



The Economic Impact of a Housing Trust Fund on the Virginia Economy

The one-time construction activities from the Virginia Housing Trust Fund can inject \$1.0 billion into the economy of the Commonwealth of Virginia between 2012 and 2022. When all construction projects are completed, the ongoing economic impact will be \$331.0 million per year, and will support 1,778 jobs in the state. The revenue projections were derived from model that assumed a \$10 million fund allocation per year for 10 years from the state.

Prepared for **Campaign For A Virginia Housing Trust Fund**

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Background

The Campaign for a Virginia Housing Trust Fund was established earlier this year by five statewide housing organizations, including the Virginia Housing Coalition, the Virginia Coalition to End Homelessness, Habitat for Humanity Virginia, Housing Opportunities Made Equal (HOME), and Virginia LISC. These groups are working together to expand affordable housing opportunities in Virginia. The Campaign is soliciting support from public, non-profit and for profit organizations as well as individuals throughout the state. The activities of the Campaign include research, education, influencing, and developing public policy that supports its goals.

To increase the access by Virginians to affordable housing options, the Campaign strongly endorses establishing the Virginia Housing Trust Fund (VHTF). The trust fund will have a consistent and dedicated revenue stream, and will be used to help develop affordable housing solutions. Chmura Economics & Analytics (Chmura) has provided an analysis for the economic impact of such a trust fund on the Virginia economy.

The economic impact from the creation and implementation of the VHTF can come from two phases: (1) the one-time impact resulting from the construction activities created by the support of the fund, and (2) the ongoing operations tied to housing (infrastructure) stock due to the trust fund's implementation. For phases (construction and ongoing sales), the direct, indirect, and induced impacts¹ in spending and job creation are estimated in this document. Chmura uses IMPLANPro[®] models² to simulate the construction and ongoing economic impact of housing construction and subsequent sales. Since the exact size of the Virginia Housing Trust Fund was undetermined at the time of this report, Chmura applied a \$10 million trust fund allocation per year for 10 years as a benchmark. The economic impact of a trust fund of a different size can be estimated proportionally. For example, the impact of a trust fund of \$20 million per year can generate twice the economic impact as that from a \$10 million trust fund per year.

Economic Impact of the One-time Construction Phase

In order to model the impacts from the one-time construction phase due to the construction of housing infrastructure, Chmura applied some basic assumptions to create a scenario for estimating construction-related economic impacts. These assumptions are explained below:

¹ Direct impact is defined as the primary economic activity generated by the project under consideration. Indirect impact is the secondary economic activity generated by the project via demand for products from suppliers. An example of an indirect impact is a construction company that purchases equipment and materials from area suppliers. The induced impact is economic activity generated when the workers at the construction projects spend their income as consumers (such as at retail, restaurants, and doctor's offices) in the region.

² *IMPLAN Professional* was created in the 1970s by the Forestry Service and is widely used by economists to estimate the impact of specific events on regional economies.

The following assumptions are made about the size of the Virginia Housing Trust Fund:

- It will receive a \$10 million fund allocation per year for 10 years from the state of Virginia.³
- Beginning in the third year, in addition to the annual fund allocation of \$10 million, the repayment of loans in the amount of \$150,000 per year will also be added to the fund. As a result, the VHTF will grow each year for a total of \$105.4 million in 10 years (Table 1).
- Eighty percent of the fund will be used for the development of new and rehabilitated housing, and 20% will be used for rental assistance, housing counseling, grants and other related programs.⁴
- Money from the VHTF will be used to leverage other investments in affordable housing. A study has found that trust funds in other states have attracted investment from other sources, with total investments amounting to seven times the value of the trust fund.⁵ As a result, the \$105.4 million invested in the trust fund over 10 years can leverage a total investment of \$590.2 million in affordable housing
- Each year’s fund allocation will be invested over a two-year time period.

On the construction side, it is assumed that the development cost is \$150,000 per unit in 2011 dollars, with \$125,000 being construction cost, and \$25,000 being soft cost such as architecture and finance expenses. ⁶ The unit development cost is expected to escalate at 2.5% per year.⁷ Based on these assumptions, the housing fund can build 3,477 total residential units in eleven years during the construction phase (see Table 1).

Table 1: Housing Trust Fund and Construction Outlay by Year

	Housing Trust Fund Per Year	Construction Cost (\$Million)	Number of Units
2012	\$10.0	\$28.0	187
2013	\$10.0	\$56.0	364
2014	\$10.2	\$56.4	358
2015	\$10.3	\$57.3	354
2016	\$10.5	\$58.1	351
2017	\$10.6	\$58.9	347
2018	\$10.8	\$59.8	344
2019	\$10.9	\$60.6	340
2020	\$11.1	\$61.5	336
2021	\$11.2	\$62.3	333
2022		\$31.4	163
Total	\$105.4	\$590.2	3,477

Source: Virginia Housing Coalition

³ For convenience, it is assumed that the 10-year period starts in 2012 and ends in 2021.

⁴ Source: Virginia Housing Coalition.

⁵ Source: “State Housing Trust Fund,” by Housing Trust Fund Project of the Center for Community Change.

⁶ The cost figure is a weighted estimate for modest rental and ownership units. Source: Virginia Housing Coalition.

⁷ The average increase in the consumer price index (CPI) from 2000 to 2010 is 2.5%.

It is estimated that the construction activities as a result of the VHTF will generate a total one-time economic impact (including direct, indirect, and induced impacts) of \$1.0 billion in Virginia from 2012 to 2022, supporting 5,893 jobs over the entire period (see Table 2).⁸ Of the total economic impact, \$572.9 million will be direct spending by investment resulting from the VHTF, with direct jobs amounting to 2,877 from 2012 to 2022 in the state.⁹ The indirect impact in Virginia will total \$228.5 million and support 1,562 jobs during the construction phase in industries supporting construction, such as site preparation and truck transportation. The induced impact is expected to total \$220.8 million with 1,454 jobs in the state during the construction period, benefitting firms in consumer service-related industries such as restaurants, hospitals, and retail stores. From 2012 to 2022, the annual average impact from construction activities will be \$92.9 million in Virginia that will support 536 jobs per year.

Table 2: Economic Impact of Housing Trust Fund Construction in Virginia, 2012-2022

		Direct	Indirect	Induced	Total Impact
Total	Spending (\$Million)	\$572.9	\$228.5	\$220.8	\$1,022.2
(2012-2022)	Employment	2,877	1,562	1,454	5,893
Annual Average	Spending	\$52.1	\$20.8	\$20.1	\$92.9
(2012-2022)	Employment	262	142	132	536

Source: VHC, Chmura, and IMPLAN 2009

Economic Impact of Ongoing Operation

The economic impact of the ongoing operation of the VHTF comes from the apartment rentals of the housing development, as well as the household spending by residents in the planned housing developments.¹⁰ Since new units will be available each year for residential use, this section analyzes the economic impact in the year 2023, when all construction activities are complete. The economic impact by individual year is listed in Appendix 2.

To estimate the operational impact of the Virginia Housing Trust Fund, Chmura assumes that two-thirds of the housing unit will be apartments and the remaining are single family houses, town houses, and condominiums that are sold.¹¹ The apartment rental rate was estimated to be \$931 per month in 2009 dollars.¹² In addition, it is assumed that the family income in the development will be 60% of the state median family income. In 2009, the median family income in the state is estimated to be \$72,193.¹³ As a

⁸ Please see Appendix 2 for the annual breakdown of the economic impact of the construction phase.

⁹ The direct spending, \$572.9 million, is smaller than \$590 million because not all supplies and services necessary for the construction will come from Virginia firms. Chmura used the IMPLAN model to estimate the percentage of construction spending that is used to purchase goods and services from outside firms.

¹⁰ Since these residents will likely live elsewhere in Virginia, the ongoing economic impacts of VHTF should not be interpreted as “new” money to Virginia. The ongoing impacts, however, can shift from locality to locality. Appendix 2 shows the tax revenue summary excluding household spending.

¹¹ Source: VHC.

¹² Source: U.S. Census American Community Survey 2005-2009.

¹³ Ibid.

result, the average family income in the development is estimated to have been \$43,316 in 2009. Taking out state and federal taxes, their disposable income is estimated to have been \$34,999 per family in 2009.¹⁴ To determine the economic impact of household spending from those living in the development, their disposable income is distributed into major spending categories such as food, clothing, transportation, and health care based on the latest Consumer Expenditure Survey.¹⁵

The total annual economic impact (direct, indirect, and induced) of the ongoing operations of the VTHF is estimated be \$331 million (measured in 2023 dollars) which can support 1,778 jobs in Virginia. In terms of the direct impact, the apartment rental income and direct household spending can reach \$172.0 million while supporting 936 permanent jobs per year starting in 2023. An additional indirect impact of \$77.8 million and 381 jobs will benefit other Virginia businesses that support the apartment rental and household spending sectors. The number of jobs created due to the induced impact will amount to 461 per year with associated annual spending of \$81.3 million. This induced impact is mostly concentrated in consumer related industries such as restaurants, doctor’s offices, and retail establishments.

Table 3: Annual Economic Impact of Housing Trust Operations (2023 Dollars)

		Direct	Indirect	Induced	Total
Apartment	Spending (\$Million)	\$38.6	\$10.5	\$5.4	\$54.5
	Employment	171	49	31	251
Household Spending	Spending (\$Million)	\$133.3	\$67.3	\$75.9	\$276.5
	Employment	765	332	430	1,527
Total Ongoing Impact	Spending (\$Million)	\$172.0	\$77.8	\$81.3	\$331.0
	Employment	936	381	461	1,778

Source: Chmura and IMPLAN 2009

Tax Revenue for State and Local Government

Both the construction and ongoing operation of the VHTF are expected to generate tax revenue for state and local governments of Virginia. In order to be conservative, only tax revenue from the direct impact is estimated.¹⁶ Since the exact locations of the VHTF projects are unknown, state average tax rates on property; personal property; meal; and business professional and occupational license (BPOL) taxes are used to calculate local tax revenues.

During the construction phase, individual and corporate income taxes are estimated to total \$6.7 million and \$2.5 million over the construction phase from 2012 to 2022 (Table 4).¹⁷ Local governments in Virginia can collect \$872,791 in BPOL tax from money spent on construction. On an annual average

¹⁴ The Federal effective tax rate (including income and payroll taxes) is assumed to be 14.2% in 2011. Source: Congressional Budget Office: Effective Federal Tax Rates Under Current Law, 2001 to 2014. Virginia income tax is assumed to be 5%.

¹⁵ The latest Consumer Expenditure Survey is for 2009. Source: Bureau of Labor Statistics.

¹⁶ This approach is recommended by Burchell and Listokin in *The Fiscal Impact Handbook*.

¹⁷ The following tax rate assumptions are used: state individual income tax rate of 5% and state corporate income tax rate of 6%. Source: Virginia Tax Department.

basis, state government can receive \$836,024 per year, while local governments can receive \$79,345 per year from construction activities.¹⁸

Table 4: Tax Revenue from Construction

	Local Taxes	State Taxes	Total Taxes
BPOL	\$872,791	N/A	\$872,791
Individual Income	N/A	\$6,663,375	\$6,663,375
Corporate Income	N/A	\$2,532,889	\$2,532,889
Total (2012-2022)	\$872,791	\$9,196,264	\$10,069,055
Annual Average (2012-2022)	\$79,345	\$836,024	\$915,369

Source: Chmura

The ongoing operations of the VHTF will also generate significant tax revenue for state and local governments. From households living in this housing, local government can collect property, personal property, sales, meal, admission, and BPOL taxes. Chmura uses the Consumer Expenditure Survey to estimate the percentage of household spending that is on meals, retail sales, and entertainment. Chmura then applies the state average tax rate to estimate tax revenues for those items. For property taxes, Chmura uses the construction cost of the residential units as the assessed value of the property. For personal property tax, Chmura assumes each household has an average 1.1 vehicles with an assessed value of \$5,100 in 2011.¹⁹

When all construction is completed in 2023, the ongoing operation of the housing developments and associated household spending can bring \$8.0 million per year to local governments in Virginia. The largest item is the estimated property tax at \$6.2 million, followed by personal property tax at \$980,971 per year. Other taxes include \$375,444 for local sales tax, \$199,941 for local meal tax, \$265,794 for BPOL tax, and \$54,782 for admission tax.²⁰

Table 5: Tax Revenue from Ongoing Operation (2023)

	Local Taxes	State Taxes	Total Taxes
Property	\$6,159,574	N/A	\$6,159,574
Personal Property	\$980,971	N/A	\$980,971
Sales Tax	\$375,444	\$1,501,774	\$1,877,218
Meal Tax	\$199,941	N/A	\$199,941
Admission Tax	\$54,782	N/A	\$54,782
BPOL Tax	\$265,794	N/A	\$265,794
Individual Income	N/A	\$2,290,763	\$2,290,763
Corporate Income	N/A	\$1,438,643	\$1,438,643
Total Taxes	\$8,036,506	\$5,231,180	\$13,267,686

Source: Chmura Economics & Analytics

¹⁸ Please see Appendix 2 for tax revenue by year.

¹⁹ Prior economic studies by Chmura used \$8,500 per vehicle. Since the household income in the development is about 60% of state average, it is assumed that vehicle value in the development is proportional to household income.

²⁰ Please see Appendix 2 for tax revenues by year.

The state government also benefits from individual income taxes as a result of the ongoing operation of the VHTF, at \$2.3 million and \$1.4 million per year after construction is complete in 2023. State sales tax is estimated to be \$1.5 million per year. Total state tax revenues can reach \$5.2 million per year in 2023.

The summarized annual and cumulative tax revenues for local and state governments from 2012 to 2023 are shown in Table 6. Combining local and state tax revenues, starting from 2020, the annual tax revenues from the Virginia Housing Trust Fund will exceed the state investment of \$10 million per year. By the year 2023, the cumulative local and state tax revenues are estimated to reach \$49.9 million and \$41.1 million, for total cumulative tax revenues of \$91.0 million in twelve years.²¹

Table 6: Summary of Local and State Tax Revenues (\$Million)

	Annual Local	Annual State	Annual Total	Cumulative Local	Cumulative State	Cumulative Total
	Taxes	Taxes	Taxes	Taxes	Taxes	Taxes
2012	\$0.04	\$0.44	\$0.48	\$0.04	\$0.44	\$0.48
2013	\$0.51	\$1.15	\$1.67	\$0.56	\$1.59	\$2.15
2014	\$1.36	\$1.71	\$3.06	\$1.91	\$3.30	\$5.21
2015	\$2.19	\$2.26	\$4.44	\$4.10	\$5.56	\$9.65
2016	\$3.01	\$2.81	\$5.81	\$7.10	\$8.36	\$15.47
2017	\$3.82	\$3.35	\$7.16	\$10.92	\$11.71	\$22.63
2018	\$4.62	\$3.88	\$8.50	\$15.54	\$15.59	\$31.13
2019	\$5.42	\$4.41	\$9.83	\$20.96	\$20.00	\$40.96
2020	\$6.20	\$4.94	\$11.14	\$27.16	\$24.94	\$52.10
2021	\$6.98	\$5.46	\$12.44	\$34.15	\$30.40	\$64.54
2022	\$7.71	\$5.47	\$13.18	\$41.85	\$35.87	\$77.72
2023	\$8.04	\$5.23	\$13.27	\$49.89	\$41.10	\$90.99

Source: Chmura Economics & Analytics

²¹ Please see Appendix 1 for the tax revenue summary excluding household spending.



Appendix 1: Tax Summary Excluding Household Spending

In the scenario below, the \$10 million annual investment by the state of Virginia continues over the period shown and household spending is not counted as part of the ongoing operations of the new housing. In this case, the associated local and state taxes are estimated to exceed the \$10 million investment by the year 2025.

Summary of Local and State Tax Revenues (Excluding Household Spending, Funding over 10 years, \$Million)

	Annual Local Taxes	Annual State Taxes	Annual Total Taxes	Cumulative Local Taxes	Cumulative State Taxes	Cumulative Total Taxes
2012	\$0.04	\$0.44	\$0.48	\$0.04	\$0.44	\$0.48
2013	\$0.42	\$0.95	\$1.37	\$0.46	\$1.38	\$1.84
2014	\$1.08	\$1.10	\$2.18	\$1.54	\$2.48	\$4.02
2015	\$1.73	\$1.25	\$2.98	\$3.27	\$3.73	\$7.00
2016	\$2.37	\$1.40	\$3.77	\$5.64	\$5.13	\$10.77
2017	\$3.01	\$1.56	\$4.56	\$8.64	\$6.69	\$15.34
2018	\$3.63	\$1.71	\$5.34	\$12.28	\$8.40	\$20.68
2019	\$4.26	\$1.86	\$6.11	\$16.54	\$10.25	\$26.79
2020	\$4.87	\$2.00	\$6.88	\$21.41	\$12.25	\$33.66
2021	\$5.48	\$2.15	\$7.63	\$26.89	\$14.40	\$41.30
2022	\$6.09	\$2.30	\$8.39	\$32.98	\$16.71	\$49.69
2023	\$6.69	\$2.46	\$9.15	\$39.67	\$19.17	\$58.83
2024	\$7.29	\$2.62	\$9.91	\$46.96	\$21.78	\$68.74
2025	\$7.89	\$2.77	\$10.66	\$54.85	\$24.56	\$79.40
2026	\$8.39	\$1.83	\$10.22	\$63.24	\$26.39	\$89.62
2027	\$8.99	\$1.96	\$10.95	\$72.22	\$28.35	\$100.58

Source: Chmura

Appendix 2: Detailed Impact Tables by Year

Construction Impact by Year

Year	Spending (\$Million in Current Dollars)				Employment			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
2012	\$27.2	\$10.8	\$10.5	\$48.5	154	84	78	316
2013	\$54.4	\$21.7	\$20.9	\$97.0	301	164	152	617
2014	\$54.8	\$21.8	\$21.1	\$97.7	296	161	150	607
2015	\$55.6	\$22.2	\$21.4	\$99.2	293	159	148	601
2016	\$56.4	\$22.5	\$21.7	\$100.6	290	158	147	595
2017	\$57.2	\$22.8	\$22.0	\$102.1	287	156	145	589
2018	\$58.0	\$23.1	\$22.4	\$103.5	284	154	144	582
2019	\$58.8	\$23.5	\$22.7	\$105.0	281	153	142	576
2020	\$59.7	\$23.8	\$23.0	\$106.4	278	151	141	570
2021	\$60.5	\$24.1	\$23.3	\$107.9	275	149	139	564
2022	\$30.4	\$12.1	\$11.7	\$54.3	135	73	68	277
Total	\$572.9	\$228.5	\$220.8	\$1,022.2	2,877	1,562	1,454	5,893
Annual Average	\$52.1	\$20.8	\$20.1	\$92.9	262	142	132	536

Source: Chmura

Operation Impact by Year

Year	Spending (\$Million in Current Dollars)				Employment			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
2012	\$0.0	\$0.0	\$0.0	\$0.0	0	0	0	0
2013	\$7.2	\$3.3	\$3.4	\$13.9	50	20	25	95
2014	\$21.8	\$9.9	\$10.3	\$42.0	148	60	73	282
2015	\$36.9	\$16.7	\$17.4	\$71.0	245	100	120	465
2016	\$52.6	\$23.8	\$24.8	\$101.2	340	139	167	646
2017	\$68.8	\$31.1	\$32.5	\$132.5	435	177	214	826
2018	\$85.7	\$38.8	\$40.5	\$165.0	528	215	260	1,003
2019	\$103.3	\$46.7	\$48.8	\$198.8	620	253	306	1,179
2020	\$121.5	\$54.9	\$57.4	\$233.8	712	290	351	1,353
2021	\$140.3	\$63.5	\$66.3	\$270.1	803	327	395	1,525
2022	\$159.9	\$72.3	\$75.6	\$307.8	892	364	439	1,695
2023	\$172.0	\$77.8	\$81.3	\$331.0	936	381	461	1,778

Source: Chmura

Taxes From Construction Activities (Current \$)

	BPOL	Individual Income	Corporate Income	Total Local Taxes	Total State Taxes
2012	\$50,033	\$361,205	\$102,604	\$50,033	\$463,809
2013	\$100,067	\$722,410	\$205,208	\$100,067	\$927,617
2014	\$100,817	\$727,828	\$206,747	\$100,817	\$934,575
2015	\$102,318	\$738,664	\$209,825	\$102,318	\$948,489
2016	\$103,819	\$749,500	\$212,903	\$103,819	\$962,403
2017	\$105,320	\$760,336	\$215,981	\$105,320	\$976,317
2018	\$106,821	\$771,172	\$219,059	\$106,821	\$990,232
2019	\$108,322	\$782,009	\$222,137	\$108,322	\$1,004,146
2020	\$109,823	\$792,845	\$225,216	\$109,823	\$1,018,060
2021	\$111,324	\$803,681	\$228,294	\$111,324	\$1,031,974
2022	\$56,037	\$404,549	\$114,916	\$56,037	\$519,466
Total	\$1,054,702	\$7,614,198	\$2,162,890	\$1,054,702	\$9,777,088
Annual Average	\$95,882	\$692,200	\$196,626	\$95,882	\$888,826

Source: Chmura

Taxes from Ongoing Operations (Current \$)

	Real Estate Tax	Personal Property Tax	Sales Tax	Meal Tax	Admission Tax	BPOL Tax	State Sales Tax	Individual Income Tax	Corporate Income Tax	Total Local Tax	Total State Tax
2012	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2013	\$330,646	\$52,659	\$20,154	\$10,733	\$2,941	\$14,268	\$80,615	\$122,968	\$77,226	\$431,400	\$280,810
2014	\$975,808	\$155,407	\$59,478	\$31,675	\$8,679	\$42,107	\$237,913	\$362,906	\$227,912	\$1,273,155	\$828,731
2015	\$1,609,956	\$256,401	\$98,131	\$52,260	\$14,319	\$69,472	\$392,526	\$598,747	\$376,025	\$2,100,538	\$1,367,298
2016	\$2,237,848	\$356,399	\$136,403	\$72,641	\$19,903	\$96,566	\$545,613	\$832,262	\$522,676	\$2,919,760	\$1,900,551
2017	\$2,859,412	\$455,389	\$174,289	\$92,817	\$25,431	\$123,387	\$697,157	\$1,063,423	\$667,850	\$3,730,725	\$2,428,431
2018	\$3,474,583	\$553,361	\$211,786	\$112,786	\$30,902	\$149,933	\$847,143	\$1,292,207	\$811,531	\$4,533,350	\$2,950,881
2019	\$4,083,303	\$650,305	\$248,889	\$132,545	\$36,316	\$176,200	\$995,556	\$1,518,592	\$953,705	\$5,327,558	\$3,467,852
2020	\$4,685,521	\$746,214	\$285,596	\$152,093	\$41,672	\$202,187	\$1,142,383	\$1,742,559	\$1,094,360	\$6,113,283	\$3,979,302
2021	\$5,281,192	\$841,080	\$321,904	\$171,429	\$46,970	\$227,891	\$1,287,615	\$1,964,090	\$1,233,486	\$6,890,466	\$4,485,192
2022	\$5,870,278	\$934,898	\$357,810	\$190,551	\$52,209	\$253,310	\$1,431,241	\$2,183,173	\$1,371,074	\$7,659,056	\$4,985,488
2023	\$6,159,574	\$980,971	\$375,444	\$199,941	\$54,782	\$265,794	\$1,501,774	\$2,290,763	\$1,438,643	\$8,036,506	\$5,231,180

Source: Chmura

Appendix 3: Impact Study Glossary

IMPLAN Professional is an economic impact assessment modeling system. It allows the user to build economic models to estimate the impact of economic changes in states, counties, or communities. It was created in the 1970s by the Forestry Service and is widely used by economists to estimate the impact of specific event on the overall economy.

Input-Out Analysis—an examination of business-business and business-consumer economic relationships capturing all monetary transactions in a given period, allowing one to calculate the effects of a change in an economic activity on the entire economy (impact analysis).

Direct Impact—economic activity generated by a project or operation. For construction, this represents activity of the contractor; for operations, this represents activity by tenants of the property.

Overhead—construction inputs not provided by the contractor.

Indirect Impact—secondary economic activity that is generated by a project or operation. An example might be a new office building generating demand for parking garages.

Induced (Household) Impact—economic activity generated by household income resulting from the direct and indirect impact.

Multiplier—the cumulative impacts of a unit change in economic activity on the entire economy.