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PIONEER MUNICIPAL HIGH INCOME TRUST

Form N-Q

September 28, 2016

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, 2016

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

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schedules need not be audited.

Pioneer Municipal
High Income Trust

NQ | July 31, 2016

Ticker Symbol: MHI

Principal Amount USD (\$)	Value
TAX EXEMPT OBLIGATIONS - 122.8% of Net Assets (a)	
Alabama - 1.4%	
4,500,000	Huntsville-Redstone Village Special Care Facilities Financing Authority, Redstone Village Project, 5.5%, 1/1/43 \$ 4,517,910
Arizona - 0.0%†	
24,000	County of Pima, AZ, Industrial Development Authority, Arizona Charter Schools Project, Series C, 6.75%, 7/1/31 \$ 24,179
California - 9.8%	
10,000,000(b)	California County Tobacco Securitization Agency, Capital Appreciation, Stanislaus County Subordinated, Series A, 6/1/46 \$ 1,413,700
1,450,000	California Enterprise Development Authority, Sunpower Corp., 8.5%, 4/1/31 1,662,802
650,000	California Municipal Finance Authority, Santa Rosa Academy Project, Series A, 5.75%, 7/1/30 725,751

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5,000,000	California Pollution Control Financing Authority, 5.0%, 7/1/37 (144A)	5,156,750
1,740,000	California School Finance Authority, Classical Academies Project, Series A, 7.375%, 10/1/43	2,125,845
1,400,000	California Statewide Communities Development Authority, Lancer Plaza Project, 5.625%, 11/1/33	1,507,240
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, 12.36%, 11/1/39 (144A) (AGM Insured)	9,635,470
2,000,000(e)	Los Angeles Community College District, Series G, 4.0%, 8/1/39	2,242,640
1,000,000	River Islands Public Financing Authority, Community Facilities, 5.5%, 9/1/45	1,111,090
2,000,000	Tobacco Securitization Authority of Northern California, Asset-Backed, Series A-1, 5.375%, 6/1/38	1,999,800
3,000,000	Tobacco Securitization Authority of Southern California, Series A-1, 5.0%, 6/1/37	3,000,150
		\$ 30,581,244
	Colorado - 1.2%	
1,500,000	Colorado Educational & Cultural Facilities Authority, Rocky Mountain Classical Academy Project, 8.0%, 9/1/43	\$ 1,604,130
2,000,000	Colorado Health Facilities Authority, Valley View Association Project, 5.25%, 5/15/42	2,063,320
		\$ 3,667,450
	Connecticut - 2.9%	
2,235,000	Mohegan Tribal Finance Authority, 7.0%, 2/1/45 (144A)	\$ 2,263,675
5,000,000(e)	State of Connecticut, Series E, 4.0%, 9/1/30	5,588,800
1,000,000	Town of Hamden, CT, Whitney Center Project, Series A, 7.75%, 1/1/43	1,056,980
		\$ 8,909,455
	District of Columbia - 5.0%	
25,000,000(b)	District of Columbia Tobacco Settlement Financing Corp., Capital Appreciation, Asset-Backed, Series A, 6/15/46	\$ 3,344,750
4,885,000	District of Columbia Tobacco Settlement Financing Corp., Asset-Backed, 6.5%, 5/15/33	6,029,409
6,000,000	District of Columbia Tobacco Settlement Financing Corp., Asset-Backed, 6.75%,	6,216,060

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5/15/40

	\$ 15,590,219
Florida - 4.8%	
1,500,000 Alachua County Health Facilities Authority, Terraces Bonita Springs Project, Series A, 8.125%, 11/15/41	\$ 1,799,190
1,500,000 Alachua County Health Facilities Authority, Terraces Bonita Springs Project, Series A, 8.125%, 11/15/46	1,795,845
2,260,000(c) County of Liberty, FL, Twin Oaks Project, 8.25%, 7/1/28	335,610
2,500,000 County of Miami-Dade, FL, Aviation Revenue, Series B, 5.5%, 10/1/41	2,815,250
5,000,000 Florida's Turnpike Enterprise, Department of Transportation, Series A, 4.0%, 7/1/34	5,551,100
1,000,000(f) Hillsborough County Industrial Development Authority, Various Health Facilities, 8.0%, 8/15/32	1,228,190
2,250,000(c) St. Johns County Industrial Development Authority, Glenmoor Project, Series A, 1.344%, 1/1/49	1,529,955
832,581(c) St. Johns County Industrial Development Authority, Glenmoor Project, Series B, 2.5%, 1/1/49	8
	\$ 15,055,148
Georgia - 2.5%	
2,500,000 Clayton County Development Authority, Delta Air Lines, Series A, 8.75%, 6/1/29	\$ 3,077,400
4,000,000 Private Colleges & Universities Authority, Emory University, Series A, 5.0%, 10/1/43	4,774,360
	\$ 7,851,760

Principal
Amount
USD (\$)

Value

Idaho - 1.6%	
5,000,000 Power County Industrial Development Corp., FMC Corp. Project, 6.45%, 8/1/32	\$ 5,012,050
Illinois - 14.0%	
2,087,000(d) Illinois Finance Authority, Clare Oaks Project, Series B, 4.0%, 11/15/52	\$ 1,468,768
1,305,000(b) Illinois Finance Authority, Clare Oaks Project, Series C-1, 11/15/52	46,536
261,000(b) Illinois Finance Authority, Clare Oaks Project, Series C-2, 11/15/52	71,162
261,000(b) Illinois Finance Authority, Clare Oaks Project, Series C-3, 11/15/52	44,769
2,000,000 Illinois Finance Authority, Greenfields of Geneva Project, Series A, 8.125%, 2/15/40	1,644,600

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2,500,000	Illinois Finance Authority, Greenfields of Geneva Project, Series A, 8.25%, 2/15/46	2,056,725
2,000,000	Illinois Finance Authority, Northwestern Memorial Hospital, Series A, 6.0%, 8/15/39	2,308,900
2,500,000	Illinois Finance Authority, Roosevelt University Project, 6.5%, 4/1/39	2,769,150
3,865,000	Illinois Finance Authority, Swedish Covenant, Series A, 6.0%, 8/15/38	4,349,053
1,700,000	Illinois Finance Authority, The Admiral at the Lake Project, Series A, 7.625%, 5/15/25	1,981,554
600,000	Illinois Finance Authority, The Admiral at the Lake Project, Series A, 7.75%, 5/15/30	699,696
2,000,000	Illinois Finance Authority, The Admiral at the Lake Project, Series A, 8.0%, 5/15/40	2,334,460
3,200,000	Illinois Finance Authority, The Admiral at the Lake Project, Series A, 8.0%, 5/15/46	3,726,432
1,485,000(b)(g)	Metropolitan Pier & Exposition Authority, McCormick Place, Series B, 6/15/22 (NATL Insured)	1,749,211
15,395,000(b)	Metropolitan Pier & Exposition Authority, McCormick Place, Series B, 6/15/22 (NATL Insured)	17,408,512
1,125,000	Southwestern Illinois Development Authority, Village of Sauget Project, 5.625%, 11/1/26	1,062,551
		\$ 43,722,079
	Indiana - 1.7%	
250,000	City of Carmel, IN, Barrington Carmel Project, Series A, 7.0%, 11/15/32	\$ 285,525
750,000	City of Carmel, IN, Barrington Carmel Project, Series A, 7.125%, 11/15/42	857,250
500,000	City of Carmel, IN, Barrington Carmel Project, Series A, 7.125%, 11/15/47	570,030
3,570,000	Vigo County Hospital Authority, Union Hospital, Inc., 5.8%, 9/1/47 (144A)	3,668,425
		\$ 5,381,230
	Kentucky - 1.9%	
5,000,000	Kentucky Economic Development Finance Authority, Owensboro Medical Health System, Series A, 6.375%, 6/1/40	\$ 5,774,250
	Louisiana - 3.0%	
2,260,000	Jefferson Parish Hospital Service District No. 2, East Jefferson General Hospital, 6.375%, 7/1/41	\$ 2,566,027
1,500,000	Louisiana Local Government Environmental Facilities & Community Development Authority, Westlake Chemical Corp. Project, 6.75%, 11/1/32	1,605,390
1,380,000(f)	Louisiana Public Facilities Authority, Ochsner Clinic Foundation Project, Series A, 5.5%, 5/15/47	1,434,745
3,620,000	Louisiana Public Facilities Authority, Ochsner Clinic Foundation Project, Series A, 5.5%, 5/15/47	3,736,636
		\$ 9,342,798

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Maine - 2.3%	
1,500,000	Maine Health & Higher Educational Facilities Authority, Maine General Medical Center, 7.5%, 7/1/32
	\$ 1,801,380
4,480,000	Maine Turnpike Authority, Series A, 5.0%, 7/1/42
	5,273,632
	\$ 7,075,012
Maryland - 0.5%	
1,480,000	Maryland Health & Higher Educational Facilities Authority, City Neighbors, Series A, 6.75%, 7/1/44
	\$ 1,650,511
Massachusetts - 7.0%	
7,000,000(b)	Massachusetts Bay Transportation Authority, Series A, 7/1/28
	\$ 5,354,860
987,910	Massachusetts Development Finance Agency, Linden Ponds, Inc., Series A-1, 5.5%, 11/15/46
	958,223
7,100,000	Massachusetts Development Finance Agency, WGBH Foundation, Series A, 5.75%, 1/1/42 (AMBAC Insured)
	10,426,634
445,000	Massachusetts Educational Financing Authority, Series I, 6.0%, 1/1/28
	474,837
3,100,000	Massachusetts Health & Educational Facilities Authority, Massachusetts Institute of Technology, Series K, 5.5%, 7/1/32
	4,559,883
	\$ 21,774,437

Principal
Amount
USD (\$)

Value

Michigan - 3.7%	
895,000(c)	Doctor Charles Drew Academy, Certificate of Participation, 5.7%, 11/1/36
	\$ 178,910
2,000,000	Kent Hospital Finance Authority, Metropolitan Hospital Project, Series A, 6.25%, 7/1/40
	2,005,480
2,640,000	Michigan State University, Series A, 5.0%, 8/15/41
	3,167,551
6,100,000	Michigan Tobacco Settlement Finance Authority, Series A, 6.0%, 6/1/48
	6,141,907
	\$ 11,493,848
Minnesota - 0.7%	
2,000,000	Bloomington Port Authority, Radisson Blu Mall of America, 9.0%, 12/1/35
	\$ 2,210,960
Montana - 0.1%	
1,600,000(c)	Two Rivers Authority, Inc., 7.375%, 11/1/27
	\$ 191,888
New Jersey - 2.0%	
3,000,000	New Jersey Economic Development Authority, Continental Airlines, 5.25%, 9/15/29
	\$ 3,359,190
2,500,000	New Jersey Economic Development Authority, Continental Airlines, 5.75%, 9/15/27
	2,869,900
	\$ 6,229,090
New Mexico - 1.5%	

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1,500,000	County of Otero, NM, Otero County Jail Project, 6.0%, 4/1/23	\$ 1,532,775
2,960,000	County of Otero, NM, Otero County Jail Project, 6.0%, 4/1/28	3,013,576
		\$ 4,546,351
	New York - 6.3%	
2,000,000	Chautauqua County Capital Resource Corp., Women's Christian Association Project, Series A, 8.0%, 11/15/30	\$ 2,020,680
2,000,000	Hempstead Local Development Corp., Molloy College Project, 5.75%, 7/1/39	2,221,780
1,000,000	New York State Dormitory Authority, Orange Medical Center, 6.125%, 12/1/29	1,091,360
7,500,000	New York State Dormitory Authority, Series C, 5.0%, 3/15/39	9,072,450
1,500,000	New York State Dormitory Authority, Trustees of Columbia University, 5.0%, 10/1/45	2,281,515
2,538,540	Westchester County Healthcare Corp., Series A, 5.0%, 11/1/44	2,955,444
		\$ 19,643,229
	North Carolina - 0.6%	
1,835,000(d)	Charlotte-Mecklenburg Hospital Authority, Series C, 0.38%, 1/15/26	\$ 1,835,000
	North Dakota - 1.0%	
2,525,000(f)	County of Burleigh, ND, St. Alexius Medical Center, 5.0%, 7/1/38	\$ 3,091,357
	Ohio - 4.9%	
2,500,000	Buckeye Tobacco Settlement Financing Authority, Asset-Backed, Series A-2, 5.875%, 6/1/47	\$ 2,481,100
1,700,000	Buckeye Tobacco Settlement Financing Authority, Asset-Backed, Series A-2, 6.0%, 6/1/42	1,699,847
6,000,000	Buckeye Tobacco Settlement Financing Authority, Asset-Backed, Series A-2, 6.5%, 6/1/47	6,133,500
2,000,000(d)	Ohio Air Quality Development Authority, FirstEnergy Generation Corp. Project, 3.1%, 3/1/23	1,990,120
2,500,000(e)	State of Ohio, Common Schools, Series B, 5.0%, 6/15/29	3,024,500
		\$ 15,329,067
	Oregon - 2.0%	
5,190,000	Oregon Health & Science University, Series E, 5.0%, 7/1/32	\$ 6,192,916
	Pennsylvania - 6.1%	
1,550,000	Allegheny County Hospital Development Authority, South Hills Health, Series A, 5.125%, 5/1/25	\$ 1,557,006
1,280,000(c)	Langhorne Manor Borough Higher Education Authority, Lower Bucks Hospital, 7.35%, 7/1/22	316,787
5,000,000	Pennsylvania Economic Development Financing Authority, USG Corp. Project, 6.0%, 6/1/31	5,002,100
500,000	Philadelphia Authority for Industrial Development, Greater Philadelphia Health Action, Inc. Project, Series A, 6.625%, 6/1/50	519,060
2,000,000	Philadelphia Authority for Industrial Development, Nueva Esperanza, Inc., 8.2%, 12/1/43	2,339,380
1,000,000	Philadelphia Authority for Industrial Development, Performing Arts Charter School Project, 6.5%, 6/15/33 (144A)	1,068,540

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2,000,000 Philadelphia Authority for Industrial Development, Performing Arts Charter School Project, 6.75%, 6/15/43 (144A)	2,145,120
5,900,000 Philadelphia Hospitals & Higher Education Facilities Authority, Temple University Health System, Series A, 5.0%, 7/1/34	6,001,834
	\$ 18,949,827

Principal Amount USD (\$)		Value
	Puerto Rico - 1.3%	
6,255,000(c)(e)	Commonwealth of Puerto Rico, Series A, 8.0%, 7/1/35	\$ 4,100,966
	Rhode Island - 1.4%	
5,900,000(c)	Central Falls Detention Facility Corp., 7.25%, 7/15/35	\$ 1,464,852
1,500,000	Rhode Island Health & Educational Building Corp., Tockwatten Home Issue, 8.375%, 1/1/46	1,774,845
10,000,000(b)	Tobacco Settlement Financing Corp., Asset-Backed, Series A, 6/1/52	1,040,400
		\$ 4,280,097
	Tennessee - 1.5%	
4,600,000	Sullivan County Health, Educational & Housing Facilities Board, Wellmont Health System Project, Series C, 5.25%, 9/1/36	\$ 4,616,928
	Texas - 13.5%	
1,000,000	Arlington Higher Education Finance Corp., Universal Academy, Series A, 7.0%, 3/1/34	\$ 1,065,630
2,500,000(f)	Central Texas Regional Mobility Authority, Sub Lien, 6.75%, 1/1/41	3,132,625
2,490,000(e)	County of Harris, TX, Series A, 5.0%, 10/1/26	3,211,951
5,000,000(e)	Goose Creek Consolidated Independent School District, Series C, 4.0%, 2/15/26 (PSF-GTD Insured)	5,834,150
725,078(c)	Gulf Coast Industrial Development Authority, Microgy Holdings Project, 7.0%, 12/1/36	7
1,500,000(d)	Harris County Health Facilities Development Corp., The Methodist Hospital System, Series A-1, 0.38%, 12/1/41	1,500,000
3,785,000	North Texas Tollway Authority, Series A, 5.0%, 1/1/35	4,521,788
10,000,000(f)	North Texas Tollway Authority, Series F, 5.75%, 1/1/33	10,728,200
1,500,000	Red River Health Facilities Development Corp., MRC Crestview, Series A, 8.0%, 11/15/41	1,759,380
3,960,000	Sanger Industrial Development Corp., Texas Pellets Project, Series B, 8.0%, 7/1/38	3,445,834
1,000,000	Tarrant County Cultural Education Facilities Finance Corp., Mirador Project, Series A, 8.125%, 11/15/39	853,900
1,000,000	Tarrant County Cultural Education Facilities Finance Corp., Mirador Project, Series A, 8.25%, 11/15/44	854,150
2,000,000	Tarrant County Cultural Education Facilities Finance Corp., MRC Crestview Project, 8.0%, 11/15/34	2,300,700
2,500,000		2,853,375

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Travis County Health Facilities Development Corp., Longhorn Village Project, 7.125%, 1/1/46	\$ 42,061,690
Virginia - 1.5%	
4,000,000 Upper Occoquan Sewage Authority, 4.0%, 7/1/41	\$ 4,538,720
Washington - 9.6%	
2,500,000(e) King County School District No. 411 Issaquah, 4.0%, 12/1/31 (SCH BD GTY Insured)	\$ 2,900,900
14,315,000(b)(e) State of Washington, Motor Vehicle Sales Tax, Series C, 6/1/22 (NATL Insured)	13,131,722
2,500,000 University of Washington, Series B, 5.0%, 6/1/29	3,144,400
3,795,000(f) Washington State Health Care Facilities Authority, Fred Hutchinson Cancer Research Center, Series A, 6.0%, 1/1/33	4,372,182
1,150,000 Washington State Housing Finance Commission, Mirabella Project, Series A, 6.75%, 10/1/47	1,271,739
5,000,000 Washington State Housing Finance Commission, Skyline at First Hill Project, Series A, 5.625%, 1/1/27	5,043,800
	\$ 29,864,743
West Virginia - 0.6%	
2,000,000(c) City of Philippi, WV, Alderson-Broaddus College, Inc., Series A, 7.75%, 10/1/44	\$ 1,200,040
725,000(c) West Virginia Hospital Finance Authority, Highland Hospital Group, 9.125%, 10/1/41	677,723
	\$ 1,877,763
Wisconsin - 4.9%	
5,000,000 Public Finance Authority, Glenridge Palmer Ranch, Series A, 8.25%, 6/1/46	\$ 6,268,150
750,000 Public Finance Authority, Roseman University Health Sciences Project, 5.875%, 4/1/45	808,792
1,500,000 Public Finance Authority, SearStone CCRC Project, Series A, 8.625%, 6/1/47 (144A)	1,802,535
5,000,000 Wisconsin Department of Transportation, Series A, 5.0%, 7/1/28	6,266,450
	\$ 15,145,927
TOTAL TAX EXEMPT OBLIGATIONS (Cost \$348,741,343)	\$ 382,130,099
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)	\$ 757,100
TOTAL MUNICIPAL COLLATERALIZED DEBT OBLIGATION (Cost \$10,000,000)	\$ 757,100

Principal
Amount
USD (\$)

Value

TEMPORARY CASH INVESTMENTS - 6.6% of Net Assets	
TREASURY BILL - 6.6%	
20,500,000(b)	U. S. Treasury Bill, 8/11/16 \$ 20,499,180
TOTAL TEMPORARY CASH INVESTMENTS	
	(Cost \$20,498,369) \$ 20,499,180
TOTAL INVESTMENTS IN SECURITIES - 129.6%	
	(Cost \$379,239,712) (h) \$ 403,386,379
OTHER ASSETS AND LIABILITIES - 2.9%	
	\$ 8,883,294
PREFERRED SHARES AT REDEMPTION VALUE, INCLUDING DIVIDENDS PAYABLE - (32.5)%	
	\$ (101,010,608)
NET ASSETS APPLICABLE TO COMMON SHAREOWNERS - 100.0%	
	\$ 311,259,065

(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, 2016, the value of these securities amounted to \$26,497,615, or 8.5% 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, 2016.

† Amount rounds to less than 0.1%.

(a) Consists of Revenue Bonds unless otherwise indicated.

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

(c) Security is in default.

(d) The interest rate is subject to change periodically. The interest rate shown is the rate at July 31, 2016.

(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.

(h) At July 31, 2016, the net unrealized appreciation on investments based on cost for federal tax purposes of \$372,134,226 was as follows:

Aggregate gross unrealized appreciation for all investments in which there is an excess of value over tax cost	\$ 48,428,036
Aggregate gross unrealized depreciation for all investments in which there is an excess of tax cost over value	(17,175,883)
Net unrealized appreciation	\$ 31,252,153

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For financial reporting purposes net unrealized appreciation on investments was \$24,146,667 and cost of investments aggregated \$379,239,712.

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).

The following is a summary of the inputs used as of July 31, 2016, in valuing the Trust's investments.

	Level 1	Level 2	Level 3	Total
Tax Exempt Obligations	\$ -	\$ 382,130,099	\$ -	\$ -382,130,099
Municipal Collateralized Debt Obligation	-	757,100	-	757,100
Treasury Bill	-	20,499,180	-	20,499,180
Total	\$ -	\$ 403,386,379	\$ -	\$ -403,386,379

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] Filed herewith. <PAGE> 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 September 28, 2016 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 September 28, 2016 By (Signature and Title)* /s/ Mark E. Bradley ----- Mark E. Bradley, Treasurer and Chief Accounting and Financial Officer Date September 28, 2016 * Print the name and title of each signing officer under his or her signature.