NYU Furman Center

POLICY BRIEF | JULY 2018

Making Dirty Land Clean:

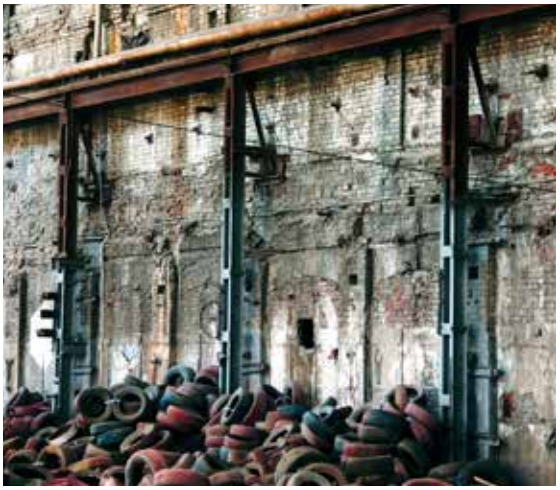
An Analysis of New York City's Voluntary Cleanup Program

NYU Furman Center

Introduction

Brownfields are properties with actual or potential environmental contamination that could complicate expansion or redevelopment activities on the site.[1] There are multiple barriers to the redevelopment of brownfields. Chief among them are uncertainty about remediation costs and fears about the legal liability the purchaser of a brownfield may assume by acquiring the property. These concerns may discourage redevelopment and cleanup of brownfields, which can have negative environmental and economic consequences for a neighborhood.

As of 2007, the city estimated that there were between 4,000 and 7,600 acres of contaminated land (or brownfields) in New York City (an area between five and nine times the size of Central Park). The presence of brownfields in New York City is problematic for a variety of reasons. Their contamination can raise environmental and health concerns, especially when hazardous substances generate vapors that intrude into buildings, when these substances come into contact with groundwater and spread to other sites, or when access to these properties is not adequately restricted. Brownfields, particularly when they are vacant, are also often linked to blight in communities.[2] Moreover, in a city like New York, with a significant need for new housing development, using all available land efficiently is critical.



Accordingly, the New York State legislature launched a statewide Brownfield Cleanup Program ("BCP") in 2003, providing tax credits and liability protections to those who clean up contaminated properties.[3] The New York State Department of Environmental Conservation ("DEC") issued a guidance document in 2005 adopting an interpretation of the BCP's eligibility requirements that had the practical effect of limiting the ability of sites with light or moderate contamination to enroll in the program.[4] The guidance also rendered properties primarily contaminated with historic fill ineligible to join the state program. These exclusions had a particularly high impact in New York City, given the large number of properties with historic fill and low to moderate levels of contamination.[5] Site eligibility became more flexible as a result of extensive litigation. More recently, in 2015, the state legislature amended the BCP to further limit state tax credits for New York City brownfields.[6] As a result, many sites in New York City have been unable to take advantage of the BCP and associated tax incentives.

1 Envtl. Protection Agency, United States Environmental Protection Agency Grants and Fellowship Information, https://www.epa.gov/grants/united-states-environmental-protection-agency-grants-and-fellowship-information (last visited May 2, 2018).

2 *See* Colleen Cain, Fighting Blight in the Northeast-Midwest Region: Assessing the Federal Response to Vacant and Abandoned Properties 2 (2016), http://www.nemw.org/wp-content/uploads/2016/05/2016-Fighting-Blight-in-NEMW.pdf; Sven-Erik Kaiser, *Brownfields National Partnership, The Federal Role in Brownfields Redevelopment*, 2 pub. works management & pol'y 197 (1998).

3 This program superseded the state's Voluntary Cleanup Program, which was created in 1994 and offered more limited protections against enforcement and no economic incentives.

4 Under New York State regulations, historic fill material has been defined as "non-indigenous or non-native material, historically deposited…to create usable land by filling water bodies, wetlands or topographic depressions…contaminated prior to emplacement [and] used prior to October 10, 1962." 6 nycrr 375-1.2(x).

5 *See* Mark P. McIntyre, David J. Freeman, and Jesse Hiney, *City Brownfields Program Aims to Accelerate Site Cleanup*, n.y. l.j. (November 22, 2010).

6 Brownfields in New York City are not eligible to receive these tax credits unless they: (i) are located in Environmental Zones, (ii) are underutilized or have a cleanup cost that represents 75 percent or more of the property value as if uncontaminated, or (iii) will be an affordable housing project. *See* n.y. envtl. conserv. l. § 27-1407.1-a.

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To address these gaps in the BCP, the City of New York created the Office of Environmental Remediation ("OER") in 2009. OER launched the New York City Voluntary Cleanup Program ("VCP"), the Brownfield Incentive Grant program, the Clean Soil Bank, and several other brownfield-related programs. OER's programs have multiple goals, including facilitating investigation and cleanup of brownfields, promoting and overseeing their safe redevelopment, and supporting community groups in their efforts to identify brownfields and participate in the process leading to their cleanup.[7]

This policy brief aims to shed light on the city's main program, the VCP. The VCP is being used to redevelop hundreds of sites in the city, yet there has been little public attention to this program or examination of how it is being used. To better understand this program, and to provide data on its operations, we have analyzed over 1,000 documents from OER. We also interviewed or had conversations with program participants, consultants and lawyers that work with the program, and OER officials to understand the operations of the program and its perceived strengths and weaknesses. In this brief, we present our findings and offer policy recommendations based on our analysis.

First, we provide a description of the program and the economic incentives available to its enrollees. The second section provides a descriptive overview of how the program has been operating since its creation in 2010 through 2017, including the number of sites that have participated, their location, the uses that have followed the cleanup, use restrictions placed on these sites, and changes that have occurred in the neighborhoods around them. In the final section, we offer recommendations for how to strengthen the program and point out the features that have made it successful that could be adopted in other states and localities.

7 *See* New York City Charter § 15.e.1, 4, 6; Rules of the City of New York [RCNY], § 43-1415.a.

I. NYC's Voluntary Cleanup Program

In 1983, long before the creation of OER, the city started compiling a list of tax lots that could present a risk of contamination. It identifies potentially contaminated lots as it rezones property in the city (either agency-initiated or proposed by a private applicant). Lots receive an E-designation—or, in some cases, an environmental restrictive declaration ("ERD")[8]—during a rezoning's environmental review process[9] if the lead agency determines, based on visual or historical information of past or current uses, that a potential environmental condition exists on the property, including the presence of hazardous materials.[10] If a lot is E-designated or receives an ERD, no building permit may be granted for its redevelopment without the approval of the environmental agency supervising the program—the New York City Department of Environmental Protection originally and, since 2009, OER. This list of potentially contaminated properties, therefore, is made up of the properties with E-designations and ERDs. It does not include properties that may be contaminated but have not been rezoned since 1983.[11]

8 The rules before the 2012 amendment did not allow the city to place an E-designation on a lot if the applicant (of the rezoning) was also the owner. In these cases, the environmental requirements were incorporated into an environmental restrictive declaration. The 2012 amendment expanded the scope of the E-designation provisions to include lots owned by the applicant.

9 This may also happen, in more limited cases, in the context of zoning actions, such as special permits or variances. *See* RCNY § 24-04.b; § 24-03 (defining "Zoning Action").

10 Zoning Resolution § 11-15; RCNY § 24-04.

11 With the exception of a very limited number of properties that may have been E-designated as a result of other zoning actions—e.g., special permits or variances. *See* RCNY § 24-03 (defining "Zoning Action").

In 2009, OER took on the administration of the E-designation and ERD programs. OER also launched the VCP and a grant program to work in tandem with the VCP to promote the redevelopment of brownfields.[12] These programs offer participants economic incentives to assist with the cost of cleanup, streamline the supervision of cleanups, and provide assurances of no further enforcement by the city and the state.[13] An owner of a contaminated site in New York City is not required to participate in the VCP (hence the "voluntary" in the program's name). However, OER must supervise the investigation and remediation of any sites that the city has identified as potentially contaminated under its E-designation and ERD programs.[14] Many owners of E-designated or ERD properties choose to participate in the VCP in order to obtain the OER approval necessary to move forward with development while, at the same time, they enjoy the incentives provided by this program (there are other processes for getting OER approval, but currently they are less frequently used).[15] For sites that require remediation but that are not flagged as potentially contaminated under the E-designation or ERD programs, the landowner may decide to apply to the VCP or to conduct an "at-risk cleanup," meaning remediation without government supervision.[16]

The VCP has broad eligibility requirements: Any real property "within the city, the redevelopment or reuse of which may be complicated by the presence or potential presence of" contamination is eligible, with the exception of sites in certain federal and state registries or those subject to enforcement actions.[17] Sites in the state's BCP, however, are ineligible to enroll in the VCP.[18] Before the site is enrolled in the VCP, officials from OER meet with the prospective enrollee to discuss the site's suitability for participation in the VCP, the development plan, the scope of the field investigation, and the project schedule. OER will then evaluate the field data and supervise the prospective enrollee in the preparation of the cleanup plan. Once the prospective enrollee completes the investigation and files the application—including the reports describing the investigation performed and a plan for the proposed remedial action—the public is then given thirty days to comment on the application. If OER approves the application and all eligibility requirements are met, the site will be enrolled in the program and the remediation will begin.

12 *See* New York City Charter § 15.e.4; RCNY § 43-1415.a.

13 The city's OER has also launched a variety of other brownfield-related programs, such as the Clean Soil Bank—which allows the exchange of clean soil between sites located in NYC—and the green certification program—which provides a formal recognition that a property has been successfully remediated and meets public health standards. Other important economic incentives associated with the VCP include the possibility of obtaining an exemption from the state hazardous waste program fees. *See* RCNY § 43-1460; N.Y. ENVTL. CONSERV. L. § 72-0402.

14 Or, in other words, sites with a "hazardous materials" or "underground gasoline storage tank" E-designation or ERD.

15 *See* N.Y.C. ZONING RES. § 11-15(a).

16 Certain sites, however, may be subject to state supervision—e.g., if there has been a petroleum spill on that property.

17 *See* RCNY § 43-1402.uu.1, 3.

18 *See* RCNY § 43-1402.uu.3 (which includes sites subject to an "agreement" under New York state's conservation law).

Once the cleanup is complete, OER reviews the enrollee's report detailing the remedial action performed. If OER determines that the requirements included in the cleanup plan have been achieved and adequately documented in the remedial action report, the office issues a notice of completion. If the cleanup level achieved can only support certain type of uses—e.g., commercial but not residential—OER will mention this restriction in the notice of completion. This document will also include a description of any site management activities required to limit human and environmental exposure to contaminants that remain on that property. After the notice of completion is issued, the city will not require—with limited exceptions—further investigation or remediation. The state DEC has also expressed, in a memorandum of agreement with the city, that "it does not plan or anticipate taking" legal or other action to force further remediation with respect to VCP sites. These assurances, coupled with the fact that the city is overseeing the design and effective implementation of the remedial action plan and placing use restrictions on the property when necessary, can also provide ancillary benefits to those using the VCP, such as increasing the likelihood that the project will receive financing from lending institutions.

VCP sites can also take advantage of certain brownfield-specific economic incentives. The Brownfield Incentive Grant program is frequently used in conjunction with the VCP and provides grants for a variety of activities related to the investigation and cleanup of brownfields.[19] The types of grants and their maximum amounts have changed since the inception of the program in 2010. The standard grant award cap for projects enrolled in the VCP, for example, was $60,000 or $100,000 (depending on the type of project) when the program was launched, but is currently set at $25,000 and $35,000.[20] This decrease, however, was accompanied by the creation of—and increases in—other grants. Since 2016, certain types of projects—for example, those involving affordable or supportive housing—can take advantage of a "city enrollment grant," which has a $250,000 cap.[21] In addition to these grants, VCP sites are eligible for an exemption of hazardous waste state fees that would otherwise apply to cleanup activities requiring the disposal of soil contaminated with hazardous substances.[22]

Our interviews and conversations with developers, lawyers, and environmental consultants have revealed two particularly positive features of the VCP and associated programs. First, many interviewees praised the efficient operation of the program. They appreciated the ease with which interested parties have been able to schedule meetings with OER on short notice and, more broadly, the swiftness of the different approvals that are required to move forward with the cleanup process. This is consistent with the short duration of the cleanups reported in part II of this policy brief. Second, interviewees noted the program's predictability as a factor that contributed to their decision to enroll subsequent projects. The VCP pre-application meeting, in particular, gives prospective applicants the opportunity to learn about the suitability of the property for participation in the program and to get other strategic guidance for the remedial investigation and preparation of the cleanup plan.

19 *See* RCNY § 43-1415.a. Not all grants require enrollment in the VCP. *See, e.g.,* "pre-enrollment grants," "city enrollment grants," "green property certification grants," and "green job training grants." *See* RCNY § 43-1418.d.1, 2.

20 Grant awards can be up to $50,000 in the case of a not-for-profit developer or a developer of a residential building in which all units are affordable. *See* RCNY § 43-1422.c.2.

21 If enrolled in the VCP, in addition to the city enrollment grant, the site is eligible for a $50,000 cleanup grant. *See* RCNY § 43-1422.c.12.

22 *See* N.Y. ENVTL. CONSERV. LAW § 72-0402.1(d)(vi); RCNY § 43-1460. These fees can have a very significant impact on the total disposal costs.

II. Program's Descriptive Data

To better understand the operation of the VCP, the Furman Center analyzed over 1,000 documents available on two websites created by OER.[23] This information allowed us to determine the location of VCP sites, the changes in demographics in areas with a high density of VCP sites, and the duration and other features of the cleanups performed under the program.

a. How Many Projects Are Using the VCP?

Compared to other state cleanup programs, the VCP has been very successful in attracting developers' interest. The number of VCP sites—meaning sites for which an application was filed—by the end of 2017 was over 560.[24] This figure compares favorably to statewide programs in New York (with 713 approved applications as of January of 2017),[25] Illinois (with 799 sites as of January 1, 2017), and Ohio (with 655 sites enrolled as of January 1, 2017), even though these state programs were created several years earlier—2003, 1994, and 1996 respectively.[26]

Table 1 summarizes the variation in the number of applications since the inception of the VCP in 2010 and 2017.[27] The number of applications rose until 2015, experienced a sharp decline in 2016, and then increased moderately in 2017.

Table 1: Number of New York City Voluntary Cleanup Program Applications by Year[28]

Year	*Projects*
2010	2
2011	20
2012	64
2013	101
2014	98
2015	153
2016	58
2017	68

Sources: New York City Office of Environmental Remediation, NYU Furman Center

23 The VCP Document Repository, http://www.nyc.gov/html/oer/html/document-repository/document-repository.shtml, and the Environmental Project Information Center (EPIC), https://a002-epic.nyc.gov/app/search/advanced.

24 The overwhelming majority of these sites have formally enrolled in the program. The number of sites that have enrolled in the VCP is approximately 540. The term "VCP site" or "VCP project" refers, throughout this brief, to projects that filed an application and for which a comment period started before January 1, 2018. Projects in programs other than the VCP—i.e., without a "CVCP" or "CBCP" reference number—or for which it was unclear if they were submitted for VCP consideration have been excluded. Projects that have been merged are counted as one project. Two additional projects could not be assigned to a particular year.

25 *See* Environmental Protection Agency, State Brownfields and Voluntary Response Programs 13, 32, 36 (2017), https://www.epa.gov/sites/production/files/2017-12/documents/state_brownfields_voluntary_response_program_report_508_11-2017_web.pdf; Site Remediation Program Database Search, http://www.epa.illinois.gov/topics/cleanup-programs/bol-database/srp/index.

26 These three programs are similar in structure to the New York City VCP: they are voluntary, they provide financial assistance, and there is a liability release or a statement that the state agency with enforcement authority over contaminated sites will not exercise such power with respect to sites successfully remediated under the program.

27 As explained above, the application is filed after the remedial investigation is complete and the prospective enrollee has prepared a remedial action work plan.

28 These are approximate figures based on the documents available on OER's online repositories and additional information provided by that office. The year was assigned based on the date the comment period for the application started. This occurs shortly after the applicant submits an application. *See* RCNY § 43-1404.f.1.

b. Where Are VCP Sites Concentrated and What Have Been the Recent Demographic and Housing Market Trends in These Areas?

As Table 2 shows, almost half of VCP sites are located in Brooklyn (48.59%). The Bronx, Queens, and Manhattan account for the other 50 percent. Only 1.1 percent of VCP sites are located on Staten Island. VCP sites are very concentrated in certain neighborhoods—over 66 percent are located in 10 community districts, and Greenpoint/Williamsburg alone is home to 24.56 percent of sites. Most of these 10 areas had significant industrial activity in the past and have had lots upzoned in the past 15 years. Over 85 percent of sites enrolled in the VCP are located in areas that were rezoned between 2002 and 2016, although these areas only represent roughly 30 percent of the total city area. This can be explained by the fact that the vast majority of sites enrolled in the VCP are E-designated/ERD sites and these designations occur almost exclusively in rezoned areas.[29]

Table 2: VCP Projects by Borough, 2010 to 2017[30]

Borough	*Projects*	*Percentage*
Brooklyn	275	48.59%
Bronx	76	13.43%
Manhattan	113	19.96%
Queens	96	16.96%
Staten Island	6	1.06%

Sources: New York City Office of Environmental Remediation, NYU Furman Center

Table 3: Top 10 Community Districts by Number of VCP Projects, 2010 to 2017[31]

Community District	*Borough*	*Number of Projects*	*Percentage of Citywide Total*
Greenpoint/Williamsburg	BK	139	24.56%
Clinton/Chelsea	MN	46	8.13%
Astoria	QN	45	7.95%
Bedford Stuyvesant	BK	40	7.07%
Fort Greene/Brooklyn Hts	BK	34	6.01%
Greenwich Village/Soho	MN	19	3.36%
Morrisania/Crotona	BX	16	2.83%
Mott Haven/Melrose	BX	15	2.65%
Jamaica/Hollis	QN	15	2.65%
Woodside/Sunnyside	QN	11	1.94%

Sources: New York City Office of Environmental Remediation, NYU Furman Center

29 As explained in section I of this brief, the vast majority of E-designations and ERDs are assigned in the context of the environmental review that takes place during a rezoning process.

30 These are approximate figures based on the documents available on OER's online repositories and additional information provided by that office.

31 These are approximate figures based on the documents available on OER's online repositories and additional information provided by that office.

Table 4: Demographic Indicator Rankings for Top 10 Community Districts by Number of VCP Projects, 2010 to 2017

	Percentage of Citywide Total	*Population Aged 25+ with a Bachelor's Degree or Higher, Rank 2010*	*Population Aged 25+ with a Bachelor's Degree or Higher, Rank 2016-17*	*Poverty rate, Rank 2010*	*Poverty rate, Rank 2016-17*	*Racial Diversity Index, Rank 2010*	*Racial Diversity Index, Rank 2016-17*
Greenpoint/Williamsburg	24.56%	14	9	16	23	34	37
Clinton/Chelsea	8.13%	5	4	43	42	28	33
Astoria	7.95%	16	10	28	38	12	15
Bedford Stuyvesant	7.07%	35	22	10	14	26	16
Fort Greene/Brooklyn Hts	6.01%	7	7	31	31	6	12
Greenwich Village/Soho	3.36%	1	2	48	51	48	53
Morrisania/Crotona	2.83%	54	53	1	3	38	40
Mott Haven/Melrose	2.65%	55	55	2	2	44	44
Jamaica/Hollis	2.65%	43	45	29	44	32	31
Woodside/Sunnyside	1.94%	19	19	42	47	9	9

Sources: New York City Office of Environmental Remediation, NYU Furman Center

The fact that VCP sites are so concentrated in the city suggests that they may be part of larger trends or changes for those areas. When we examined trends in neighborhood characteristics for these top 10 neighborhoods, we see some commonalities. Many of these areas—Williamsburg/Greenpoint, Bedford Stuyvesant, Mott Haven, Astoria, and Morrisania—are on the list of "gentrifying neighborhoods" identified by the NYU Furman Center in its 2016 report on gentrification, based on rapid rent growth in previously low-income neighborhoods.[32] In Tables 4 and 5, we report the ranking for these 10 neighborhoods (that is, each neighborhood's relative position with respect to the city's other 58 community districts) for demographics and housing market indicators to provide a more in-depth look at the changes in these ten community districts between 2010 and 2017. [33]

The neighborhoods with VCP sites reflect a range of the City's neighborhoods. Both neighborhoods with poverty rates among the city's lowest in 2016, for example, and those with some of the worst poverty, have the highest concentrations of VCP sites. Further, the neighborhoods range in terms of whether they are improving, deteriorating, or stable in their poverty rates and racial diversity.[34] Fort Greene/Brooklyn Heights, for example, dropped from the sixth most racially diverse neighborhood in the City to the twelfth between 2010 and 2016, but most of the community districts in which VCP sites were concentrated remained fairly stable in their rankings on racial diversity. We cannot assess whether the concentration of VCP sites in a neighborhood caused any changes in the neighborhood's demographics. The likelihood that brownfield sites will be redeveloped is certainly related, however, to changes in the demand for housing in the neighborhood.

32 *See* NYU Furman Center, *State of New York City's Housing and Neighborhoods in 2015* 6 (2016), http://furmancenter.org/files/sotc/Part_1_Gentrification_SOCin2015_9JUNE2016.pdf.

33 With rankings, the neighborhood with the highest value will be ranked first, even if higher values are not considered better, as with poverty rates.

34 This indicator measures the probability that two randomly chosen people in a given area will be of a different race. *See* NYU Furman Center, *State of New York City's Housing and Neighborhoods in 2017* 118 (2018), http://furmancenter.org/files/sotc/SOC_2017_PART3_Indicator_Definitions_Rankings_Methods.pdf.

Table 5: Housing Indicator Rankings for Top 10 Community Districts by Number of VCP Projects, 2010 to 2017

	Percentage of Citywide Total	*Sales Volume, All Property Types, Rank 2010*	*Sales Volume, All Property Types, Rank 2016-17*	*Median Rent, All ($2017), Rank 2010*	*Median Rent, All Rank ($2017), 2016-17*	*Units Authorized by New Residential Building Permits, Rank 2010*	*Units Authorized by New Residential Building Permits, Rank 2016-17*
Greenpoint/Williamsburg	24.56%	9	15	30	8	43	13
Clinton/Chelsea	8.13%	15	20	5	4	48	12
Astoria	7.95%	36	36	14	12	21	23
Bedford Stuyvesant	7.07%	16	21	46	35	6	10
Fort Greene/Brooklyn Hts	6.01%	12	26	7	7	40	1
Greenwich Village/Soho	3.36%	27	38	1	1	48	48
Morrisania/Crotona	2.83%	56	54	51	53	45	4
Mott Haven/Melrose	2.65%	58	58	55	54	24	2
Jamaica/Hollis	2.65%	1	4	25	38	9	3
Woodside/Sunnyside	1.94%	31	41	10	11	37	22

Sources: New York City Office of Environmental Remediation, NYU Furman Center

The 10 community districts with the highest concentration of VCP sites are also very diverse in terms of property sales volume, median rent, and new units authorized by building permits. The five community districts with the highest number of VCP sites have maintained or seen a decrease in their sales volume rank for all property types, while their median rent rank has remained stable or increased. The rest of the community districts with the highest numbers of VCP sites do not show a clear trend upwards or downwards for these two indicators. Seven out of the top 10 community districts increased their rank for number of new units authorized by building permits. Greenwich Village/Soho did not change its rank with respect to this indicator, and Astoria and Bedford Stuyvesant experienced a small decrease (21 to 23 and 6 to 10, respectively). We cannot establish, however, whether the high concentration of VCP sites in these community districts played a role in bringing about these variations in housing indicator rankings.

Table 6: Top 10 Community Districts by Number of VCP Projects, 2010 to 2017

	Percent of Citywide Total	*MHI*, Rank 2010*	*MHI*, Rank 2016-17*	*Unemployment Rate, Rank 2010*	*Unemployment Rate, Rank 2016-17*
Greenpoint/Williamsburg	24.56%	34	16	47	33
Clinton/Chelsea	8.13%	7	6	44	53
Astoria	7.95%	27	22	18	35
Bedford Stuyvesant	7.07%	44	31	20	15
Fort Greene/Brooklyn Hts	6.01%	9	8	28	32
Greenwich Village/Soho	3.36%	1	1	54	50
Morrisania/Crotona	2.83%	55	55	5	3
Mott Haven/Melrose	2.65%	54	53	3	6
Jamaica/Hollis	2.65%	22	24	10	11
Woodside/Sunnyside	1.94%	19	21	52	51

**Median Household Income*

Sources: New York City Office of Environmental Remediation, NYU Furman Center

One of the goals of the city's brownfield redevelopment programs is to contribute to the increase in resident income and reduction of unemployment rates in communities with a high density of brownfields.[35] There is some evidence that these changes have taken place over the same period as the VCP has been active, which we report in Table 6, though we are not able to assess whether the relationship is one of correlation or causation. Of the 10 community districts in the city with the most VCP sites, the top five have increased their median household income rank and, of these five, three also decreased their unemployment rate rank (Table 6). This suggests that these neighborhoods are undergoing change, and the remediation of contaminated sites seems to be correlated with that change. However, this descriptive data does not allow us to determine the exact relationship between these demographic changes, rezonings, and brownfield redevelopment. The other five community districts in the top 10, which have many fewer brownfields, show no uniform trends for these indicators.

35 *See, e.g.*, New York City Charter § 15.e.2.

c. VCP Sites' Future Use, Use Restrictions, and Cleanup Duration

To understand how the program is affecting the communities where it is being used, it is important to understand how sites will be used after they are remediated and what use restrictions will be placed on these properties based on their standard of cleanup. The remedial action work plan that prospective enrollees file with their application describes the future use of the property, which allows us to analyze the future uses planned for VCP sites (reported in Table 7),[36] regardless of whether the cleanup has been completed or not. In the early years of the program, residential was the planned use for only about half of the sites; but from 2012 through 2017, this figure has been approximately 80 percent (during this period, it fluctuated between 74% and 86%).[37]

36 These figures represent the intended future use of the different sites reported by VCP applicants. The percentages are approximate figures based on the documents available on OER's online repositories and additional information provided by that office. Two additional projects could not be assigned to a particular year.

37 Based on recent city reports, the developments performed under the VCP have yielded over 9,000 units of affordable and supportive housing. *See* PLANYC 2014 UPDATE 11 (3,900 units), http://www.nyc.gov/html/planyc2030/downloads/pdf/140422_PlaNYCP-Report_FINAL_Web.pdf; ONENYC 2018 UPDATE REPORT 71 (5,200 units) (7,000 jobs), http://www1.nyc.gov/site/orr/index.page.

Table 7: Planned Future Use of VCP Sites

Future Use Type	*2010%*	*2011%*	*2012%*	*2013%*	*2014%*	*2015%*	*2016%*	*2017%*
Commercial	0.0%	40.0%	18.8%	14.9%	19.4%	11.8%	22.4%	10.3%
Community	50.0%	5.0%	0.0%	4.0%	1.0%	1.3%	1.7%	1.5%
Industrial	0.0%	5.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%
Residential	0.0%	25.0%	37.5%	49.5%	25.5%	28.1%	39.7%	30.9%
Mixed Use: Residential – Commercial	50.0%	20.0%	43.8%	30.7%	49.0%	57.5%	34.5%	51.5%
Other	0.0%	5.0%	0.0%	1.0%	5.1%	0.7%	1.7%	5.9%

Sources: New York City Office of Environmental Remediation, NYU Furman Center

Commercial uses were the second most frequent future use for VCP sites, while manufacturing represented less than one percent of future use mix between 2012 and 2017.[38]

Both state and city regulations allow for different cleanup standards depending on the intended future use of the site.[39] If the remediation conforms to "track one" cleanup levels, the site may be used for any purpose. "Track two" and "track four" cleanups, on the other hand, will result in a use restriction for the property—i.e., residential, restricted residential, commercial, or industrial.

The analysis of documentation pertaining to 190 finalized[40] VCP cleanups reveals that 34.2 percent met track one unrestricted standards and over half were consistent with either residential or restricted residential cleanup levels (57.9%).[41]

By way of comparison, under the state BCP as of December 2013, unrestricted, residential, and restricted residential cleanups represented 46 percent of the total cleanups, compared to over 92 percent in the VCP (92.1%).[42] This may reflect the fact that BCP sites tend to present higher levels of contamination than those in the VCP. Only 7.9 percent of VCP cleanups had a commercial use restriction, and there were no sites with an industrial restriction. The figures for the state program were 41 percent and 13 percent respectively. For VCP sites with a restricted use, the restriction matched the expected use of the property in over 97 percent of cases,[43] which shows that the decision of the standard to which a property will be remediated is generally made based on that planned future use.

38 The average size of VCP properties—which fluctuated from year to year, without exhibiting an overall trend upwards or downwards—does not seem to be correlated with the share of different future uses.

39 *See* 6 NYCRR Part 375-1.8; RCNY § 43-1407.h.

40 "Finalized" means sites for which a cleanup end date (month and year) was available and was no later than December 31, 2017. These are approximate figures based on the documents available on OER's online repositories and additional information provided by that office. As of July of 2018, the number of sites with finalized cleanups was approximately 200.

41 Unrestricted cleanups may support any use, whereas residential and restricted residential standards do not allow certain uses such as the production of food for human consumption or vegetable gardens. *See* 6 NYCRR Part 375-1.8.

42 *See* NYU Shack Institute of Real Estate, New York State Brownfield Cleanup Program and Tax Credit Analyses 19 (2014), http://www.nycbrownfieldpartnership.org/pdf/NYSBTC-Jan_28_revised.pdf.

43 Because Track 4 site cleanup objectives are site-specific, the restriction was presumed to match the future use of the property.

With regard to the duration of the cleanups, on average, it takes 20.81 months for a VCP site to be remediated, counted from the start of the comment period for the application.[44] State BCP sites, on the other hand, have required an average of 57.96 months[45] between enrollment and issuance of a certificate of completion.[46] This difference is probably caused by a combination of the fact that sites enrolled in the state BCP often require more extensive remediation; that, for some BCP sites, the bulk of the remedial investigation takes place after enrolling in the program;[47] and OER's quick document approval process.

Table 8: Breakdown of Unrestricted and Restricted Uses for Finalized VCP Cleanups, 2010 to 2017[48]

Highest Future Use Allowed	*Number*	*Percent*
Unrestricted	65	34.2%
Residential/Restricted Residential	110	57.9%
Commercial	15	7.9%
Industrial	0	0.0%
Total	190	100.0%

Sources: New York City Office of Environmental Remediation, NYU Furman Center

44 This figure is based on the same projects analyzed to determine future use restrictions. Because cleanup end dates only contain information about year and month, the calculation assumed that all cleanups ended on the 15th of the month. Given that more accurate information was not available, the cleanup end date for project 12CBCP036Q is an estimate.

45 *See* NYU Shack Institute of Real Estate, New York State Brownfield Cleanup Program and Tax Credit Analyses 2015 Update 11 (2015), http://www.nycbrownfieldpartnership.org/pdf/BTCReportFinal.pdf (4.83 years).

46 These two figures are calculated based on slightly different program milestones. However, there is a substantial overlap between the two, as they both include the period of time from enrollment to completion of the cleanup.

47 With the city's VCP, on the other hand, the remedial investigation report must be filed with the initial application to enroll in the program.

48 For 21 sites, the restriction level was not available. Given that all were Track 4 cleanups (therefore subject to site-specific soil cleanup objectives), they were assigned a restriction level consistent with their future use.

III. Policy Recommendations for New York City and Other Jurisdictions

Based on the analysis in the previous section, as well as interviews and conversations with developers, lawyers, and consultants who have interacted with OER and used the VCP on multiple occasions, here we provide recommendations for what the city and state might do to encourage broader participation in the program by properties that would otherwise not be cleaned up, or would be cleaned up without the oversight of the city. We also indicate which features of the VCP could be replicated by other voluntary cleanup programs, whether at the state or local level.

1. Incorporating Protections Against State Enforcement and Third-Party Liability

Currently, unlike sites that enroll in New York State's program, VCP sites do not enjoy protections against state enforcement—beyond the assurances provided in the memorandum of agreement with DEC—or third-party liability. These limitations may discourage potential enrollees from applying to the VCP. This is especially concerning when a site is not E-designated or subject to an ERD and, as a result, a landowner would be able to conduct an "at-risk" cleanup and avoid government supervision of the remediation altogether. Cleanups completed without supervision are not subject to formal use restrictions and tend be less transparent with respect to the existence—and compliance with—post-cleanup site management

activities. Indeed, the vast majority of sites in the VCP were either E-designated or subject to an ERD, suggesting that obtaining OER's required approvals in those cases may be a primary motivation for participation. Adding liability protections may make the program more attractive to a wider number of owners.

There are three main ways in which VCP sites do not enjoy the same types of protections against state enforcement and third-party liability that are afforded to state BCP sites. First, as the memorandum of agreement between the state DEC and the city sets forth, while DEC does not plan to take enforcement action with respect to VCP sites, it still reserves the right to do so. Second, participation in the VCP currently provides no protection against state enforcement with respect to off-site contamination—i.e., that caused by migration of contaminants from the property that is being remediated to other nearby sites. Third, cleanups performed under the VCP do not result in a reduction of liability against actions by third parties who have incurred costs in connection with the contamination at the site enrolled in the VCP. The state program provides some protection in all three of these scenarios. The following table summarizes these differences under the two programs:

Table 9: Liability Differences Between BCP and VCP

	Liability to State (on-site contamination)	*Liability to State (off-site contamination)*	*Third-party contribution claims*
State BCP	Full legislative exemption[49]	Full legislative exemption[50]	Reduced by statute[51]
VCP	Assurances in memorandum of agreement	No exemption	No protection

In order to add any of these liability protections, the city would need to persuade the state to extend these protections to the city's program. The state's reluctance to grant liability protections for VCP sites was likely a result of doubts over whether a newly created local government agency could run a program that had always been administered at the state level in a manner that would ensure that the cleanups were sufficiently protective of the environment and human health. There are several reasons to revisit this question now. First, the cleanups carried out in the state must meet the same standards, regardless of whether they are performed under the purview of the state program or the VCP.[52] Second, the program has been in place for over seven years and, based on our conversations with various stakeholders, it is well run, and there is no reason to believe that the risks of providing additional protections are higher than those in the state program.

49 After DEC grants a certificate of completion, the enrollee is no longer liable to the state for the presence of contamination on the site. *See* N.Y. ENVTL. CONSERV. L. § 27-1421.1.

50 *See* N.Y. ENVTL. CONSERV. L. § 27-1421. "Participants," however, can be required to remediate off-site contamination before a certificate of completion for the site enrolled in the state program is issued. Participants are applicants who owned the property at the time the contaminants were released or are otherwise responsible under "applicable principles of statutory or common law liability," excluding rules or principles that impose liability based solely on ownership or operation of the site. *See* N.Y. ENVTL. CONSERV. L. § 27-1405.1.(a).

51 A person who has received a certificate of completion is not liable to third parties for costs related to the contamination that has been addressed at the site remediated under the BCP. *See* N.Y. ENVTL. CONSERV. L. § 27-1421.6; Larry Schnapf, *New York Environmental Laws Affecting Commercial Leasing Transactions*, N.Y. ST. B. ASS'N. J. 31, 33 (Jan. 2016).

52 *See* N.Y.C., N.Y., ADMIN. CODE § 24-903(d) ("Cleanup standards and remedial selection criteria shall be consistent with standards and criteria applicable to the state brownfield cleanup program").

Last, if any problem with a particular cleanup should arise, the liability protection provided to sites in the state program already offers enough flexibility to address these types of issues, and these same mechanisms could be applied to temper the liability protections incorporated to the city program. The state does not relinquish its authority to require further investigation or remediation of sites in the state program if the conditions at the site are "no longer protective of public health or the environment," the cleanup agreement has been violated, the applicant committed fraud, or there is a "change in an environmental standard, factor, or criterion."[53] Enacting state legislation that extends to the VCP the same protections against liability that the state program offers likely would encourage developers to use the VCP.

While the VCP is currently the only locally run cleanup program in the nation, our analysis of the liability protections that would make the VCP more attractive also applies to other local voluntary cleanup programs that may be created in the future. As observed with the VCP, state legislatures and agencies may be reluctant to delegate broad authority to a newly created local government agency with no proven record in overseeing brownfield cleanups. The same reservations are likely to arise when state officials and legislators are deciding whether the sites remediated under the local program should enjoy full liability protection against state enforcement actions.

While limiting assurances of non-enforcement to enrollees in local VCPs may seem to be a prudent approach to deal with concerns about the local jurisdiction's ability to monitor the quality of the cleanups, doing so makes these programs less attractive, which can lead to reduced enrollment and lower brownfield redevelopment rates in the jurisdiction. One possible middle ground is to adopt a two-stage approach. During the first stage—immediately after the program is created—protections against enforcement could be more modest, for example, providing the type of limited no-enforcement assurance from the local government that VCP sites enjoy. If, after a certain period of time or after a given number cleanups have been completed, the state determines that the remediation of sites performed under the local program meet the required standards, enrollees could be granted the more extensive liability protections offered under the state program.

2. More Detailed Inventory of Brownfields in Areas Not Subject to Zoning Amendments

As a 2007 city report pointed out, the number of acres of brownfields in New York City is uncertain, with estimates ranging from 4,000 to 7,600 acres.[54] To provide more information on the location of New York City brownfields, OER launched the Searchable Property Environmental E-Database ("SPEED") in October of 2010. In addition to aggregating existing information from state, federal, and city programs that identify brownfields or releases of polluting substances, SPEED identifies two types of vacant properties: those that may contain historic fill and sites that were zoned as either commercial or manufacturing as of 2009. While a helpful start, this database is incomplete in two ways. First, the vacant property data do not include properties that are currently underused but not vacant or those that were zoned commercial or manufacturing before 2009. Second, SPEED identifies lots in the E-designation and ERD programs thereby flagging sites with risk of contamination, but the scope of these two programs is mostly limited to rezoned areas.[55]

53 *See* N.Y. ENVTL. CONSERV. L. § 27-1421.2.

54 CITY OF NEW YORK, MAYOR MICHAEL R. BLOOMBERG, PLANNYC, A GREENER, GREATER NEW YORK 43 (2007), http://www.nyc.gov/html/planyc/downloads/pdf/publications/full_report_2007.pdf.

55 In some limited cases, sites can receive an E-designation or ERD in the context of other zoning actions such as special permits or variances. *See* RCNY § 24-04.b; § 24-03 (defining "Zoning Action").

While expanding the type of analysis currently performed under the E-designation and ERD programs could be burdensome and time-consuming, having more accurate information on whether lots across the city (not just in rezoned areas) are potentially contaminated provides several important benefits. First, it would provide a better estimate of the number, location, and total acreage of brownfields in New York City, as well as of the progress that is being made in their cleanup. Second, as explained in more detail in section III.3., more comprehensive inventories of brownfields allow policymakers to tailor cleanup programs to local conditions and better evaluate the success of VCPs. Focusing on New York City, the number of known VCP sites outside rezoned areas is very low. This could be explained either by the lower redevelopment rates of both brownfields and non-brownfields in non-rezoned areas or by the fact that the incentives that the VCP provides are not sufficient to persuade developers to use the program in non-rezoned areas—given that, in these areas, developers often have the option of conducting at-risk cleanups. Having better information about the location of brownfields in non-rezoned areas would contribute to answering this important policy question.

Third, given the requirement that OER grant its approval before the Department of Buildings may issue a building permit for E-designated or ERD sites, increasing the number of inventoried brownfields, if coupled with the same mechanism requiring OER's oversight, would inevitably lead to a higher number of supervised cleanups.

3. Assessing Whether Cleanup Programs Are Spurring Brownfield Redevelopment

There are different ways of assessing the performance of voluntary cleanup programs, e.g., number of sites enrolled in the program, number of sites cleaned up, or cleanup level attained on each site.[56] Each of these measures is undoubtedly valuable. For example, total enrollment in a cleanup program can shed some light on whether developers find it useful. These analyses, however, often fail to evaluate an important goal shared by most cleanup programs, i.e., whether the program is driving the redevelopment of brownfields that would otherwise remain vacant or underused.[57] Having this information is key to determining whether a program's current incentives—e.g., liability protections, grants, or tax credits—are set at the right levels and whether government resources going into the programs are being used efficiently.

There are two main approaches that allow this type of evaluation. Policymakers could try to obtain information on each project that has used the program and attempt to establish whether the redevelopment would have been viable under the market conditions existing at the time—that is, without any of the incentives provided by the program. This strategy can be very burdensome, especially when the number of projects enrolled in the program is high. Alternatively, one could measure whether the rate of redevelopment of brownfields has increased since the creation of the program. The main barrier complicating the feasibility of this second approach is that inventories of brownfields in many jurisdictions are incomplete

56 *See, e.g.*, Environmental Protection Agency, State Brownfields and Voluntary Response Programs (2017), https://www.epa.gov/sites/production/files/2017-12/documents/state_brownfields_voluntary_response_program_report_508_11-2017_web.pdf. (providing the number of sites remediated and sites enrolled in each state voluntary cleanup program).

57 *See* Scott Sherman, *Government Tax and Financial Incentives in Brownfields Redevelopment: Inside the Developer's Pro Forma*, 11 N.Y.U. Envtl L.J. 317, 368 (2003) (explaining that "from a policy viewpoint, the core question is whether the incentive really would spur development at a site that otherwise would not be feasible and thus would be ignored by the private sector").

and typically only provide information about sites that are already being remediated under state or federal programs. They fail to include a crucial category of brownfields: those that have not been already identified as such by a government agency. Evaluating whether a program is effectively spurring redevelopment requires information about brownfields that were redeveloped before the program was created in order to establish a baseline. This allows for a comparison of redevelopment trends of brownfields before and after the creation of the program. An increase in brownfield redevelopment rates—while controlling for general fluctuations of the real estate market—can suggest that the program is effectively promoting the cleanup of sites that would otherwise not be remediated and redeveloped.

Enrollment data alone is insufficient to conduct this type of analysis. Creating more comprehensive inventories of brownfields would provide that baseline and allow for a determination of whether a cleanup program is noticeably increasing the redevelopment of brownfields in a given jurisdiction. As noted above, New York City's E-designation and ERD programs—although limited in their geographic scope—are a good example of an inventory that can be used for this purpose, as they identify potentially contaminated sites independent of their enrollment in the VCP. For New York City, the existence of this inventory presents an opportunity for further research about the effect of the program and the role it plays in redevelopment.

Conclusion

New York City's VCP is the primary program the city runs to support the redevelopment of contaminated land. Many contaminated sites in the city are not eligible to participate in the state's remediation program, so the VCP provides a useful additional avenue for government-supervised cleanups. Since 2010, over 500 properties have enrolled in the city's VCP. As we described above, these sites are located in neighborhoods with a wide range of demographics and housing conditions. There are several measures that the city and the state could adopt to encourage broader participation in the VCP, such as providing VCP sites with liability protections similar to those offered under the state program and obtaining more accurate information on the location of brownfields. More comprehensive inventories of brownfields would also allow for more precise analyses of the effects of brownfield cleanup programs, both in New York City and elsewhere. These reforms may encourage more remediation of contaminated sites or more government-supervised remediation, contributing to environmental health and safety and the efficient use of land in neighborhoods where those sites are located.

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