PIONEER MUNICIPAL HIGH INCOME TRUST Form N-Q March 30, 2016

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

FORM N-O

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, 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 schedules need not be audited.

Pioneer Municipal High Income Trust

NQ | January 31, 2016

Ticker Symbol: MHI

Principal Amount USD (\$)

Value

TAX EXEMPT OBLIGATIONS

- 123.6% 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

\$ 4,517,415

Arizona - 0.0%†

24,000 County of Pima, AZ, Industrial

Development Authority, Arizona

Charter Schools Project, Series C,

6.75%, 7/1/31 \$ 24,144

California - 10.5%

10,000,000(b)California County Tobacco Securitization Agency, Capital		
Appreciation, Stanislaus County		
Subordinated, Series A, 6/1/46		\$ 1,161,000
1,450,000 California Enterprise Development		Ψ 1,101,000
Authority, Sunpower Corp., 8.5%,		
4/1/31		1,659,395
750,000 California Municipal Finance		-,,
Authority, Santa Rosa Academy		
Project, Series A, 5.75%, 7/1/30		814,815
5,000,000 California Pollution Control Financing		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Authority, 5.0%, 7/1/37 (144A)		5,192,950
1,740,000 California School Finance Authority,		, ,
Classical Academies Project, Series A,		
7.375%, 10/1/43		2,070,130
1,400,000 California Statewide Communities		, ,
Development Authority, Lancer Plaza		
Project, 5.625%, 11/1/33		1,459,220
568,006(c)California Statewide Communities		, ,
Development Authority, Microgy		
Holdings Project, 9.0%, 12/1/38		6
25,000,000(b)Inland Empire Tobacco Securitization		
Authority, Capital Appreciation,		
Asset-Backed, Series C-2, 6/1/47		2,066,750
7,885,000(d)Lehman Municipal Trust Receipts, RIB,		
13.275%, 9/20/28 (144A) (AGM		
Insured)		9,886,055
2,000,000(e)Los Angeles Community College		
District, Series G, 4.0%, 8/1/39		2,152,280
1,000,000 River Islands Public Financing		
Authority, Community Facilities, 5.5%,		
9/1/45		1,086,240
2,000,000 Tobacco Securitization Authority of		
Northern California, Asset-Backed,		
Series A-1, 5.375%, 6/1/38		1,879,860
3,000,000 Tobacco Securitization Authority of		
Southern California, Series A-1, 5.0%,		
6/1/37		2,841,570
	\$ 32,270,271	
Colorado - 1.2%		
1,500,000 Colorado Educational & Cultural		
Facilities Authority, Rocky Mountain		
Classical Academy Project, 8.0%,		* . =00 = . =
9/1/43		\$ 1,589,715
2,000,000 Colorado Health Facilities Authority,		
Valley View Association Project,		2.006.520
5.25%, 5/15/42		2,086,520
C		\$ 3,676,235
Connecticut - 5.7%		¢ 10 011 072
10,335,000(d)		\$ 10,911,073

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-Q Lehman Municipal Trust Receipts, RIB, 14.143%, 8/21/35 5,000,000(e)State of Connecticut, Series E, 4.0%, 9/1/30 5,503,250 1,000,000 Town of Hamden, CT, Whitney Center Project, Series A, 7.75%, 1/1/43 1,043,780 \$ 17,458,103 District of Columbia - 4.0% 5,000,000 District of Columbia Tobacco Settlement Financing Corp., Asset-Backed, 6.5%, 5/15/33 \$ 6,213,150 6,000,000 District of Columbia Tobacco Settlement Financing Corp., Asset-Backed, 6.75%, 5/15/40 6,001,440 \$ 12,214,590 Florida - 4.6% 1,500,000 Alachua County Health Facilities Authority, Terraces Bonita Springs Project, Series A, 8.125%, 11/15/41 \$ 1,783,320 1,500,000 Alachua County Health Facilities Authority, Terraces Bonita Springs Project, Series A, 8.125%, 11/15/46 1,779,765 2,260,000(c)County of Liberty, FL, Twin Oaks Project, 8.25%, 7/1/28 336,266 2,500,000 County of Miami-Dade, FL, Aviation Revenue, Series B, 5.5%, 10/1/41 2,817,950 5,000,000 Florida's Turnpike Enterprise, Department of Transportation, Series A, 4.0%, 7/1/34 5,408,300 1,000,000(f)Hillsborough County Industrial Development Authority, Various Health Facilities, 8.0%, 8/15/32 1,254,020 2,250,000(d)St. Johns County Industrial Development Authority, Glenmoor Project, Series A, 5.375%, 1/1/49 791,775 832,581(c)St. Johns County Industrial Development Authority, Glenmoor Project, Series B, 2.5%, 1/1/49 \$ 14,171,404 Georgia - 2.5%

2,500,000 Clayton County Development

4,000,000 Private Colleges & Universities

Authority, Emory University, Series A, 5.0%, 10/1/43

8.75%, 6/1/29

Authority, Delta Air Lines, Series A,

\$ 3,104,425

4,633,560

Principal Amount	
USD (\$)	Value
Idaho - 1.6%	
5,000,000 Power County Industrial Development Corp., FMC Corp. Project, 6.45%, 8/1/32	\$ 5,010,900
Illinois - 14.4%	
2,087,000(d)Illinois Finance Authority, Clare Oaks Project,	
Series B, 4.0%, 11/15/52	\$ 1,413,922
1,305,000(b)Illinois Finance Authority, Clare Oaks Project,	46 922
Series C-1, 11/15/52	46,823
261,000(b) Illinois Finance Authority, Clare Oaks Project, Series C-2, 11/15/52	71,222
261,000(b)Illinois Finance Authority, Clare Oaks Project,	
Series C-3, 11/15/52	44,829
2,000,000 Illinois Finance Authority, Greenfields of Geneva	
Project, Series A, 8.125%, 2/15/40	2,009,520
2,500,000 Illinois Finance Authority, Greenfields of Geneva	,,-
Project, Series A, 8.25%, 2/15/46	2,511,875
2,000,000 Illinois Finance Authority, Northwestern Memorial	2,611,076
Hospital, Series A, 6.0%, 8/15/39	2,329,120
2,500,000 Illinois Finance Authority, Roosevelt University	2,327,120
Project, 6.5%, 4/1/39	2,752,575
3,865,000 Illinois Finance Authority, Swedish Covenant,	
Series A, 6.0%, 8/15/38	4,325,360
1,700,000 Illinois Finance Authority, The Admiral at the Lake	
Project,	
Series A, 7.625%, 5/15/25	1,927,885
600,000 Illinois Finance Authority, The Admiral at the Lake	1,,,,,,,,,
Project,	
Series A, 7.75%, 5/15/30	683,352
2,000,000 Illinois Finance Authority, The Admiral at the Lake	003,332
Project,	
Series A, 8.0%, 5/15/40	2,288,860
3,200,000 Illinois Finance Authority, The Admiral at the Lake	2,200,000
Project,	
Series A, 8.0%, 5/15/46	3,658,656
1,485,000(b)(g)Metropolitan Pier & Exposition Authority,	3,030,030
McCormick Place,	
Series B, 6/15/22 (NATL Insured)	1,722,986
15,395,000(b)Metropolitan Pier & Exposition Authority,	1,722,900
McCormick Place,	
Series B, 6/15/22 (NATL Insured)	17,063,356
	17,005,550
1,140,000 Southwestern Illinois Development Authority,	1 061 124
Village of Sauget Project, 5.625%, 11/1/26	1,061,124
In Hono 1 907	\$ 43,911,465
Indiana - 1.8%	
250,000 City of Carmel, IN, Barrington Carmel Project,	ф 202 000
Series A, 7.0%, 11/15/32	\$ 282,008

750,000 City of Carmel, IN, Barrington Carmel Project, Series A, 7.125%, 11/15/42	846,765
500,000 City of Carmel, IN, Barrington Carmel Project,	562,970
Series A, 7.125%, 11/15/47 3,570,000 Vigo County Hospital Authority, Union Hospital,	
Inc., 5.8%, 9/1/47 (144A)	3,696,806 \$ 5,388,549
Kentucky - 1.9% 5,000,000 Kentucky Economic Development Finance	
Authority, Owensboro Medical Health System,	
Series A, 6.375%, 6/1/40	\$ 5,767,300
Louisiana - 3.1%	
2,260,000 Jefferson Parish Hospital Service District No. 2,	\$ 2.505.252
East Jefferson General Hospital, 6.375%, 7/1/41	\$ 2,585,372
1,500,000 Louisiana Local Government Environmental	
Facilities & Community Development Authority,	
Westlake Chemical Corp. Project, 6.75%, 11/1/32	1,622,250
3,620,000Louisiana Public Facilities Authority, Ochsner	
Clinic Foundation Project, Series A, 5.5%, 5/15/47	
	3,783,262
1,380,000(f)Louisiana Public Facilities Authority, Ochsner	
Clinic Foundation Project, Series A, 5.5%, 5/15/47	
	1,467,575
	\$ 9,458,459
Maine - 2.3%	
1,500,000 Maine Health & Higher Educational Facilities	
Authority, Maine General Medical Center, 7.5%,	
7/1/32	\$ 1,800,495
4,480,000 Maine Turnpike Authority, Series A, 5.0%, 7/1/42	5,206,522
	\$ 7,007,017
Maryland - 0.5%	
1,490,000 Maryland Health & Higher Educational Facilities	
Authority, City Neighbors, Series A, 6.75%, 7/1/44	
	\$ 1,630,149
Massachusetts - 3.5%	
987,910 Massachusetts Development Finance Agency,	
Linden Ponds, Inc., Series A-1, 5.5%, 11/15/46	\$ 848,891
7,100,000 Massachusetts Development Finance Agency,	\$ 040,091
WGBH Foundation, Series A, 5.75%, 1/1/42	
(AMBAC Insured)	9,186,193
(MADIAC Insured)	7,100,173
	X7 - 1
Massachusetts - (continued)	Value
485,000 Massachusetts Educational Financing Authority,	
Series I, 6.0%, 1/1/28	\$ 514,677
4,500,000(c)Massachusetts Health & Educational Facilities	Ψ 314,077
Authority, Quincy Medical Center, Series A, 6.5%,	
1/15/38	10,980
1/10/00	10,200

Principal Amount USD (\$)

	\$ 10,560,741
Michigan - 3.5%	
895,000(c)Doctor Charles Drew Academy, Certificate of	
Participation, 5.7%, 11/1/36	\$ 178,929
2,000,000 Kent Hospital Finance Authority, Metropolitan	2 001 720
Hospital Project, Series A, 6.25%, 7/1/40	2,001,720
2,640,000 Michigan State University, Series A, 5.0%, 8/15/41	2.020.624
6,100,000 Michigan Tobacco Settlement Finance Authority,	3,028,634
Series A, 6.0%, 6/1/48	5,529,528
Sciics A, 0.0 /0, 0/1/40	\$ 10,738,811
Minnesota - 0.8%	Ψ 10,730,011
2,000,000 Bloomington Port Authority, Radisson Blu Mall of	
America, 9.0%, 12/1/35	\$ 2,298,100
Montana - 0.1%	
1,600,000(c)Two Rivers Authority, Inc., 7.375%, 11/1/27	\$ 230,224
New Jersey - 2.0%	
3,000,000 New Jersey Economic Development Authority,	
Continental Airlines, 5.25%, 9/15/29	\$ 3,293,940
2,500,000 New Jersey Economic Development Authority,	2.770.500
Continental Airlines, 5.75%, 9/15/27	2,778,500
New Mexico - 1.5%	\$ 6,072,440
1,500,000 County of Otero, NM, Otero County Jail Project,	
6.0%, 4/1/23	\$ 1,505,745
2,960,000 County of Otero, NM, Otero County Jail Project,	Ψ 1,000,7 10
6.0%, 4/1/28	2,967,134
,	\$ 4,472,879
New York - 8.7%	
2,000,000 Chautauqua County Capital Resource Corp.,	
Women's Christian Association Project, Series A,	
8.0%, 11/15/30	\$ 2,048,920
2,000,000 Hempstead Local Development Corp., Molloy	
College Project, 5.75%, 7/1/39	2,234,220
1,000,000 New York State Dormitory Authority, Orange	1,001,660
Medical Center, 6.125%, 12/1/29	1,091,660
7,040,000(d)New York State Dormitory Authority, RIB, 16.118%, 5/29/14 (144A)	7,524,282
7,500,000 New York State Dormitory Authority, Series C,	7,524,202
5.0%, 3/15/39	8,715,450
1,500,000 New York State Dormitory Authority, Trustees of	-,,
Columbia University, 5.0%, 10/1/45	2,071,980
2,538,540 Westchester County Healthcare Corp., Series A,	
5.0%, 11/1/44	2,851,770
	\$ 26,538,282
North Dakota - 1.0%	
2,525,000(f)County of Burleigh, ND, St. Alexius Medical	ф 2 00 2 5 05
Center, 5.0%, 7/1/38	\$ 3,092,797

	3 T Q
Ohio - 4.4%	
2,500,000 Buckeye Tobacco Settlement Financing Authority,	
Asset-Backed, Series A-2, 5.875%, 6/1/47	\$ 2,200,025
1,700,000 Buckeye Tobacco Settlement Financing Authority,	. , ,
Asset-Backed, Series A-2, 6.0%, 6/1/42	1,515,210
5,000,000 Buckeye Tobacco Settlement Financing Authority,	1,616,210
Asset-Backed, Series A-2, 6.5%, 6/1/47	4,737,400
2,000,000(d)Ohio Air Quality Development Authority,	1,737,100
FirstEnergy Generation Corp. Project, 3.1%, 3/1/23	
This Emergy denoration corp. Project, 5.176, 571725	2,022,520
2,500,000(e)State of Ohio, Common Schools, Series B, 5.0%,	2,022,320
6/15/29	3,030,900
0/13/27	\$ 13,506,055
Oregon - 1.9%	Ψ 13,300,033
5,190,000 Oregon Health & Science University, Series E,	
5.0%, 7/1/32	\$ 5,965,282
3.0 %, 111132	\$ 3,903,282
Pennsylvania - 6.2%	
•	
1,550,000 Allegheny County Hospital Development	
Authority, South Hills Health, Series A, 5.125%,	¢ 1 557 500
5/1/25	\$ 1,557,580
1,280,000(c)Langhorne Manor Borough Higher Education	210.074
Authority, Lower Bucks Hospital, 7.35%, 7/1/22	319,974
5,000,000 Pennsylvania Economic Development Financing	5,000,000
Authority, USG Corp. Project, 6.0%, 6/1/31	5,000,900
500,000 Philadelphia Authority for Industrial Development,	
Greater Philadelphia Health Action, Inc., Project,	
Series A, 6.625%, 6/1/50	506,360
2,000,000 Philadelphia Authority for Industrial Development,	
Nueva Esperanze, Inc., 8.2%, 12/1/43	2,309,760
1,000,000 Philadelphia Authority for Industrial Development,	
Performing Arts Charter School Project, 6.5%,	
6/15/33 (144A)	1,069,590
2,000,000 Philadelphia Authority for Industrial Development,	
Performing Arts Charter School Project, 6.75%,	
6/15/43 (144A)	2,144,060
Principal	
Amount	
USD (\$)	Value
Pennsylvania - (continued)	
5,900,000 Philadelphia Hospitals & Higher Education	
Facilities Authority, Temple University Health	
System, Series A, 5.0%, 7/1/34	\$ 5,002,602
System, Series A, 3.0%, 1/1/34	\$ 5,993,692
Duanta Diag. 1 007	\$ 18,901,916
Puerto Rico - 1.0%	
4,255,000(e)Commonwealth of Puerto Rico, Series A, 8.0%,	A A A = <0.5
7/1/35	\$ 3,047,686
DI 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Rhode Island - 1.1%	
5,900,000(c)Central Falls Detention Facility Corp., 7.25%,	<u>.</u>
7/15/35	\$ 1,468,451

1,500,000 Rhode Island Health & Educational Building Corp.,	
Tockwatten Home Issue, 8.375%, 1/1/46	1,778,730
	\$ 3,247,181
Tennessee - 1.5%	
4,600,000 Sullivan County Health, Educational & Housing	
Facilities Board, Wellmont Health System Project,	
Series C, 5.25%, 9/1/36	\$ 4,699,314
Genes C, 3.23 %, 7/1/30	Ψ 1,022,311
Texas - 15.1%	
1,000,000 Arlington Higher Education Finance Corp.,	
Universal Academy, Series A, 7.0%, 3/1/34	\$ 1,063,930
2,500,000 Central Texas Regional Mobility Authority, Sub	\$ 1,005,750
Lien, 6.75%, 1/1/41	2,984,025
2,490,000(e)County of Harris, TX, Series A, 5.0%, 10/1/26	3,157,046
5,000,000(e) Goose Creek Consolidated Independent School	
District, Series C, 4.0%, 2/15/26 (PSF-GTD	5.740.200
Insured)	5,748,200
725,078(c)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	5,433,770
3,785,000 North Texas Tollway Authority, Series A, 5.0%,	
1/1/35	4,389,692
10,000,000(f)North Texas Tollway Authority, Series F, 5.75%,	
1/1/33	10,954,400
1,500,000 Red River Health Facilities Development Corp.,	
MRC Crestview, Series A, 8.0%, 11/15/41	1,756,680
3,960,000 Sanger Industrial Development Corp., Texas Pellets	
Project, Series B, 8.0%, 7/1/38	3,841,121
1,000,000 Tarrant County Cultural Education Facilities	
Finance Corp., Mirador Project, Series A, 8.125%,	
11/15/39	857,540
1,000,000 Tarrant County Cultural Education Facilities	,-
Finance Corp., Mirador Project, Series A, 8.25%,	
11/15/44	857,600
2,000,000 Tarrant County Cultural Education Facilities	037,000
Finance Corp., MRC Crestview Project, 8.0%,	
11/15/34	2,305,180
2,500,000 Travis County Health Facilities Development Corp.,	2,303,100
Longhorn Village Project, 7.125%, 1/1/46	2,802,550
Longhorn vinage Project, 7.125%, 1/1/40	\$ 46,151,741
Virginia - 1.4%	\$ 40,131,741
4,000,000 Upper Occoquan Sewage Authority, 4.0%, 7/1/41	\$ 4,292,120
4,000,000 Opper Occoquaii Sewage Authority, 4.0%, 7/1/41	\$ 4,292,120
Washington - 8.7%	
14,315,000(b)(e)State of Washington, Motor Vehicle Sales Tax,	
Series C, 6/1/22 (NATL Insured)	\$ 12,844,420
2,500,000 University of Washington, Series B, 5.0%, 6/1/29	3,102,675
3,795,000(f)Washington State Health Care Facilities Authority,	3,102,073
Fred Hutchinson Cancer Research Center, Series A,	A 421 772
6.0%, 1/1/33	4,431,763

1,150,000 Washington State Housing Finance Commission,

Mirabella Project, Series A, 6.75%, 10/1/47 1,258,836

5,000,000 Washington State Housing Finance Commission,

Skyline at First Hill Project, Series A, 5.625%,

1/1/27 5,049,700

\$ 26,687,394

West Virginia - 0.6%

2,000,000(c) City of Philippi, WV, Alderson-Broaddus College,

Inc., Series A, 7.75%, 10/1/44 \$ 1,200,080

725,000 West Virginia Hospital Finance Authority,

Highland Hospital Group, 9.125%, 10/1/41 787,437

\$ 1,987,517

Wisconsin - 5.0%

5,000,000 Public Finance Authority, Glenridge Palmer Ranch,

Series A, 8.25%, 6/1/46 \$ 6,270,650

750,000 Public Finance Authority, Roseman University

Health Sciences Project, 5.875%, 4/1/45 773,797

1,500,000 Public Finance Authority, SearStone CCRC Project,

Series A, 8.625%, 6/1/47 (144A) 1,794,825

225,000 Public Finance Authority, SearStone CCRC Project,

Series B, 8.375%, 6/1/20 (144A) 225,817

5,000,000 Wisconsin Department of Transportation, Series A,

5.0%, 7/1/28 6,216,450

\$ 15,281,539

TOTAL TAX EXEMPT OBLIGATIONS

(Cost \$349,318,347) \$ 378,016,005

Principal

Amount

USD (\$) Value

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) \$ 558,700

TOTAL MUNICIPAL COLLATERALIZED

DEBT OBLIGATION

(Cost \$10,000,000) \$558,700

TEMPORARY CASH

INVESTMENTS - 6.5% of Net Assets

TREASURY BILL - 6.5%

20,000,000(b)U.S. Treasury Bill, 2/18/16 \$19,998,020

TOTAL TEMPORARY CASH

INVESTMENTS

(Cost \$19,997,629) \$19,998,020

TOTAL INVESTMENTS IN

SECURITIES - 130.3%

(Cost - \$379,315,976) (h) \$ 398,572,725

OTHER ASSETS AND LIABILITIES

- 2.7% \$ 8,344,595

PREFERRED SHARES AT REDEMPTION VALUE, INCLUDING DIVIDENDS

PAYABLE - (33.0)% \$ (101,006,010)

NET ASSETS APPLICABLE TO COMMON SHAREOWNERS

-100.0% \$ 305,911,310

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 January 31, 2016, the value of these securities amounted to \$32,093,085, or 10.5% 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 January 31, 2016.

(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 January 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 January 31, 2016, the net unrealized appreciation on investments based on cost for federal tax purposes of \$373,828,436 was as follows:

Aggregate gross unrealized appreciation for all

investments in which there

is an excess of value over tax cost \$43,897,640

Aggregate gross unrealized depreciation for all

investments in which there

is an excess of tax cost over value (19,153,351)

Net unrealized appreciation \$24,744,289

For financial reporting purposes net unrealized appreciation on investments was \$19,256,749 and cost of investments aggregated \$379,315,976.

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 January 31, 2016, in valuing the Trust's investments.

	Level 1	Level 2	Level 3	Total
Tax Exempt Obligations	\$-	\$378,016,005	\$-	\$378,016,005
Municipal Collateralized Debt Obligation	_	558,700	_	558,700
Treasury Bill	_	19,998,020	_	19,998,020
Total Investments in Securities	\$-	\$398,572,725	\$-	\$398,572,725

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.

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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 March 30, 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 March 30, 2016

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

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

Date March 30, 2016

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