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PIONEER MUNICIPAL HIGH INCOME TRUST  
Form N-Q  
September 29, 2015

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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: July 31, 2015

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.

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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 | July 31, 2015

Ticker Symbol: MHI

Schedule of Investments | 7/31/15 (unaudited)

Principal  
Amount  
USD (\$)

Value

	TAX EXEMPT OBLIGATIONS - 126.8%	
	of Net Assets (a)	
	Alabama - 1.5%	
4,500,000	Huntsville-Redstone Village Special Care Facilities Financing Authority, Redstone Village Project, 5.5%, 1/1/43	\$ 4,508,865
	Arizona - 0.0% †	

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24,000	County of Pima, AZ, Industrial Development Authority, Arizona Charter Schools Project, Series C, 6.75%, 7/1/31	\$ 24,110
	California - 10.7%	
1,450,000	California Enterprise Development Authority, Sunpower Corp., 8.5%, 4/1/31	\$ 1,658,321
750,000	California Municipal Finance Authority, Santa Rosa Academy Project, Series A, 5.75%, 7/1/30	779,407
5,000,000	California Pollution Control Financing Authority, 5.0%, 7/1/37 (144A)	5,156,000
1,740,000	California School Finance Authority, Classical Academies Project, Series A, 7.375%, 10/1/43	2,028,910
1,400,000	California Statewide Communities Development Authority, Lancer Plaza Project, 5.625%, 11/1/33	1,417,836
568,006(b)	California Statewide Communities Development Authority, Microgy Holdings Project, 9.0%, 12/1/38	6
20,000,000(c)	Inland Empire Tobacco Securitization Authority, Asset-Backed, Series C-1, 6/1/36	3,745,200
7,885,000(d)	Lehman Municipal Trust Receipts, RIB, 13.198%, 9/20/28 (144A)	10,052,902
2,000,000(e)	Los Angeles Community College District, Series G, 4.0%, 8/1/39	2,065,700
1,000,000	River Islands Public Financing Authority, Community Facilities, 5.5%, 9/1/45	1,023,780
2,000,000	Tobacco Securitization Authority of Northern California, Asset-Backed, Series A-1, 5.375%, 6/1/38	1,640,420
3,000,000	Tobacco Securitization Authority of Southern California, Series A-1, 5.0%, 6/1/37	2,507,790
		\$ 32,076,272
	Colorado - 1.5%	
1,500,000	Colorado Educational & Cultural Facilities Authority, Rocky Mountain Classical Academy Project, 8.0%, 9/1/43	\$ 1,511,340
2,000,000	Colorado Health Facilities Authority, Valley View Association Project, 5.25%, 5/15/42	2,102,040
1,000,000	Kremmling Memorial Hospital District, Certificate of Participation, 7.125%, 12/1/45	822,560
		\$ 4,435,940
	Connecticut - 7.6%	
10,335,000(d)	Lehman Municipal Trust Receipts, RIB, 14.061%, 8/21/35	\$ 11,368,087

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5,000,000	Mohegan Tribe of Indians Gaming Authority, 6.25%, 1/1/31	4,999,350
5,000,000(e)	State of Connecticut, Series E, 4.0%, 9/1/30	5,256,600
1,000,000	Town of Hamden, CT, Whitney Center Project, Series A, 7.75%, 1/1/43	1,042,580
		\$ 22,666,617
5,000,000	District of Columbia - 4.0% District of Columbia Tobacco Settlement Financing Corp., Asset-Backed, 6.5%, 5/15/33	\$ 6,021,550
6,000,000	District of Columbia Tobacco Settlement Financing Corp., Asset-Backed, 6.75%, 5/15/40	5,999,160
		\$ 12,020,710
1,500,000	Florida - 4.8% Alachua County Health Facilities Authority, Terraces Bonita Springs Project, Series A, 8.125%, 11/15/41	\$ 1,764,705
1,500,000	Alachua County Health Facilities Authority, Terraces Bonita Springs Project, Series A, 8.125%, 11/15/46	1,760,955
500,000	Capital Trust Agency, Inc., Million Air One LLC, 7.75%, 1/1/41	473,880
2,260,000(b)	County of Liberty, FL, Twin Oaks Project, 8.25%, 7/1/28	338,322
2,500,000	County of Miami-Dade, FL, Series B, 5.5%, 10/1/41	2,824,000
5,000,000	Florida's Turnpike Enterprise, Department of Transportation, Series A, 4.0%, 7/1/34	5,186,050
1,000,000(f)	Hillsborough County Industrial Development Authority, Various Health Facilities, 8.0%, 8/15/32	1,275,590
2,250,000(d)	St. Johns County Industrial Development Authority, Glenmoor Project, Series A, 1.344%, 1/1/49	775,575
832,581(b)	St. Johns County Industrial Development Authority, Glenmoor Project, Series B, 2.5%, 1/1/49	8
		\$ 14,399,085
Principal Amount USD (\$)		Value
2,500,000	Georgia - 2.5% Clayton County Development Authority, Delta Air Lines, Series A, 8.75%, 6/1/29	\$ 3,080,650
4,000,000	Private Colleges & Universities Authority, Emory University, Series A, 5.0%, 10/1/43	4,464,960

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		\$ 7,545,610
	Idaho - 1.7%	
5,000,000	Power County Industrial Development Corp., FMC Corp. Project, 6.45%, 8/1/32	\$ 5,009,350
	Illinois - 14.5%	
240,000	Illinois Finance Authority, Clare Oaks Project, Series A-3, 7.0%, 11/15/17	\$ 240,060
2,087,000(d)	Illinois Finance Authority, Clare Oaks Project, Series B, 4.0%, 11/15/52	1,334,386
1,305,000(c)	Illinois Finance Authority, Clare Oaks Project, Series C-1, 11/15/52	45,101
261,000(c)	Illinois Finance Authority, Clare Oaks Project, Series C-2, 11/15/52	71,451
261,000(c)	Illinois Finance Authority, Clare Oaks Project, Series C-3, 11/15/52	44,913
2,000,000	Illinois Finance Authority, Greenfields of Geneva Project, Series A, 8.125%, 2/15/40	2,115,460
2,500,000	Illinois Finance Authority, Greenfields of Geneva Project, Series A, 8.25%, 2/15/46	2,650,400
2,000,000	Illinois Finance Authority, Northwestern Memorial Hospital, Series A, 6.0%, 8/15/39	2,283,000
2,500,000	Illinois Finance Authority, Roosevelt University Project, 6.5%, 4/1/39	2,685,875
3,865,000	Illinois Finance Authority, Swedish Covenant, Series A, 6.0%, 8/15/38	4,268,893
1,700,000	Illinois Finance Authority, The Admiral at the Lake Project, Series A, 7.625%, 5/15/25	1,908,522
600,000	Illinois Finance Authority, The Admiral at the Lake Project, Series A, 7.75%, 5/15/30	678,420
2,000,000	Illinois Finance Authority, The Admiral at the Lake Project, Series A, 8.0%, 5/15/40	2,273,440
3,200,000	Illinois Finance Authority, The Admiral at the Lake Project, Series A, 8.0%, 5/15/46	3,632,992
90,000	Illinois Finance Authority, The Admiral at the Lake Project, Series D-1, 7.0%, 5/15/18	90,232
16,880,000(c)	Metropolitan Pier & Exposition Authority, McCormick Place, Series B, 6/15/22	17,947,322
1,220,000	Southwestern Illinois Development Authority, Village of Sauget Project, 5.625%, 11/1/26	1,121,534
		\$ 43,392,001
	Indiana - 1.8%	
250,000	City of Carmel, IN, Barrington Carmel Project, Series A, 7.0%, 11/15/32	\$ 276,507

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750,000	City of Carmel, IN, Barrington Carmel Project, Series A, 7.125%, 11/15/42	832,170
500,000	City of Carmel, IN, Barrington Carmel Project, Series A, 7.125%, 11/15/47	553,630
3,570,000	Vigo County Hospital Authority, Union Hospital, Inc., 5.8%, 9/1/47 (144A)	3,707,231
		\$ 5,369,538
	Kentucky - 1.9%	
5,000,000	Kentucky Economic Development Finance Authority, Owensboro Medical Health System, Series A, 6.375%, 6/1/40	\$ 5,698,200
	Louisiana - 3.2%	
2,260,000	Jefferson Parish Hospital Service District No. 2, East Jefferson General Hospital, 6.375%, 7/1/41	\$ 2,567,609
1,500,000	Louisiana Local Government Environmental Facilities & Community Development Authority, Westlake Chemical Corp. Project, 6.75%, 11/1/32	1,651,395
5,000,000	Louisiana Public Facilities Authority, Ochsner Clinic Foundation Project, Series A, 5.5%, 5/15/47	5,289,800
		\$ 9,508,804
	Maine - 2.3%	
1,500,000	Maine Health & Higher Educational Facilities Authority, Maine General Medical Center, 7.5%, 7/1/32	\$ 1,799,460
Principal Amount USD (\$)		Value
	Maine - (continued)	
4,480,000	Maine Turnpike Authority, Series A, 5.0%, 7/1/42	\$ 5,000,128
		\$ 6,799,588
	Maryland - 0.5%	
1,490,000	Maryland Health & Higher Educational Facilities Authority, City Neighbors, Series A, 6.75%, 7/1/44	\$ 1,612,627
	Massachusetts - 5.0%	
1,000,000	Massachusetts Development Finance Agency, Linden Ponds, Inc., Series A-1, 5.5%, 11/15/46	\$ 851,600
7,100,000	Massachusetts Development Finance Agency, WGBH Foundation, Series A, 5.75%, 1/1/42	8,541,300
525,000	Massachusetts Educational Financing Authority, Series I, 6.0%, 1/1/28	555,203
5,000,000		5,018,800

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	Massachusetts Health & Educational Facilities Authority, Jordan Hospital, Series E, 6.75%, 10/1/33	
4,500,000(b)	Massachusetts Health & Educational Facilities Authority, Quincy Medical Center, Series A, 6.5%, 1/15/38	11,025
		\$ 14,977,928
	Michigan - 3.4%	
895,000(b)	Doctor Charles Drew Academy, Certificate of Participation, 5.7%, 11/1/36	\$ 178,982
2,000,000	Kent Hospital Finance Authority, Metropolitan Hospital Project, Series A, 6.25%, 7/1/40	2,004,180
2,640,000	Michigan State University, Series A, 5.0%, 8/15/41	2,944,735
6,100,000	Michigan Tobacco Settlement Finance Authority, Series A, 6.0%, 6/1/48	5,006,270
		\$ 10,134,167
	Minnesota - 0.8%	
2,000,000	Bloomington Port Authority, Radisson Blu Mall of America, 9.0%, 12/1/35	\$ 2,296,540
	Montana - 0.1%	
1,600,000(b)	Two Rivers Authority, Inc., 7.375%, 11/1/27	\$ 232,000
	New Jersey - 2.0%	
3,000,000	New Jersey Economic Development Authority, Continental Airlines, 5.25%, 9/15/29	\$ 3,257,250
2,500,000	New Jersey Economic Development Authority, Continental Airlines, 5.75%, 9/15/27	2,699,550
		\$ 5,956,800
	New Mexico - 1.4%	
1,500,000	County of Otero, NM, Otero County Jail Project, 6.0%, 4/1/23	\$ 1,460,400
2,960,000	County of Otero, NM, Otero County Jail Project, 6.0%, 4/1/28	2,824,432
		\$ 4,284,832
	New York - 10.3%	
2,000,000	Chautauqua County Capital Resource Corp., Women's Christian Association Project, Series A, 8.0%, 11/15/30	\$ 2,070,720
2,000,000	Hempstead Local Development Corp., Molloy College Project, 5.75%, 7/1/39	2,224,060
2,000,000	New York City Industrial Development Agency, British Airways Plc Project, 5.25%, 12/1/32	2,008,100
2,000,000	New York City Industrial Development Agency, British Airways Plc Project,	2,030,060

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	7.625%, 12/1/32	
1,000,000	New York State Dormitory Authority, Orange Medical Center, 6.125%, 12/1/29	1,102,390
7,040,000(d)	New York State Dormitory Authority, RIB, 16.022%, 5/29/14 (144A)	8,073,049
7,500,000	New York State Dormitory Authority, Series C, 5.0%, 3/15/39	8,401,950
1,500,000	New York State Dormitory Authority, Trustees of Columbia University, 5.0%, 10/1/45	1,964,130
2,577,540	Westchester County Healthcare Corp., Series A, 5.0%, 11/1/44	2,808,256
		\$ 30,682,715
	North Dakota - 1.0%	
2,525,000(f)	County of Burleigh, ND, St. Alexius Medical Center, 5.0%, 7/1/38	\$ 3,023,789
	Ohio - 4.2%	
2,500,000	Buckeye Tobacco Settlement Financing Authority, Asset-Backed, Series A-2, 5.875%, 6/1/47	\$ 1,998,725
1,700,000	Buckeye Tobacco Settlement Financing Authority, Asset-Backed, Series A-2, 6.0%, 6/1/42	1,367,735
5,000,000	Buckeye Tobacco Settlement Financing Authority, Asset-Backed, Series A-2, 6.5%, 6/1/47	4,316,550
Principal Amount USD (\$)		Value
	Ohio - (continued)	
2,000,000(d)	Ohio Air Quality Development Authority, FirstEnergy Generation Corp. Project, 3.1%, 3/1/23	\$ 2,004,020
2,500,000(e)	State of Ohio, Common Schools, Series B, 5.0%, 6/15/29	2,926,775
		\$ 12,613,805
	Oregon - 1.9%	
5,190,000	Oregon Health & Science University, Series E, 5.0%, 7/1/32	\$ 5,827,021
	Pennsylvania - 6.2%	
1,550,000	Allegheny County Hospital Development Authority, South Hills Health, Series A, 5.125%, 5/1/25	\$ 1,559,595
1,280,000(b)	Langhorne Manor Borough Higher Education Authority, Lower Bucks Hospital, 7.35%, 7/1/22	255,360
5,000,000	Pennsylvania Economic Development Financing Authority, USG Corp. Project,	4,999,650



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	6.0%, 6/1/31	
500,000	Philadelphia Authority for Industrial Development, Greater Philadelphia Health Action, Inc. Project, Series A, 6.625%, 6/1/50	492,915
2,000,000	Philadelphia Authority for Industrial Development, Nueva Esperanze, Inc., 8.2%, 12/1/43	2,207,540
1,000,000	Philadelphia Authority for Industrial Development, Performing Arts Charter School Project, 6.5%, 6/15/33 (144A)	1,048,240
2,000,000	Philadelphia Authority for Industrial Development, Performing Arts Charter School Project, 6.75%, 6/15/43 (144A)	2,107,160
5,900,000	Philadelphia Hospitals & Higher Education Facilities Authority, Temple University Health System, Series A, 5.0%, 7/1/34	5,884,719
		\$ 18,555,179
	Puerto Rico - 1.0%	
4,255,000(e)	Commonwealth of Puerto Rico, Series A, 8.0%, 7/1/35	\$ 2,957,140
	Rhode Island - 1.1%	
5,900,000(b)	Central Falls Detention Facility Corp., 7.25%, 7/15/35	\$ 1,466,386
1,500,000	Rhode Island Health & Educational Building Corp., Tockwatten Home Issue, 8.375%, 1/1/46	1,710,075
		\$ 3,176,461
	Tennessee - 1.6%	
4,600,000	Sullivan County Health, Educational & Housing Facilities Board, Wellmont Health System Project, Series C, 5.25%, 9/1/36	\$ 4,762,886
	Texas - 14.5%	
1,000,000	Arlington Higher Education Finance Corp., Universal Academy, Series A, 7.0%, 3/1/34	\$ 1,057,330
2,500,000	Central Texas Regional Mobility Authority, Sub Lien, 6.75%, 1/1/41	2,999,300
5,000,000(e)	Goose Creek Consolidated Independent School District, Series C, 4.0%, 2/15/26	5,541,500
725,078(b)	Gulf Coast Industrial Development Authority, Microgy Holdings Project, 7.0%, 12/1/36	7
5,340,000	Lubbock Health Facilities Development Corp., Carillon Project, Series A, 6.625%, 7/1/36	5,467,199
3,785,000	North Texas Tollway Authority, Series A, 5.0%, 1/1/35	4,141,623
10,000,000(f)		11,156,800

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	North Texas Tollway Authority, Series F, 5.75%, 1/1/33	
1,500,000	Red River Health Facilities Development Corp., MRC Crestview, Series A, 8.0%, 11/15/41	1,750,665
3,960,000	Sanger Industrial Development Corp., Texas Pellets Project, Series B, 8.0%, 7/1/38	4,253,119
1,000,000	Tarrant County Cultural Education Facilities Finance Corp., Mirador Project, Series A, 8.125%, 11/15/39	959,540
1,000,000	Tarrant County Cultural Education Facilities Finance Corp., Mirador Project, Series A, 8.25%, 11/15/44	965,650
2,000,000	Tarrant County Cultural Education Facilities Finance Corp., MRC Crestview Project, 8.0%, 11/15/34	2,304,680
2,500,000	Travis County Health Facilities Development Corp., Longhorn Village Project, 7.125%, 1/1/46	2,692,150 \$ 43,289,563
	Virginia - 1.4%	
4,000,000	Upper Occoquan Sewage, 4.0%, 7/1/41	\$ 4,156,040
	Washington - 8.7%	
14,315,000(c)(e)	State of Washington, Motor Vehicle Sales Tax, Series C, 6/1/22	\$ 12,269,673
2,500,000	University of Washington, Series B, 5.0%, 6/1/29	2,972,175
3,795,000(d)	Washington State Health Care Facilities Authority, Fred Hutchinson Cancer Research Center, Series A, 6.0%, 1/1/33	4,489,864
Principal Amount USD (\$)		Value
	Washington - (continued)	
1,150,000	Washington State Housing Finance Commission, Mirabella Project, Series A, 6.75%, 10/1/47	\$ 1,244,737
5,000,000	Washington State Housing Finance Commission, Skyline at First Hill Project, Series A, 5.625%, 1/1/27	5,020,300 \$ 25,996,749
	West Virginia - 0.8%	
2,000,000	City of Philippi, WV, Alderson-Broadus College, Inc., Series A, 7.75%, 10/1/44	\$ 1,601,520
735,000	West Virginia Hospital Finance Authority, Highland Hospital Group, 9.125%, 10/1/41	814,696 \$ 2,416,216

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	Wisconsin - 2.9%	
5,000,000	Public Finance Authority, Glenridge Palmer Ranch, Series A, 8.25%, 6/1/46	\$ 5,826,650
750,000	Public Finance Authority, Roseman University Health Sciences Project, 5.875%, 4/1/45	740,077
1,500,000	Public Finance Authority, SearStone CCRC Project, Series A, 8.625%, 6/1/47	1,786,425
230,000	Public Finance Authority, SearStone CCRC Project, Series B, 8.375%, 6/1/20	230,750
		\$ 8,583,902
	TOTAL TAX EXEMPT OBLIGATIONS (Cost \$357,257,854)	\$ 378,991,050
	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)	\$ 621,200
	TOTAL MUNICIPAL COLLATERALIZED DEBT OBLIGATION (Cost \$10,000,000)	\$ 621,200
	TOTAL INVESTMENTS IN SECURITIES - 127.0% (Cost - \$367,257,854) (g)	\$ 379,612,250
	OTHER ASSETS AND LIABILITIES - 6.8%	\$ 20,250,302
	PREFERRED SHARES AT REDEMPTION VALUE, INCLUDING DIVIDENDS PAYABLE - (33.8%)	\$ (101,000,576)
	NET ASSETS APPLICABLE TO COMMON SHAREOWNERS -100.0%	\$ 298,861,976

† Amount rounds to less than 0.1%.  
 (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 July 31, 2015, the value of these securities amounted to \$30,765,782, or 10.3% of total net assets applicable to common shareowners.

RIB Residual Interest Bond. The interest rate is subject to change periodically and inversely based upon prevailing market rates. The interest rate shown is the rate at July 31, 2015.

(a) Consists of Revenue Bonds unless otherwise indicated.

(b) Security is in default and is non income producing.

(c)

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Security issued with a zero coupon. Income is recognized through accretion of discount.

- (d) The interest rate is subject to change periodically. The interest rate shown is the rate at July 31, 2015.
- (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) At July 31, 2015, the net unrealized appreciation on investments based on cost for federal tax purposes of \$361,770,314 was as follows:

Aggregate gross unrealized appreciation for all investments in which there is an excess of value over tax cost	\$ 37,941,568
Aggregate gross unrealized depreciation for all investments in which there is an excess of tax cost over value	(20,099,632)
Net unrealized appreciation	\$ 17,841,936

For financial reporting purposes net unrealized appreciation on investments was \$12,354,396 and cost of investments aggregated \$367,257,854.

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.

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).

Generally, equity securities are categorized as Level 1, fixed income securities and senior loans are categorized as Level 2, and securities valued using fair value methods (other than prices supplied by independent pricing services or broker - dealers) as Level 3.

The following is a summary of the inputs used as of July 31, 2015, in valuing the Trust's investments.

	Level 1	Level 2	Level 3	Total
Tax Exempt Obligations	\$-	\$378,991,050	\$-	\$378,991,050
Municipal Collateralized Debt Obligation	-	621,200	-	621,200

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Total Investments in Securities	\$-	\$379,612,250	\$-	\$379,612,250
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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

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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]

Filed herewith.

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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

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Lisa M.Jones, President and Chief Executive Officer

Date September 29, 2015

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

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Lisa M.Jones, President and Chief Executive Officer

Date September 29, 2015

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

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

Date September 29, 2015

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