by localities. The following recommendations will aide in developing interest in C-PACE among industry members.

A. Development of Informational Materials

To create interest in C-PACE as a financing option, industry leaders will want to have as much information as possible at the forefront.¹⁵⁸ Desirable information includes basic facts about C-PACE, partners involved in administering a program, benefits to the industry, and examples of successful use of the program.¹⁵⁹ This information should be provided as briefly and accurately as possible.¹⁶⁰ The authors hope that this paper can be a foundation for such materials and will be useful in educating industry group members on the legal framework, partnership opportunities, benefits, and existing programs and measures associated with C-PACE in Virginia. A main goal in development of this informational material should be to provide industry leaders with the tools and background knowledge necessary to connect with partners in developing and implementing a C-PACE program. Materials need not be a comprehensive source of C-PACE information, but should provide a basic understanding of the program and guidance on where to locate additional information. Working with industry groups may shed light on the most desirable form this information should take in order to ensure it is accessible to industry leaders and effective in communicating relevant information to industry leaders.

¹⁵⁴ Tim Cole Email 2, *supra* note 124.

¹⁵⁵ *Id.*

¹⁵⁶ Telephone Interview with Carol Considine, Assoc. Professor of Eng'g Tech., Old Dominion Univ., and Emily Steinhilber, Research Assistant Professor, Old Dominion Univ. (Mar. 4, 2020) [hereinafter, ODU Interview].

¹⁵⁷ Telephone Interview with Daniel Farrell, Clean Energy Fin. Programs Manager, Va. Dep't of Mines, Minerals, and Energy, and Abby Johnson, Exec. Dir., Va. PACE Auth. (Feb. 19, 2020) [hereinafter Client Interview].

¹⁵⁸ ODU Interview, *supra* note 156.

¹⁵⁹ *Id.*

¹⁶⁰ *Id.*

B. Leveraging Industry Groups and Trade Associations

For this information to most effectively reach its target audience, it should be disseminated through existing industry groups. These groups are well established and foster a community of trust, an important asset when presenting a new idea to long-standing members of a community. Many of these groups already exist in the Hampton Roads region.

Virginia Beach Vision is an organization with the goal of creating “future development, prosperity, and quality of life” in Virginia Beach and the Hampton Roads region.¹⁶¹ Composed of 120 senior-level industry, civic, and educational leaders, Virginia Beach Vision is a prominent collective of entities that may be eligible for C-PACE financing or may be in a position to advocate for C-PACE ordinances and programming.¹⁶² The group is currently involved in projects spanning from the update of the City’s comprehensive plan to the procurement of an entertainment arena and implementation of a light rail system.¹⁶³ Also noted as an area of interest for the group is “financing opportunities to support development of key projects.”¹⁶⁴ It appears that Virginia Beach Vision may be a prime group to not only disseminate C-PACE information to industry leaders, but also to garner support from the business community in encouraging localities to adopt C-PACE ordinances.¹⁶⁵ Other groups in the region similar to Virginia Beach Vision include the Greater Norfolk Corporation, the Chesapeake Alliance, and the Portsmouth Partnership.¹⁶⁶ These groups tend to all work collaboratively to create regional success.¹⁶⁷ Targeted presentations of C-PACE information to these groups would be an efficient and effective step towards bolstering interest in the program among industry leaders.

Other groups that may be prime targets for dissemination of C-PACE information are trade associations. One such group is the Builders and Contractors Exchange of Virginia. The member-owned association provides a centralized location for “information regarding commercial construction projects.”¹⁶⁸ It also aims to “help its members sustain and grow their businesses and develop their employees” through networking and educational opportunities.¹⁶⁹ They accomplish these goals by fostering cooperation throughout the industry, providing information and educational opportunities, supporting legislation impacting the construction industry, and promulgating their own rules and policies.¹⁷⁰ These rules and policies focus on best management practices regarding “invitation for bids, bidding, and contracting which are in the best interests of the membership and community.”¹⁷¹ C-PACE also may be of particular interest to the Hampton

¹⁶¹ *History*, VIRGINIA BEACH VISION, <https://virginiabeachvision.com/history/> (last visited Apr. 15, 2020).

¹⁶² *See id.*

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ *See id.*

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ *Home*, BUILDERS AND CONTRACTORS EXCH. OF VA., <https://www.bceva.com/> (last visited Apr. 15, 2020).

¹⁶⁹ *Id.*

¹⁷⁰ *About Us*, BUILDERS AND CONTRACTORS EXCH. OF VA., <https://www.bceva.com/about-us/> (last visited Apr. 15, 2020).

¹⁷¹ *Id.*

Roads Association for Commercial Real Estate (HRACRE).¹⁷² This 400 member group represents the interests of those involved in the promotion of commercial real estate in the Hampton Roads region.¹⁷³ Core tenets of the group include member education about emerging issues in the commercial real estate field as well as targeted advocacy to local, regional, and state elected bodies concerning the promotion of commercial real estate in Hampton Roads.¹⁷⁴ Other important industry and professional organizations include the Virginia Association for Commercial Real Estate, the Greater Richmond Association for Commercial Real Estate, and the National Association of Industrial and Office Properties (NAIOP) Northern Virginia and the American Institute of Architects (AIA) Virginia chapter.¹⁷⁵

Together, these trade groups, their members, and their partners constitute a large proportion of potential users of C-PACE financing. The successful passage of C-PACE ordinances in Loudoun County, The City of Fredericksburg, and the City of Lynchburg has been attributed to the influence of owners and developers supporting a C-PACE project. Reaching these groups with strategic information, as described above, would not only garner interest for C-PACE financing by those most likely to use it, but would also create another avenue of advocacy to local governments responsible for creating C-PACE programming.

C. Ensuring Accountability

Localities that have enacted C-PACE ordinances have struggled to procure projects under the program.¹⁷⁶ A main reason given for this is the fear of lack of accountability.¹⁷⁷ C-PACE capital providers are hesitant to engage in programs with localities lacking enforcement provisions in their ordinances.¹⁷⁸ The following two actions have been identified as possible ways to mitigate these issues.

First, localities can ensure the addition of enforcement provisions when drafting C-PACE ordinances. Currently in Virginia, Fairfax and Loudoun counties have enforcement provisions in their C-PACE ordinances, as do the Cities of Richmond, Lynchburg, and Fredericksburg and the

¹⁷² HRACRE was an active supporter of the 2015 and 2019 C-CPACE legislation.

¹⁷³ *Who We Are*, HAMPTON ROADS ASS'N FOR COMMERCIAL REAL ESTATE, <https://hracre.org/page/howweare> (last visited Apr. 15, 2020).

¹⁷⁴ *Id.*

¹⁷⁵ *Id.*; *Mission and Vision*, AM. INST. OF ARCHITECTS VA., <https://www.aiava.org/about/philosophy/> (last visited Oct. 19, 2020).

¹⁷⁶ See Greg Leventis and Lisa Schwartz, *Commercial PACE and the Special Assessment Process: Understanding Roles and Managing Risks for Local Governments*, U.S. DEP'T OF ENERGY: OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY, 10 (June 2019) (“[A] C-PACE program will only have a few C-PACE projects per year at most.”).

¹⁷⁷ Telephone Interview with Ryan Franklin, VCPC Student, William & Mary Law School (Mar. 28, 2020) [hereinafter, Arlington PACE Call] (summarizing conversation with Scott H. Dickie, Program Dir., Arlington PACE). See DMME Underwriting Guidelines, *supra* note 41, at 1-4, 9 (proposing underwriting guidelines and discussing the need for further default provisions for C-PACE programming).

¹⁷⁸ C-PACE ALL., ELEMENTS OF A WELL-DESIGNED C-PACE STATUTE AND PROGRAM TO ATTRACT PRIVATE CAPITAL AND FOSTER GREATER TRANSACTION VOLUMES 11-12 (2019), <http://www.c-pacealliance.com/wp-content/uploads/2019/07/Elements-of-a-Well-Designed-CPACE-v2.0-07-19-19-FINAL.pdf>; Arlington PACE Call, *supra* note 177; see DMME Underwriting Guidelines, *supra* note 41.

Town of Petersburg.¹⁷⁹ This has provided more certainty and stability in the tri-party agreements by giving the capital investors some power and authority to recover on their loans.¹⁸⁰ Arlington, however, has not included enforcement provisions in its C-PACE ordinance.¹⁸¹ This locality has struggled with garnering support for C-PACE projects from capital investors.¹⁸² To remedy this issue, Arlington PACE, a C-PACE program administrator, is working with the Arlington County board of supervisors to amend the ordinance to add an enforcement provision.¹⁸³

Another possible solution to the issue of accountability is the creation of a statewide C-PACE program.¹⁸⁴ Such a program is already under consideration in Virginia and Governor Northam has included funding for such program in his proposed budget for 2020.¹⁸⁵ If funded, the program would be sponsored by DMME who will hire a statewide program administrator.¹⁸⁶ Its goal would be to provide a standardized framework and guidelines for localities to follow when creating their C-PACE programs, as well as model ordinance language.¹⁸⁷ Having a statewide administrator creates a sense of stability and uniformity across localities to better assist capital providers and commercial entities who may participate in the program.¹⁸⁸ Additionally, the underwriting guidelines formulated by DMME provide some assurances of accountability for capital providers and lenders.¹⁸⁹

IX. CONCLUSION

Virginia's inclusion of resilience improvements in state code governing C-PACE financing has created a means by which commercial property owners can more easily engage in resiliency while also managing their bottom line. However, the adoption of C-PACE programs by localities have been limited and, in some cases, commercial interest in utilizing existing programming has also been lacking. Education of localities and commercial property owners about C-PACE, its

¹⁷⁹ FAIRFAX COUNTY, VA., CODE § 127-4-2 (2020); FREDERICKSBURG, VA., CODE § 38-506(H) (2020); LOUDOUN COUNTY, VA., CODE § 825.06(e) (2020); LYNCHBURG, VA., CODE § 36-305(f) (2020); PETERSBURG, VA., CODE § 107-7(h) (2020); RICHMOND, VA., CODE § 11-196(f) (2020).

¹⁸⁰ See C-PACE ALL., *supra* note 178, at 3; Arlington PACE Call, *supra* note 177.

¹⁸¹ ARLINGTON COUNTY, VA., CODE ch. 68 (2017).

¹⁸² Arlington PACE Call, *supra* note 177.

¹⁸³ *Id.*

¹⁸⁴ *Virginia's statewide Commercial Property Assessed Clean Energy and Resilience (C-PACER) program*, MID-ATLANTIC PACE ALL. (Apr. 16, 2020), <https://www.pacealliance.org/single-post/2020/04/16/Virginia%E2%80%99s-statewide-Commercial-Property-Assessed-Clean-Energy-and-Resilience-C-PACER-program> [hereinafter Statewide Program].; Client Interview, *supra* note 157.

¹⁸⁵ HB 654, 2020 Leg. Sess. (Va. 2020); Press Release, Governor Ralph Northam, Governor Northam to Protect Virginia's Environment, Fight Climate Change, and Grow the Clean Energy Economy (Dec. 11, 2019), <https://www.governor.virginia.gov/newsroom/all-releases/2019/december/headline-849847-en.html> [hereinafter Budget Press Release]; Statewide Program, *supra* note 184.

¹⁸⁶ Budget Press Release, *supra* note 185; Statewide Program, *supra* note 184; Email from Daniel Farrell, Clean Energy Financing Program Manager, Va. Dep't of Mines, Minerals, and Energy, to author (June 23, 2020, 13:58 EST) (on file with author).

¹⁸⁷ Statewide Program, *supra* note 184. Additionally, DMME is currently in the process of developing and releasing a Request for Proposal for a third party administrator who will be tasked with creating model ordinance language, among other tasks. *What is Commercial Property Assessed Clean Energy (C-PACE) Financing?*, VA. DEP'T OF MINES, MINERALS, AND ENERGY, <https://www.dmme.virginia.gov/de/PACE.shtml> (last visited Nov. 9, 2020).

¹⁸⁸ C-PACE All., *supra* note 178, at 6-7.

¹⁸⁹ DMME Underwriting Guidelines, *supra* note 41.

benefits, and how it can be used to meet important resiliency goals is imperative to its success. This can most likely be achieved through the development of accessible, informative materials, including specific case studies about successful programs and projects,¹⁹⁰ disseminated through industry groups and trade associations. Creating and leveraging interest on the commercial industry level will encourage localities to establish C-PACE financing programs. Consistency of local ordinances and state-level support are also imperative to ensure accountability and achieve program success. Together, implementation of these measures will propel C-PACE in Virginia to a bright future.

¹⁹⁰ For examples of successful C-PACE projects, see *Case Studies*, MID-ATLANTIC PACE ALL., <https://www.pacealliance.org/case-studies> (last visited Oct. 20, 2020).