PIONEER MUNICIPAL HIGH INCOME TRUST Form N-Q April 03, 2017

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM N-Q

QUARTERLY SCHEDULE OF PORTFOLIO HOLDINGS OF REGISTERED MANAGEMENT INVESTMENT COMPANY

Investment Company Act file number 811-21321

Pioneer Municipal High Income Trust (Exact name of registrant as specified in charter)

60 State Street, Boston, MA 02109 (Address of principal executive offices) (ZIP code)

Terrence J. Cullen, Pioneer Investment Management, Inc., 60 State Street, Boston, MA 02109 (Name and address of agent for service)

Registrant's telephone number, including area code: (617) 742-7825

Date of fiscal year end: April 30

Date of reporting period: January 31, 2017

Form N-Q is to be used by management investment companies, other than small business investment companies registered on Form N-5 (239.24 and 274.5 of this chapter), to file reports with the Commission, not later than 60 days after close of the first and third fiscal quarters, pursuant to Rule 30b1-5 under the Investment Company Act of 1940 (17 CFR 270.30b1-5). The Commission may use the information provided on Form N-Q in its regulatory, disclosure review, inspection, and policymaking roles.

A registrant is required to disclose the information specified by Form N-Q, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-Q unless the Form displays a currently valid Office of Management and Budget ("OMB") control number. Please direct comments concerning the accuracy of the information collection burden estimate and any suggestions for reducing the burden to Secretary, Securities and Exchange Commission, 450 Fifth Street, NW, Washington, DC 20549-0609. The OMB has reviewed this collection of information under the clearance requirements of 44 U.S.C. ss. 3507.

<PAGE>

ITEM 1. Schedule of Investments.

File the schedules as of the close of the reporting period as set forth in ss. 210.12-12 12-14 of Regulation S-X [17 CFR 210.12-12 12-14]. The

schedules need not be audited.

Pioneer Municipal High Income Trust

NQ | January 31, 2017

Ticker Symbol: MHI

Principal Amount USD (\$)		Value
4,500,000	TAX EXEMPT OBLIGATIONS - 135.0% of Net Assets (a) Alabama - 1.5% Huntsville-Redstone Village Special Care Facilities Financing Authority, Padstone Village Project 5.5% 1/1/43	\$4.450.725
	Redstone Village Project, 5.5%, 1/1/43	\$4,450,725 -
	Arizona - 0.7%	
2,250,000	City of Phoenix, AZ, Industrial	
	Development Authority, 3rd & Indian School Assisted Living Project, 5.4%, 10/1/36	\$2,031,480
24,000	County of Pima, AZ, Industrial Development Authority, Arizona Charter Schools Project, Series C,	
	6.75%, 7/1/31	24,099
		\$2,055,579
10,000,000(b)	California - 10.7% California County Tobacco Securitization Agency, Capital	\$1,212,100

	Appreciation, Stanislaus County	
	Subordinated, Series A, 6/1/46	
1,450,000	California Enterprise Development	
1,430,000	Authority, Sunpower Corp., 8.5%,	
	4/1/31	1,588,069
650,000	California Municipal Finance	1,500,005
050,000	Authority, Santa Rosa Academy	
	Project, Series A, 5.75%, 7/1/30	690,891
5,000,000	California Pollution Control Financing	0,0,0,1
-,,	Authority, 5.0%, 7/1/37 (144A)	5,011,000
1,740,000	California School Finance Authority,	, ,
	Classical Academies Project, Series A,	
	7.375%, 10/1/43	2,015,407
1,400,000	California Statewide Communities	
	Development Authority, Lancer Plaza	
	Project, 5.625%, 11/1/33	1,430,982
568,006(c)	California Statewide Communities	
	Development Authority, Microgy	
	Holdings Project, 9.0%, 12/1/38	6
7,885,000(d)	Lehman Municipal Trust Receipts, RIB,	
	11.875%, 11/1/39 (144A) (AGM	
• • • • • • • • • • • • • • • • • • • •	Insured)	9,017,523
2,000,000(e)	Los Angeles Community College	• 064.440
1 (05 000	District, Series G, 4.0%, 8/1/39	2,064,140
1,605,000	Los Angeles County Metropolitan	
	Transportation Authority, Series A,	1 024 426
1,000,000	5.0%, 7/1/30 Piver Islands Public Financing	1,934,426
1,000,000	River Islands Public Financing Authority, Community Facilities, 5.5%,	
	9/1/45	1,051,410
2,000,000	Tobacco Securitization Authority of	1,031,410
2,000,000	Northern California, Asset-Backed,	
	Series A-1, 5.375%, 6/1/38	1,932,380
3,000,000	Tobacco Securitization Authority of	1,752,500
2,000,000	Southern California, Series A-1, 5.0%,	
	6/1/37	2,906,370
		\$30,854,704
	Colorado - 1.3%	
1,500,000	Colorado Educational & Cultural	
	Facilities Authority, Rocky Mountain	
	Classical Academy Project, 8.0%,	
	9/1/43	\$1,662,795
2,000,000	Colorado Health Facilities Authority,	
	Valley View Association Project,	
	5.25%, 5/15/42	2,015,680
	G	\$3,678,475
2 225 000	Connecticut - 3.0%	
2,235,000	Mohegan Tribal Finance Authority,	ф о 010 060
5 000 000(-)	7.0%, 2/1/45 (144A) State of Connections Series F. 4.0%	\$2,313,068
5,000,000(e)	State of Connecticut, Series E, 4.0%,	5 212 550
	9/1/30	5,212,550

1,000,000	Town of Hamden, CT, Whitney Center Project, Series A, 7.75%, 1/1/43	1,024,430 \$8,550,048
25,000,000(b)	District of Columbia - 5.1% District of Columbia Tobacco Settlement Financing Corp., Capital Appreciation, Asset-Backed, Series A,	40,000,000
4,885,000	6/15/46 District of Columbia Tobacco	2,839,250
6,000,000	Settlement Financing Corp., Asset-Backed, 6.5%, 5/15/33 District of Columbia Tobacco	\$5,534,852
0,000,000	Settlement Financing Corp., Asset-Backed, 6.75%, 5/15/40	6,149,880
	Florida - 5.0%	\$14,523,982
1,500,000	Alachua County Health Facilities Authority, Terraces Bonita Springs	
1,500,000	Project, Series A, 8.125%, 11/15/41 Alachua County Health Facilities	\$1,730,715
2.260.000(a)	Authority, Terraces Bonita Springs Project, Series A, 8.125%, 11/15/46 County of Liberty, FL, Twin Oaks	1,727,925
2,260,000(c)	Project, 8.25%, 7/1/28	203,265
2,500,000(f)	County of Miami-Dade, FL, Aviation Revenue, Series B, 5.5%, 10/1/41	2,775,300
5,000,000	Florida's Turnpike Enterprise, Department of Transportation, Series A, 4.0%, 7/1/34	5,178,500
1,000,000(f)	Hillsborough County Industrial Development Authority, Various Health	
2,250,000(c)(d)	Facilities, 8.0%, 8/15/32 St. Johns County Industrial Development Authority, Glenmoor	1,175,990
832,581(c)	Project, Series A, 1.344%, 1/1/49 St. Johns County Industrial	1,440,000
	Development Authority, Glenmoor Project, Series B, 2.5%, 1/1/49	8 \$14,231,703
Principal Amount USD (\$)		Value
	Georgia - 2.6%	, and
2,500,000	Clayton County Development Authority, Delta Air Lines, Series A, 8.75%, 6/1/29	\$2,964,125
4,000,000	Private Colleges & Universities Authority, Emory University, Series A, 5.0%, 10/1/43	4,510,880
	Idaho - 1.7%	\$7,475,005

5,000,000	Power County Industrial Development Corp., FMC Corp. Project, 6.45%, 8/1/32	\$5,008,200 -
2 007 000(4)	Illinois - 14.6%	
2,087,000(d)	Illinois Finance Authority, Clare Oaks Project, Series B, 4.0%, 11/15/52	\$1,468,058
1,305,000(b)	Illinois Finance Authority, Clare Oaks	
261,000(b)	Project, Series C-1, 11/15/52 Illinois Finance Authority, Clare Oaks	46,197
201,000(0)	Project, Series C-2, 11/15/52	71,073
261,000(b)	Illinois Finance Authority, Clare Oaks	11 601
2,000,000(c)	Project, Series C-3, 11/15/52 Illinois Finance Authority, Greenfields	44,681
, , , , , ,	of Geneva Project, Series A, 8.125%,	
2,500,000(c)	2/15/40 Illinois Finance Authority, Greenfields	1,345,000
2,300,000(0)	of Geneva Project, Series A, 8.25%,	
2 000 000	2/15/46	1,681,250
2,000,000	Illinois Finance Authority, Northwestern Memorial Hospital,	
	Series A, 6.0%, 8/15/39	2,207,020
2,500,000	Illinois Finance Authority, Roosevelt University Project, 6.5%, 4/1/39	2 577 225
3,865,000(f)	Illinois Finance Authority, Swedish	2,577,225
1 700 000	Covenant, Series A, 6.0%, 8/15/38	4,392,147
1,700,000	Illinois Finance Authority, The Admiral at the Lake Project, Series A, 7.625%,	
	5/15/25	1,893,715
600,000	Illinois Finance Authority, The Admiral	
	at the Lake Project, Series A, 7.75%, 5/15/30	668,700
2,000,000	Illinois Finance Authority, The Admiral	
	at the Lake Project, Series A, 8.0%, 5/15/40	2,231,200
3,200,000	Illinois Finance Authority, The Admiral	2,201,200
	at the Lake Project, Series A, 8.0%, 5/15/46	3,560,672
1,485,000(b)(g)	Metropolitan Pier & Exposition	3,300,072
	Authority, McCormick Place, Series B,	1 704 570
15,395,000(b)	6/15/22 (NATL Insured) Metropolitan Pier & Exposition	1,704,572
, , , , , ,	Authority, McCormick Place, Series B,	
1,045,000	6/15/22 (NATL Insured) Southwestern Illinois Development	17,033,028
1,045,000	Authority, Village of Sauget Project,	
	5.625%, 11/1/26	921,345
	Indiana - 1.8%	\$41,845,883
250,000	City of Carmel, IN, Barrington Carmel	425 0 5 15
	Project, Series A, 7.0%, 11/15/32	\$270,742

750,000	City of Council IN Dominator Council	
750,000	City of Carmel, IN, Barrington Carmel Project, Series A, 7.125%, 11/15/42	812,963
500,000	City of Carmel, IN, Barrington Carmel	012,703
200,000	Project, Series A, 7.125%, 11/15/47	540,685
3,570,000(f)	Vigo County Hospital Authority, Union	2 10,002
- , , ()	Hospital, Inc., 5.8%, 9/1/47 (144A)	3,671,638
	• • • • • • • • • • • • • • • • • • • •	\$5,296,028
	Kentucky - 1.9%	
5,000,000	Kentucky Economic Development	
	Finance Authority, Owensboro Medical	
	Health System, Series A, 6.375%,	
	6/1/40	\$5,443,350
	Y 0.16	_
2.260.000	Louisiana - 3.1%	
2,260,000	Jefferson Parish Hospital Service	
	District No. 2, East Jefferson General	\$2,383,961
1,500,000	Hospital, 6.375%, 7/1/41 Louisiana Local Government	\$2,363,901
1,300,000	Environmental Facilities & Community	
	Development Authority, Westlake	
	Chemical Corp. Project, 6.75%, 11/1/32	1,546,650
1,380,000(f)	Louisiana Public Facilities Authority,	1,540,050
1,500,000(1)	Ochsner Clinic Foundation Project,	
	Series A, 5.5%, 5/15/47	1,398,395
3,620,000	Louisiana Public Facilities Authority,	1,000,000
-,,	Ochsner Clinic Foundation Project,	
	Series A, 5.5%, 5/15/47	3,649,576
		\$8,978,582
	Maine - 2.3%	
1,500,000	Maine Health & Higher Educational	
	Facilities Authority, Maine General	
	Medical Center, 7.5%, 7/1/32	\$1,699,845
4,480,000	Maine Turnpike Authority, Series A,	
	5.0%, 7/1/42	4,979,251
		\$6,679,096
1 400 000	Maryland - 0.6%	
1,480,000	Maryland Health & Higher Educational	
	Facilities Authority, City Neighbors,	¢1 (07 502
	Series A, 6.75%, 7/1/44	\$1,607,502
	Massachusetts - 9.9%	_
7,000,000(b)	Massachusetts Bay Transportation	
7,000,000(0)	Authority, Series A, 7/1/28	\$4,937,940
5,000,000	Massachusetts Development Finance	Ψ1,237,210
3,000,000	Agency, Harvard University, Series A,	
	5.0%, 7/15/40	6,361,300
1,000,000	Massachusetts Development Finance	- ,,
, , , -	Agency, Linden Ponds, Inc., Series A,	
	4.68%, 11/15/21 (144A)	993,380
Principal		Value
Amount		

USD (\$)		
0.00 (+)	Massachusetts - (continued)	
975,158	Massachusetts Development Finance	
	Agency, Linden Ponds, Inc., Series A-1,	
	5.5%, 11/15/46	\$874,941
7,100,000	Massachusetts Development Finance	
	Agency, WGBH Foundation, Series A,	
	5.75%, 1/1/42 (AMBAC Insured)	9,190,950
380,000	Massachusetts Educational Financing	
,	Authority, Series I, 6.0%, 1/1/28	400,144
1,575,000(d)	Massachusetts Health & Educational	,
, , , , , ,	Facilities Authority, Children's Hospital	
	Corp., Series N-4, 0.62%, 10/1/49	1,575,000
3,100,000	Massachusetts Health & Educational	, ,
-,,	Facilities Authority, Massachusetts	
	Institute of Technology, Series K, 5.5%,	
	7/1/32	4,032,976
		\$28,366,631
	Michigan - 3.7%	, _ 0, 0 0 0, 0 0
895,000(c)	Doctor Charles Drew Academy,	
0,5,000(0)	Certificate of Participation, 5.7%,	
	11/1/36	\$ 44,741
2,000,000(f)	Kent Hospital Finance Authority,	Ψ 11,711
2,000,000(1)	Metropolitan Hospital Project, Series A,	
	6.25%, 7/1/40	2,006,920
2,640,000	Michigan State University, Series A,	2,000,720
2,040,000	5.0%, 8/15/41	2,973,062
6,100,000	Michigan Tobacco Settlement Finance	2,773,002
0,100,000	Authority, Series A, 6.0%, 6/1/48	5,597,055
	Authority, Series A, 0.0 %, 0/1/40	\$10,621,778
	Minnesota - 4.1%	\$10,021,770
2,000,000	Bloomington Port Authority, Radisson	
2,000,000	Blu Mall of America, 9.0%, 12/1/35	\$2,118,600
2 200 000	City of Rochester, MN, Mayo Clinic,	\$2,110,000
2,300,000	Series B, 5.0%, 11/15/35	2,811,382
6,000,000(e)	State of Minnesota, Series B, 4.0%,	2,011,302
0,000,000(e)	8/1/27	6,756,480
	0/1/2/	\$11,686,462
	Micricainni 1 10%	\$11,000,402
290,000(4)	Mississippi - 1.1% Mississippi Pusipass Financa Corp	
380,000(d)	Mississippi Business Finance Corp.,	
	Chevron USA, Inc., Project, Series B,	\$290,000
705 000(4)	0.6%, 12/1/30 Mississinni Business Finance Com	\$380,000
705,000(d)	Mississippi Business Finance Corp.,	
	Chevron USA, Inc., Project, Series C,	705 000
2 000 000(4)	0.59%, 12/1/30 Missississis Pusings Finance Com	705,000
2,000,000(d)	Mississippi Business Finance Corp.,	
	Chevron USA, Inc., Project, Series F,	2 000 000
	0.6%, 12/1/30	2,000,000
	Montono 0.00/ +	\$3,085,000
1 600 000(~)	Montana - 0.0% †	¢ 47.606
1,600,000(c)		\$ 47,696

	Two Rivers Authority, Inc., 7.375%, 11/1/27	
3,000,000	New Jersey - 2.0% New Jersey Economic Development	_
2,500,000	Authority, Continental Airlines, 5.25%, 9/15/29 New Jersey Economic Development	\$3,156,990
2,300,000	Authority, Continental Airlines, 5.75%, 9/15/27	2,674,050
	New Mexico - 1.5%	\$5,831,040
1,500,000	County of Otero, NM, Otero County Jail Project, 6.0%, 4/1/23	\$1,438,740
2,960,000	County of Otero, NM, Otero County Jail Project, 6.0%, 4/1/28	2,753,925 \$4,192,665
2,000,000	New York - 5.6% Hempstead Local Development Corp.,	
1,000,000	Molloy College Project, 5.75%, 7/1/39 New York State Dormitory Authority,	\$2,142,720
7.500.000	Orange Medical Center, 6.125%, 12/1/29	1,079,510
7,500,000	New York State Dormitory Authority, Series C, 5.0%, 3/15/39	8,414,325
1,500,000	New York State Dormitory Authority, Trustees of Columbia University, 5.0%, 10/1/45	1,956,990
2,497,540	Westchester County Healthcare Corp., Series A, 5.0%, 11/1/44	2,631,608
	North Dakota - 1.0%	\$16,225,153
2,525,000(f)	County of Burleigh, ND, St. Alexius Medical Center, 5.0%, 7/1/38	\$2,937,408 -
1,325,000	Ohio - 6.1% Buckeye Tobacco Settlement Financing Authority, Asset-Backed, Series A-2,	
2,500,000	5.75%, 6/1/34 Buckeye Tobacco Settlement Financing Authority, Asset-Backed, Series A-2,	\$1,202,106
1,700,000	5.875%, 6/1/47 Buckeye Tobacco Settlement Financing	2,284,375
6,000,000	Authority, Asset-Backed, Series A-2, 6.0%, 6/1/42 Buckeye Tobacco Settlement Financing	1,562,028
2,000,000	Authority, Asset-Backed, Series A-2, 6.5%, 6/1/47	5,872,620
2,000,000(d)	Ohio Air Quality Development Authority, FirstEnergy Generation	
	Corp. Project, 3.1%, 3/1/23	840,840

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3,000,000(d)	Ohio Air Quality Development Authority, FirstEnergy Solutions Corp.	
2,500,000(e)	Project, Series D, 4.25%, 8/1/29 State of Ohio, Common Schools, Series	2,759,190
	B, 5.0%, 6/15/29	2,883,450 \$17,404,609
5,190,000	Oregon - 2.0% Oregon Health & Science University,	
3,190,000	Series E, 5.0%, 7/1/32	\$5,768,322 -
Principal		
Amount USD (\$)		Value
CSD (ψ)	Pennsylvania - 6.9%	varue
1,550,000	Allegheny County Hospital	
	Development Authority, South Hills	
2 000 000(4)	Health, Series A, 5.125%, 5/1/25	\$1,551,659
3,000,000(d)	Beaver County Industrial Development Authority, FirstEnergy Solutions Corp.	
	Project, Series A, 3.5%, 4/1/41	1,239,090
1,280,000(c)	Langhorne Manor Borough Higher	,,
	Education Authority, Lower Bucks	
	Hospital, 7.35%, 7/1/22	313,651
5,000,000	Pennsylvania Economic Development	
	Financing Authority, USG Corp. Project, 6.0%, 6/1/31	4,917,050
500,000	Philadelphia Authority for Industrial	4,517,050
,	Development, Greater Philadelphia	
	Health Action, Inc., Project, Series A,	
2 000 000	6.625%, 6/1/50	511,005
2,000,000	Philadelphia Authority for Industrial Development, Nueva Esperanze, Inc.,	
	8.2%, 12/1/43	2,269,440
1,000,000	Philadelphia Authority for Industrial	2,200,110
	Development, Performing Arts Charter	
	School Project, 6.5%, 6/15/33 (144A)	1,045,950
2,000,000	Philadelphia Authority for Industrial	
	Development, Performing Arts Charter School Project, 6.75%, 6/15/43 (144A)	2,101,220
5,900,000	Philadelphia Hospitals & Higher	2,101,220
- , ,	Education Facilities Authority, Temple	
	University Health System, Series A,	
	5.0%, 7/1/34	5,923,718
	Puerto Rico - 1.5%	\$19,872,783
6,255,000(c)(e)		
5, <u>_</u> 25,000(c)(c)	A, 8.0%, 7/1/35	\$4,448,869
	•	_
	Rhode Island - 1.4%	
5,900,000(c)	Central Falls Detention Facility Corp.,	¢1 4C1 704
	7.25%, 7/15/35	\$1,461,784

1,500,000(f)	Rhode Island Health & Educational Building Corp., Tockwatten Home	
10,000,000(b)	Issue, 8.375%, 1/1/46 Tobacco Settlement Financing Corp.,	1,861,035
-,,(-,	Asset-Backed, Series A, 6/1/52	751,800 \$4,074,619
1,000,000	Texas - 15.0% Arlington Higher Education Finance Corp., Universal Academy, Series A,	
2 500 000(f)	7.0%, 3/1/34	\$1,014,210
2,500,000(f)	Central Texas Regional Mobility Authority, Sub Lien, 6.75%, 1/1/41	2,984,750
2,490,000(e)	County of Harris, TX, Series A, 5.0%, 10/1/26	2,982,472
5,000,000(e)	Goose Creek Consolidated Independent School District, Series C, 4.0%, 2/15/26	5.540.000
725,078(c)	(PSF-GTD Insured) Gulf Coast Industrial Development	5,549,900
1 400 000(1)	Authority, Microgy Holdings Project, 7.0%, 12/1/36	7
1,490,000(d)	Harris County Health Facilities Development Corp., The Methodist Hospital System, Series A-1, 0.62%, 12/1/41	1,490,000
3,270,000(d)	Harris County Health Facilities Development Corp., The Methodist Hospital System, Series A-2, 0.62%,	1,490,000
2.705.000	12/1/41	3,270,000
3,785,000	North Texas Tollway Authority, Series A, 5.0%, 1/1/35	4,185,529
10,000,000(f)	North Texas Tollway Authority, Series F, 5.75%, 1/1/33	10,434,100
1,500,000(f)	Red River Health Facilities Development Corp., MRC Crestview, Series A 8 0% 11/15/41	1 022 445
3,960,000(h)	Series A, 8.0%, 11/15/41 Sanger Industrial Development Corp., Texas Pellets Project, Series B, 8.0%,	1,922,445
1,000,000	7/1/38 Tarrant County Cultural Education Facilities Finance Corp., Mirador	2,376,000
1,000,000	Project, Series A, 8.125%, 11/15/39 Tarrant County Cultural Education Facilities Finance Corp., Mirador	800,000
2,000,000(f)	Project, Series A, 8.25%, 11/15/44 Tarrant County Cultural Education Facilities Finance Corp., MRC	800,000
2,500,000	Crestview Project, 8.0%, 11/15/34 Travis County Health Facilities	2,463,500
	Development Corp., Longhorn Village Project, 7.125%, 1/1/46	2,719,575 \$42,992,488

	Virginia - 2.0%	
1,415,000(e)	County of Fairfax, VA, Series A, 4.0%,	
	10/1/33 (ST AID WITHHLDG Insured)	\$1,521,295
4,000,000	Upper Occoquan Sewage Authority,	
, ,	4.0%, 7/1/41	4,141,680
	,	\$5,662,975
	Washington - 9.6%	Ψ3,002,773
3,745,000	City of Seattle, WA, Water System	
3,743,000		¢4.006.280
2.500.000()	Revenue, 4.0%, 8/1/32	\$4,006,289
2,500,000(e)	King County Issaquah School District	
	No. 411, 4.0%, 12/1/31 (SCH BD GTY	
	Insured)	2,666,425
14,315,000(b)(e)State of Washington, Motor Vehicle	
	Sales Tax, Series C, 6/1/22 (NATL	
	Insured)	12,715,585
2,500,000	University of Washington, Series B,	
	5.0%, 6/1/29	2,927,475
3,795,000(f)	Washington State Health Care Facilities	
, , , , , ,	Authority, Fred Hutchinson Cancer	
	Research Center, Series A, 6.0%, 1/1/33	4,206,416
1,150,000	Washington State Housing Finance	.,200, .10
1,130,000	Commission, Mirabella Project, Series	
	•	1 102 200
	A, 6.75%, 10/1/47 (144A)	1,193,309
	W W 0.70	\$27,715,499
• • • • • • • • • • • • • • • • • • • •	West Virginia - 0.7%	
2,000,000(c)	City of Philippi, WV,	
	Alderson-Broaddus College, Inc., Series	
	A, 7.75%, 10/1/44	\$1,200,000
Principal		
Amount		
USD (\$)		Value
	West Virginia - (continued)	
725,000(c)	West Virginia Hospital Finance	
, , ,	Authority, Highland Hospital Group,	
	9.125%, 10/1/41	\$670,407
	7.125 /c, 16/1/ 11	\$1,870,407
	Wisconsin - 5.0%	Ψ1,070,107
5,000,000	Public Finance Authority, Glenridge	
3,000,000	Palmer Ranch, Series A, 8.25%, 6/1/46	\$5,045,200
750,000		\$5,945,200
750,000	Public Finance Authority, Roseman	
	University Health Sciences Project,	765.765
. =	5.875%, 4/1/45	765,765
1,500,000	Public Finance Authority, SearStone	
	CCRC Project, Series A, 8.625%,	
	6/1/47 (144A)	1,704,165
5,000,000	Wisconsin Department of	
	Transportation, Series A, 5.0%, 7/1/28	5,852,450
		\$14,267,580
	TOTAL TAX EXEMPT	
	OBLIGATIONS (Cost \$379,338,217)	\$387,750,846

MUNICIPAL COLLATERALIZED DEBT OBLIGATION - 0.2% of Net

Assets

10,000,000(d) Non-Profit Preferred Funding Trust I,

Series E, 0.0%, 9/15/37 (144A) \$636,100

_

TOTAL MUNICIPAL

COLLATERALIZED DEBT

OBLIGATION

(Cost \$10,000,000) \$636,100

TOTAL INVESTMENTS IN

SECURITIES - 135.2%

(Cost - \$389,338,217) (i) \$388,386,946

OTHER ASSETS AND LIABILITIES -

0.0% \$(90,604)

PREFERRED SHARES AT REDEMPTION VALUE,

INCLUDING DIVIDENDS PAYABLE

- (35.2)% \$(100,998,409)

NET ASSETS APPLICABLE TO COMMON SHAREOWNERS -

100.0% \$287,297,933

(144A) Security is exempt from registration under Rule 144A of the Securities

Act of 1933. Such securities may be resold normally to qualified institutional buyers in a transaction exempt from registration. At January 31, 2017, the value of these securities amounted to \$27,687,353, or 9.6% of total net assets applicable to common

shareowners.

RIB Residual Interest Bond is purchased in a secondary market. The

interest rate is subject to change periodically and inversely based upon prevailing market rates. The interest rate shown is the rate at January

31, 2017.

† Amount rounds to less than 0.1%.

- (a) Consists of Revenue Bonds unless otherwise indicated. Security issued with a zero coupon. Income is recognized through
- (b) accretion of discount.
- (c) Security is in default.

The interest rate is subject to change periodically. The interest rate

- (d) shown is the rate at January 31, 2017.
- (e) Represents a General Obligation Bond.
- (f) Prerefunded bonds have been collateralized by U.S. Treasury or U.S. Government Agency securities which are held in escrow to pay interest and principal on the tax exempt issue and to retire the bonds in

full at the earliest refunding date.

- (g) Escrow to maturity.
 - Security is valued using fair value methods (other than prices supplied
- (h) by independent pricing services).
- (i) At January 31, 2017, the net unrealized appreciation on investments based on cost for federal tax purposes of \$382,232,731 was as follows:

Aggregate gross unrealized appreciation for all investments in which there is an excess of value over tax cost Aggregate gross unrealized depreciation for all investments in which there is an excess of tax cost over value

\$ 6,154,215

31,823,468

\$

(25,669,253)

For financial reporting purposes net unrealized depreciation on investments was \$951,271 and cost of investments aggregated \$389,338,217.

Various inputs are used in determining the value of the Trust's investments. These inputs are summarized in the three broad levels below.

Level 1 - quoted prices in active markets for identical securities.

Net unrealized appreciation

Level 2 - other significant observable inputs (including quoted prices for similar securities, interest rates, prepayment

speeds, credit risks, etc.).

Level 3 - significant unobservable inputs (including the Trust's own assumptions in determining fair value of investments).

The following is a summary of the inputs used as of January 31, 2017, in valuing the Trust's investments.

	Level 1	Level 2	Level 3	Total
Tax Exempt Obligations				
Texas	\$ —	\$40,616,488	\$2,376,000	\$42,992,488
All Other Tax Exempt Obligations	_	344,758,358	_	344,758,358
Municipal Collateralized Debt				
Obligation Total	- \$-	636,100 \$386,010,946	- \$2,376,000	636,100 \$388,386,946

The following is a reconciliation of assets valued using significant unobservable inputs (Level 3):

	Tax Exempt	
	Obligations	Total
Balance as of 4/30/16	\$ -	\$ -
Change in unrealized		
appreciation (depreciation)	(1,135,449)	(1,135,449)
Accrued discounts/premiums	(3,209)	(3,209)
Changes between Level 3*	3,514,658	3,514,658
Total	\$2,376,000	\$ 2,376,000

^{*}Transfers are calculated on the beginning of period value. For the nine months ended January 31, 2017, there were no transfers between Levels 1 and 2. Securities with an aggregate market value of \$3,514,658 transferred from level 2 to level 3 as there were no longer observable inputs available to determine their value.

Net change in unrealized depreciation of Level 3 investments still held and considered Level 3 at January 31, 2017: \$1,135,449.

ITEM 2. CONTROLS AND PROCEDURES.

(a) Disclose the conclusions of the registrant's principal executive and principal financial officers, or persons performing similar functions, regarding the effectiveness of the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Act (17 CFR 270.30a-3(c))) as of a date within 90 days of the filing date of the report that includes the disclosure required by this paragraph, based on the evaluation of these controls and procedures required by Rule 30a-3(b) under the Act (17 CFR 270.30a-3(b))) and Rule 13a-15(b) or 15d-15(b) under the Exchange Act (17 CFR 240.13a-15(b) or 240.15d-15(b)).

The registrant's principal executive officer and principal financial officer have concluded that the registrant's disclosure controls and procedures are effective based on their evaluation of these controls and procedures as of a date within 90 days of the filing date of this report.

(b) Disclose any change in the registrant's internal controls over financial reporting (as defined in Rule 30a-3(d) under the Act (17 CFR 270.30a-3(d)) that occurred during the registrant's last fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting.

There were no significant changes in the registrant's internal control over financial reporting that occurred during the second fiscal quarter of the period covered by this report that have materially affected, or are reasonably likely to materially affect, the registrant's internal control over financial reporting.

ITEM 3. EXHIBITS.

File as exhibits as part of this Form a separate certification for each principal

executive officer and principal financial officer of the registrant as required by Rule 30a-2(a) under the Act (17 CFR 270.30a-2(a)), exactly as set forth below:

CERTIFICATIONS

- I, [identify the certifying individual], certify that:
- 1. I have reviewed this report on Form N-Q of [identify registrant];
- 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3. Based on my knowledge, the schedules of investments included in this report fairly present in all material respects the investments of the registrant as of the end of the fiscal quarter for which the report is filed;
- 4. The registrants other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940) and internal control over financial reporting (as defined in Rule 30a-3(d) under the Investment Company Act of 1940) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrants disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of a date within 90 days prior to the filing date of this report, based on such evaluation; and
 - (d) Disclosed in this report any change in the registrants internal control over financial reporting that occurred during the registrants most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrants internal control over financial reporting; and
- 5. The registrants other certifying officer(s) and I have disclosed to the registrants auditors and the audit committee of the registrants board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrants ability to record, process, summarize, and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrants internal control over financial reporting.

Date: [Signature] [Title]

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SIGNATURES

[See General Instruction F]

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

(Registrant) Pioneer Municipal High Income Trust

By (Signature and Title) * /s/ Lisa M.Jones

Lisa M. Jones, President and Chief Executive Officer

Date April 3, 2017

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

By (Signature and Title) * /s/ Lisa M.Jones

Lisa M.Jones, President and Chief Executive Officer

Date April 3, 2017

By (Signature and Title) * /s/ Mark E. Bradley

Mark E. Bradley, Treasurer and Chief Accounting and Financial Officer

Date April 3, 2017

* Print the name and title of each signing officer under his or her signature.