

PIONEER MUNICIPAL HIGH INCOME TRUST
Form N-CSR
December 27, 2007

OMB APPROVAL
OMB Number: 3235-0570
Expires: August 31, 2010
Estimated average burden
hours per response.....18.9

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

FORM N-CSR

CERTIFIED SHAREHOLDER REPORT OF REGISTERED
MANAGEMENT INVESTMENT COMPANIES

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)

Dorothy E. Bourassa, 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: May 1, 2006 through October 31, 2007

Form N-CSR is to be used by management investment companies to file reports with the Commission not later than 10 days after the transmission to stockholders of any report that is required to be transmitted to stockholders under Rule 30e-1 under the Investment Company Act of 1940 (17 CFR 270.30e-1). The Commission may use the information provided on Form N-CSR in its regulatory, disclosure review, inspection, and policymaking roles.

A registrant is required to disclose the information specified by Form N-CSR, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-CSR 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.

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

ITEM 1. REPORTS TO SHAREOWNERS.

PIONEER

MUNICIPAL
HIGH
INCOME
TRUST

MHI
Ticker Symbol

Semiannual
Report

10/31/07

[LOGO]PIONEER
Investments (R)

Table of Contents

Letter to Shareowners	2
Portfolio Management Discussion	4
Portfolio Summary	8
Prices and Distributions	9
Performance Update	10
Schedule of Investments	11
Financial Statements	21
Notes to Financial Statements	26
Results of Shareowner Meeting	35
Trustees, Officers and Service Providers	36

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

President's

Dear Shareowner,

Staying diversified and keeping your portfolio invested in the markets are two general investment principles that have served investors well over time. They were particularly useful guides in recent months, when an otherwise healthy long-term bull market was buffeted by problems in the mortgage and banking industries.

Since mid-year 2007, issues tied to poor underwriting practices in the subprime sector of the mortgage industry and to problems with risk management by banks and hedge funds have resulted in increased market volatility and rising concern about risks to U.S. economic growth.

U.S. economic growth had slowed over the past two years, but this has been due as much to the natural maturation of the cyclical expansion, as U.S. factories approached full utilization and the labor market approached full employment, as to rising commodity prices or short-term interest rates. The slowdown was, therefore, not entirely unwelcome, as it reduced the threat of higher inflation. More recently, however, there has been increasing concern that falling home prices, and/or disruptions in financial markets pose a larger threat to continuing economic growth, and we have seen two cuts in short-term interest rates from the Federal Reserve despite strong economic growth in the second and third quarters of this year. A weaker U.S. dollar has put upward pressure on some prices, but it has also significantly benefited exporters and companies competing in the global marketplace, stimulating U.S. economic growth.

Economic growth in the rest of the world remains relatively positive. In Europe, solid GDP growth has driven unemployment lower and supported growing consumption, although concerns about the impact of the strong Euro are a persistent source of worry. Japanese economic growth continues, albeit at a muted rate, and the country's deflationary problems are gradually receding. Economic growth in emerging market countries remains faster than in the developed world, led by China, which continues its rise as a world economic power.

Looking forward, the economic outlook continues to appear generally positive, although real estate prices, subprime mortgage defaults, and the possibility of a liquidity/credit crunch represent growing sources of risk. Central banks have responded to the stresses in the inter-bank and commercial paper markets by acting as "lenders of last resort" and, in the case of the Federal Reserve, by cutting rates.

The U.S. Federal Reserve and the world's other central banks continue to pursue policies aimed at producing low and stable inflation, believed to be the best backdrop for steady economic growth and low average unemployment over the long term. Keeping inflation low is also an important support for stock and bond valuations, and so central bank

2

Letter

policies have also been "investor friendly." We view the Fed's recent rate cuts as temporarily "buying insurance" against a credit crunch, which would threaten economic growth rather than as an abandonment of its commitment to keeping inflation low.

Even against this "wall of worry" backdrop, major asset classes produced

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

generally positive returns in the six-months ending October 31, 2007. Equity investors were by and large rewarded as, despite several interim corrections, the Standard & Poor's 500 Index returned 5%, the Dow Jones Industrial Average returned 8%, and the NASDAQ Composite Index returned 13%. International developed market equities performed comparably, with the MSCI EAFE Developed Market Index returning 8% over the six-month period; emerging markets equities performed better, with the MSCI Emerging Markets Index returning 40%. The U.S. bond market, as measured by the Lehman Aggregate Bond Index, returned 3% in the six-month period. The U.S. high-yield bond market, as measured by the Merrill Lynch High Yield Bond Master II Index, returned 0% for the same period, as its higher coupon yield was offset by price declines as yields rose on perceptions, of increasing credit risk.

Sudden swings in the markets are always to be expected. Just as staying diversified and invested are important investment principles, it is also important to pay attention to asset allocation. As always, we encourage you to work closely with your financial advisor to find the mix of stocks, bonds and money market assets that is best aligned to your particular risk tolerance and investment objective.

Respectfully,

/s/ Daniel K. Kingsbury

Daniel K. Kingsbury
President and CEO
Pioneer Investment Management USA Inc.

Any information in this shareowner report regarding market or economic trends or the factors influencing the Trust's historical or future performance are statements of the opinion of Trust management as of the date of this report. These statements should not be relied upon for any other purposes. Past performance is no guarantee of future results, and there is no guarantee that market forecasts discussed will be realized.

3

Pioneer Municipal High Income Trust

PORTFOLIO MANAGEMENT DISCUSSION 10/31/07

During one of the most turbulent periods for fixed-income investments, investors in Pioneer Municipal High Income Trust earned a relatively high level of tax-free income. In the following interview, David Eurkus, a member of the Pioneer fixed-income management team, discusses some of the factors that had an impact on the municipal bond market and the Trust.

Q: How did the Trust perform during the six months ending October 31, 2007?

A: For the six months ended October 31, 2007, Pioneer Municipal High Income Trust earned a total return of -1.54% at net asset value and -0.11% at market price. As of October 31, 2007, the Trust was selling at a discount of market price to net asset value of 4.7%. The Lehman Brothers Municipal Bond Index, which tracks the performance of investment-grade bonds, returned 1.30% for the six months ended October 31, 2007. The Lehman Brothers High Yield Municipal Bond Index returned -1.11% for the same period. While the Trust invested in municipal securities with a broad range of maturities and credit ratings, it maintained a dollar-weighted average portfolio credit quality of BBB+ at October 31, 2007. At the end of the six month period, the Trust held 116 issues in 36 states, territories, and the

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

District of Columbia. On October 31, 2007, the Trust's current yield was 5.75%, and its 30-day SEC yield based on market price was 7.31%.

Call 1-800-225-6292 or visit www.pioneerinvestments.com for the most recent month-end performance results. Current performance may be lower or higher than the performance data quoted.

The performance data quoted represents past performance, which is no guarantee of future results. Investment return and principal value will fluctuate, and shares, when redeemed, may be worth more or less than their original cost.

Q: What was the investment environment like during the six months ended October 31, 2007?

A: The investment environment changed dramatically during the six-month period.

4

Pioneer Municipal High Income Trust

Early in the period, municipal bonds performed well against a backdrop of moderating economic growth and relatively low interest rates. In July and August, it became apparent that the problems in the subprime mortgage market were worsening. As more and more homeowners defaulted on their mortgages, investors sold the lower quality securities that were backed by those mortgages. The sell-off in mortgage securities had a ripple effect throughout the fixed-income markets, as investors gravitated toward the safety of the Treasury market and abandoned other types of debt securities, including municipal bonds.

As most fixed-income assets fell out of favor, concerns about a credit crunch arose, causing an abrupt shift in Federal Reserve monetary policy. Instead of emphasizing inflation risk, the central bank began to focus on the potential for an economic slowdown. In September 2007, the Fed trimmed two key interest rates by half a percentage point - the discount rate, which is the rate the Fed charges member banks for loans, and the Fed funds rate, the rate banks charge each other for overnight loans. In October 2007, the Fed took interest rates down another one-quarter percentage point. At the end of the period, the Fed funds rate was 4.50%. These actions had a stabilizing effect on the debt markets, and prices of fixed-income investments began to recover from what we believe were oversold conditions.

Q: What strategies did you use in managing the Trust?

A: Because none of the Trust's holdings had credit problems, we made no substantive changes to the portfolio during the period. At the end of the six months, 42.1% of the Trust's total investments were in investment grade securities, 57.8% were in below investment grade securities and 0.1% were in cash equivalents. The Trust remained fully invested throughout the six-month period, and investments were diversified among several economic sectors that underpin the U.S. economy. Investments in health care, transportation and tobacco bonds accounted for the biggest positions. On October 31, 2007, approximately 13% of the Trust's net assets were invested in insured bonds whose interest and principal are insured by private companies.

Pioneer Municipal High Income Trust

 PORTFOLIO MANAGEMENT DISCUSSION 10/31/07

(continued)

On October 31, 2007, 23% of the Trust was leveraged. Our leveraging strategy has aided returns for several years. Should rates decline, the cost of borrowing would also go down, providing the Trust with a modest amount of additional income. A rise in short-term interest rates in the future would add to the Trust's borrowing costs, and the ability to sustain present dividend levels could be affected.

Q: What influenced performance during the six months ended October 31, 2007?

A: During the turbulence of July and August, investors unwound their positions in the riskiest assets. As a result, high-yield bonds were the worst performing area of the market; and the Trust's high-yield holdings had a negative impact on performance. The poor showing of the Trust's high-yield securities was not related to credit problems or concerns of default. It resulted from the general decline in the fixed-income markets, particularly of lower-quality assets. The investment-grade component of the Trust aided results, as it did not sell off as much as the high-yield position.

Q: What is your outlook over the next six months?

A: We plan to maintain our buy-and-hold strategy and keep the Trust fully invested in a variety of economic sectors. We believe this strategy should be beneficial, as we expect the pace of economic growth to continue to moderate. The Federal Reserve has already reduced interest rates. Lower rates should be positive for the Trust, as they have the potential for boosting the value of the securities in the portfolio.

Investments in high-yield or lower-rated securities are subject to greater-than-average risk. The Trust may invest in securities of issuers that are in default or that are in bankruptcy.

A portion of income may be subject to state, federal, and/or alternative minimum tax. Capital gains, if any, are subject to a capital gains tax. When interest rates rise, the prices of fixed-income securities held by the Trust will generally fall. Conversely, when interest rates fall the prices of fixed-income securities held by the Trust will generally rise. By concentrating in municipal securities, the Trust is more susceptible to adverse economic, political or regulatory developments than is a portfolio that invests more broadly. Investments in the Trust are subject to possible loss due to the financial failure of underlying securities and their inability to meet their debt obligations.

6

Pioneer Municipal High Income Trust

 The Trust may use leverage through the issuance of preferred shares with an aggregate liquidation preference of up to 25% of the Trust's total assets after such issuance. Leverage creates significant risks, including the risk that the

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Trust's income or capital appreciation will not be sufficient to cover the cost of leverage, which may adversely affect the return for the holders of common shares.

Risks of investing in the Trust are discussed in greater detail in the Trust's registration statement on Form N-2 relating to its common shares.

Any information in this shareowner report regarding market or economic trends or the factors influencing the Trust's historical or future performance are statements of the opinion of Trust management as of the date of this report. These statements should not be relied upon for any other purposes. Past performance is no guarantee of future results, and there is no guarantee that market forecasts discussed will be realized.

7

Pioneer Municipal High Income Trust

PORTFOLIO SUMMARY 10/31/07

Portfolio Diversification

(As a percentage of total investment portfolio)

[THE FOLLOWING DATA IS REPRESENTED BY A PIE CHART IN THE PRINTED MATERIAL.]

Health Revenue	25.6%
Airport Revenue	13.9%
Insured	13.2%
Tobacco Revenue	10.4%
General Obligation	8.2%
Facilities Revenue	4.6%
Pollution Control Revenue	4.6%
Development Revenue	4.5%
Education Revenue	4.2%
Housing Revenue	2.7%
Power Revenue	2.7%
Transportation Revenue	1.4%
Other Revenue	1.3%
Gaming Revenue	1.2%
Airline Revenue	0.7%
School District Revenue	0.6%
Utilities Revenue	0.2%

Portfolio Maturity

(As a percentage of long-term holdings)

[THE FOLLOWING DATA IS REPRESENTED BY A PIE CHART IN THE PRINTED MATERIAL.]

0-1 years	10.8%
1-3 years	14.4%
3-6 years	36.6%
6-8 years	8.3%
8-10 years	6.3%

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

10+ years

23.6%

Quality Distribution

(As a percentage of total investment portfolio; based on S&P ratings)

[THE FOLLOWING DATA IS REPRESENTED BY A PIE CHART IN THE PRINTED MATERIAL.]

AAA	24.5%
A	3.4%
BBB	14.2%
BB	4.0%
B	13.1%
CCC	4.4%
Not Rated	36.3%
Cash Equivalents	0.1%

The portfolio is actively managed and current holdings may be different.

8

Pioneer Municipal High Income Trust

PRICES AND DISTRIBUTIONS

Share Prices and Distributions

Market Value per Common Share	10/31/07	4/30/07	
	\$14.62	\$15.05	

Net Asset Value per Common Share	10/31/07	4/30/07	
	\$15.34	\$16.02	

Distributions per Common Share	Net Investment Income	Short-Term Capital Gains	Long-Term Capital Gains
(5/1/07 - 10/31/07)	\$0.4140	\$ -	\$ -

10 Largest Holdings

(As a percentage of long-term holdings) *

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

1.	Allegheny County Hospital Development Authority Revenue, 9.25%, 11/15/30	3.36%
2.	New Jersey Economic Development Authority Revenue, 6.25%, 9/15/29	3.12
3.	New York City Industrial Development Agency, 6.9%, 8/1/24	3.01
4.	Tobacco Settlement Financing Corp., 6.75%, 6/1/39	2.68
5.	Metropolitan Pier & Exposition Authority Dedicated State Tax Revenue, 0.0%, 6/15/22	2.64
6.	Massachusetts State Development Finance Agency, RIB, 7.226%, 10/1/39 (144A)	2.47
7.	Non-Profit Preferred Funding Trust I, Series E, 12.5%, 9/15/37	2.21
8.	Golden State Tobacco Securitization Corp., 7.875%, 6/1/42	1.96
9.	New York State Dormitory Authority Revenue, RIB, 7.554%, 7/1/26 (144A)	1.94
10.	Oklahoma Development Finance Authority Revenue, 5.625%, 8/15/29	1.94

* This list excludes temporary cash and derivative instruments. The portfolio is actively managed, and current holdings may be different. The holdings listed should not be considered recommendations to buy or sell any security listed.

9

Pioneer Municipal High Income Trust

 PERFORMANCE UPDATE 10/31/07

Investment Returns

 The mountain chart on the right shows the change in market value, including reinvestment of dividends and distributions, of a \$10,000 investment made in common shares of Pioneer Municipal High Income Trust, compared to that of the Lehman Brothers Municipal Bond Index and Lehman Brothers Non-Investment Grade Municipal Bond Index.

 Cumulative Total Returns
 (As of October 31, 2007)

Period	Net Asset Value (NAV)	Market Price
Life-of-Trust (7/21/03)	40.47%	27.89%
1 Year	1.39	6.65

[THE FOLLOWING DATA IS REPRESENTED BY A LINE CHART IN THE PRINTED MATERIAL.]

Value of \$10,000 Investment

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

	Pioneer Municipal High Income Trust	Lehman Brothers Municipal Bond Index*	Lehman Brothers Non-Investment Grade Municipal Bond Index*
7/03	\$10,000	\$10,000	\$10,000
	10,097	10,319	10,166
10/04	10,504	10,941	10,112
	11,261	11,219	9,990
10/06	11,991	11,863	10,092
10/07	12,789	12,209	10,033

* Index comparison begins July 31, 2003

Call 1-800-225-6292 or visit www.pioneerinvestments.com for the most recent month-end performance results. Current performance may be lower or higher than the performance data quoted.

Performance data shown represents past performance. Past performance is no guarantee of future results. Investment return and market price will fluctuate, and your shares may trade below net asset value ("NAV"), due to such factors as interest rate changes, and the perceived credit quality of borrowers.

Total investment return does not reflect broker sales charges or commissions. All performance is for common shares of the Trust.

Closed-end funds, unlike open-end funds, are not continuously offered. There is a one-time public offering and once issued, shares of closed-end funds are sold in the open market through a stock exchange and frequently trade at prices lower than their NAV. NAV is total assets less total liabilities, which includes preferred shares, divided by the number of common shares outstanding.

When NAV is lower than market price, dividends are assumed to be reinvested at the greater of NAV or 95% of the market price. When NAV is higher, dividends are assumed to be reinvested at prices obtained under the Trust's dividend reinvestment plan.

The performance table and graph do not reflect the deduction of fees and taxes that a shareowner would pay on Trust distributions or the redemption of Trust shares.

The Lehman Brothers Municipal Bond Index is a broad measure of the municipal bond market. Lehman Brothers Non-Investment Grade Municipal Bond Index totals over \$26 billion in market value and maintains over 1300 securities. Municipal bonds in this index have the following requirements: maturities of one year or greater, sub investment grade (below Baa or non-rated), fixed coupon rate, issued after 12/31/90, deal size over \$20 million, maturity size of at least \$3 million. Index returns are calculated monthly, assume reinvestment of dividends and, unlike Trust returns, do not reflect any fees, expenses or sales charges. You cannot invest directly in the Indices.

10

Pioneer Municipal High Income Trust

SCHEDULE OF INVESTMENTS 10/31/07 (unaudited)

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Principal Amount	S&P/Moody's Ratings (unaudited)		
		TAX EXEMPT OBLIGATIONS - 123.6% of Net Assets	
		Alabama - 1.3%	
\$ 1,500,000	BBB/NR	Camden Alabama Industrial Development Board, 6.125%, 12/1/24	\$ 1,601
1,000,000	NR/NR	Huntsville-Redstone Village Special Care Facilities Financing Authority, 5.5%, 1/1/28	938
2,000,000	NR/NR	Huntsville-Redstone Village Special Care Facilities Financing Authority, 5.5%, 1/1/43	1,832

			\$ 4,371

		Arizona - 5.6%	
5,000,000	B+/Baa3	Apache County Industrial Development Authority, 5.85%, 3/1/28	\$ 5,000
5,000,000	B+/Baa3	Apache County Industrial Development Authority, 5.875%, 3/1/33	5,000
7,000,000 (a)	NR/Aaa	Downtown Phoenix Hotel Corp., RIB, 7.097%, 7/1/40 (144A)	7,406
1,000,000	NR/Baa3	Pima County Industrial Development Authority, 7.25%, 7/1/31	1,071
500,000	NR/Baa2	Yavapai County Industrial Development Authority, 6.0%, 8/1/33	520

			\$ 18,998

		California - 8.4%	
6,000,000	A+/A1	California State General Obligation, 5.25%, 2/1/28	\$ 6,268
5,150,000+	AAA/Aaa	Golden State Tobacco Securitization Corp., 7.8%, 6/1/42	6,225
7,000,000+	AAA/Aaa	Golden State Tobacco Securitization Corp., 7.875%, 6/1/42	8,485
2,500,000	AAA/Aaa	University of California Revenue, 5.0%, 5/15/25	2,601
5,000,000	B-/NR	Valley Health System Hospital Revenue, 6.5%, 5/15/25	5,002

			\$ 28,582

		Connecticut - 1.5%	
5,000,000	BB/NR	Mohegan Tribe Indians Gaming Authority, 6.25%, 1/1/31	\$ 5,222

		Delaware - 0.4%	
765,000	NR/NR	Sussex County Delaware Revenue, 5.9%, 1/1/26	\$ 763
600,000	NR/NR	Sussex County Delaware Revenue, 6.0%, 1/1/35	601

			\$ 1,365

The accompanying notes are an integral part of these financial statements. 11

Pioneer Municipal High Income Trust

SCHEDULE OF INVESTMENTS 10/31/07 (unaudited) (continued)

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Principal Amount	S&P/Moody's Ratings (unaudited)		Va
\$ 5,000,000	BBB/Baa3	District of Columbia - 3.4% District of Columbia Tobacco Settlement Financing Corp., 6.5%, 5/15/33	\$ 5,190,
6,000,000	BBB/Baa3	District of Columbia Tobacco Settlement Financing Corp., 6.75%, 5/15/40	6,207,
			----- \$ 11,398,
2,000,000	NR/NR	Florida - 3.0% Beacon Lakes Community Development, 6.9%, 5/1/35	\$ 2,066,
1,000,000	NR/NR	St. Johns County Industrial Development Authority Revenue, 5.25%, 1/1/26	933,
2,000,000	NR/NR	St. Johns County Industrial Development Authority Revenue, 5.375%, 1/1/40	1,846,
5,000,000	NR/Baa2	Tallahassee Health Facilities Revenue, 6.375%, 12/1/30	5,180,
			----- \$ 10,027,
4,240,000 (a)	NR/Aaa	Georgia - 2.9% Atlanta Georgia Water & Waste Revenue, RIB, 7.267%, 11/1/43 (144A)	\$ 4,502,
2,400,000	NR/NR	Fulton County Residential Care Facilities Revenue, 5.0%, 7/1/27	2,150,
2,600,000	NR/NR	Fulton County Residential Care Facilities Revenue, 5.125%, 7/1/42	2,259,
1,000,000	NR/NR	Rockdale County Development Authority Revenue, 6.125%, 1/1/34	998,
			----- \$ 9,911,
5,000,000	NR/NR	Guam - 1.4% Northern Mariana Islands, 5.0%, 10/1/22	\$ 4,772,
5,000,000	BBB/Baa2	Idaho - 1.5% Power County Industrial Development Corp., 6.45%, 8/1/32	\$ 5,203,

12 The accompanying notes are an integral part of these financial statements.

Pioneer Municipal High Income Trust

Principal Amount	S&P/Moody's Ratings (unaudited)		Va
------------------	---------------------------------	--	----

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

\$ 1,000,000	NR/NR	Illinois - 5.8%	
		Centerpoint Intermodal Center, 8.0%,	
		6/15/23 (144A)	\$ 998
2,000,000	AAA/Aaa	Chicago Illinois O'Hare International Airport	
		Revenue, 5.0%, 1/1/33	2,056
1,000,000	NR/NR	Illinois Finance Authority Revenue,	
		6.0%, 11/15/27	1,006
1,000,000	NR/NR	Illinois Finance Authority Revenue,	
		6.0%, 11/15/39	987
1,500,000	NR/NR	Illinois Health Facilities Authority Revenue,	
		6.9%, 11/15/33	1,494
16,880,000 (b)	AAA/Aaa	Metropolitan Pier & Exposition Authority Dedicated	
		State Tax Revenue, 0.0%, 6/15/22	11,402
1,800,000	NR/NR	Southwestern Illinois Development Authority	
		Revenue, 5.625%, 11/1/26	1,742

			\$ 19,688

		Indiana - 3.0%	
5,000,000	A+/A2	Indiana Health & Educational Facility Financing	
		Authority Hospital Revenue, 5.0%, 2/15/39	\$ 4,883
1,000,000	BBB+/Baa1	Indiana State Development Finance Authority	
		Revenue, 5.6%, 12/1/32	1,007
4,300,000	BBB/Baa1	Indiana State Development Finance Authority	
		Revenue, 5.75%, 10/1/11	4,388

			\$ 10,279

		Louisiana - 1.5%	
5,000,000	NR/A3	Louisiana Public Facilities Authority Revenue,	
		5.5%, 5/15/47	\$ 5,030

		Massachusetts - 8.9%	
3,000,000	AAA/Aa2	Massachusetts Bay Transportation Authority,	
		5.0%, 7/1/31	\$ 3,244
7,050,000	AAA/Aaa	Massachusetts Health & Educational Facilities	
		Authority Revenue, 5.125%, 7/15/37	7,330
3,500,000	BBB/Baa3	Massachusetts Health & Educational Facilities	
		Authority Revenue, 6.25%, 7/1/22	3,686
5,000,000	BB+/NR	Massachusetts Health & Educational Facilities	
		Authority Revenue, 6.75%, 10/1/33	5,296
9,810,000 (a)	NR/Aaa	Massachusetts State Development Finance	
		Agency, RIB, 7.226%, 10/1/39 (144A)	10,668

			\$ 30,225

The accompanying notes are an integral part of these financial statements. 13

Pioneer Municipal High Income Trust

 SCHEDULE OF INVESTMENTS 10/31/07 (unaudited) (continued)

Principal Amount	S&P/Moody's Ratings (unaudited)	Value
---------------------	---------------------------------------	-------

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

		Michigan - 2.4%	
\$ 950,000	NR/NR	Doctor Charles Drew Academy, 5.7%, 11/1/36	\$ 872,138
1,500,000	BBB-/NR	John Tolfree Health System Corp., 6.0%, 9/15/23	1,532,325
2,000,000	BB-/Ba3	Michigan State Hospital Finance Authority Revenue, 5.5%, 8/15/23	1,896,720
4,010,000	BBB-/Ba1	Michigan State Hospital Finance Authority Revenue, 6.0%, 2/1/24	4,011,805
7,720,000	NR/NR	Wayne Charter County Special Airport Facilities Revenue, 6.75% (In Escrow)	-

			\$ 8,312,988

		Minnesota - 2.2%	
1,675,000	BB/NR	Duluth Economic Development Authority Health Care Facilities Revenue, 7.25%, 6/15/32	\$ 1,787,744
1,500,000	NR/NR	North Oaks Senior Housing Revenue, 6.0%, 10/1/33	1,504,905
2,000,000	NR/NR	North Oaks Senior Housing Revenue, 6.125%, 10/1/39	2,006,500
2,000,000	NR/NR	North Oaks Senior Housing Revenue, 6.5%, 10/1/47	2,043,080

			\$ 7,342,229

		Mississippi - 0.9%	
3,000,000	BBB/Ba1	Mississippi Business Finance Corp. Pollution Control Revenue, 5.9%, 5/1/22	\$ 3,033,390

		Montana - 0.5%	
1,600,000	NR/NR	Two Rivers Authority, Inc. Correctional Facility Improvement Revenue, 7.375%, 11/1/27	\$ 1,628,320

		Nevada - 2.2%	
1,000,000	BBB-/Baa3	Clark County Industrial Development Revenue, 5.45%, 3/1/38	\$ 1,038,770
4,600,000	B/NR	Clark County Industrial Development Revenue, 5.5%, 10/1/30	4,431,088
2,000,000	NR/NR	Nevada State Department of Business & Industry, 7.25%, 1/1/23	1,954,340

			\$ 7,424,198

		New Hampshire - 0.9%	
3,000,000	AAA/Aaa	Manchester School Facilities Revenue, 5.125%, 6/1/28	\$ 3,118,470

14 The accompanying notes are an integral part of these financial statements.

Pioneer Municipal High Income Trust

Principal
Amount

S&P/Moody's
Ratings
(unaudited)

Valu

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

			New Jersey - 10.2%	
\$ 2,000,000	B/B3		New Jersey Economic Development Authority Revenue, 6.25%, 9/15/19	\$ 2,014,82
13,350,000	B/B3		New Jersey Economic Development Authority Revenue, 6.25%, 9/15/29	13,496,98
1,000,000	B/B3		New Jersey Economic Development Authority Revenue, 6.4%, 9/15/23	1,016,65
6,150,000	B/B3		New Jersey Economic Development Authority Revenue, 7.0%, 11/15/30	6,376,38
10,000,000+	AAA/Aaa		Tobacco Settlement Financing Corp., 6.75%, 6/1/39	11,569,10

				\$ 34,473,93

			New Mexico - 1.3%	
1,500,000	NR/NR		Otero County New Mexico Project Revenue, 6.0%, 4/1/23	\$ 1,500,03
2,960,000	NR/NR		Otero County New Mexico Project Revenue, 6.0%, 4/1/28	2,932,32

				\$ 4,432,35

			New York - 10.9%	
2,000,000	A/NR		New York City Industrial Development Agency, 5.375%, 6/1/23	\$ 2,026,94
12,990,000	CCC+/Caa1		New York City Industrial Development Agency, 6.9%, 8/1/24	13,015,98
5,000,000	AAA/Aaa		New York City Trust Cultural Resources Revenue, 5.125%, 7/1/31	5,199,15
7,040,000 (a)	NR/Aaa		New York State Dormitory Authority Revenue, RIB, 7.554%, 7/1/26 (144A)	8,373,44
2,000,000	NR/NR		Suffolk County Industrial Development Agency, 7.25%, 1/1/30	2,068,68
6,000,000	AAA/Aaa		Triborough Bridge & Tunnel Authority Revenue, 5.25%, 11/15/30	6,280,74

				\$ 36,964,93

			North Carolina - 2.5%	
4,030,000	NR/NR		Charlotte North Carolina Special Facilities Revenue, 5.6%, 7/1/27	\$ 3,843,16
4,600,000	NR/NR		Charlotte North Carolina Special Facilities Revenue, 7.75%, 2/1/28	4,802,26

				\$ 8,645,43

The accompanying notes are an integral part of these financial statements. 15

Pioneer Municipal High Income Trust

 SCHEDULE OF INVESTMENTS 10/31/07 (unaudited) (continued)

Principal
 Amount

S&P/Moody's
 Ratings
 (unaudited)

Va

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

		Oklahoma - 6.2%	
\$ 3,000,000+	AAA/Aaa	Oklahoma Development Finance Authority Revenue, 5.625%, 8/15/19	\$ 3,138,
8,000,000+	AAA/Aaa	Oklahoma Development Finance Authority Revenue, 5.625%, 8/15/29	8,369,
4,100,000	B/Caa1	Tulsa Municipal Airport Revenue, 5.65%, 12/1/35	4,086,
1,225,000	B/Caa1	Tulsa Municipal Airport Revenue, 6.25%, 6/1/20	1,225,
4,350,000	B/Caa1	Tulsa Municipal Airport Revenue, 7.35%, 12/1/11	4,354,

			\$ 21,174,

		Pennsylvania - 6.7%	
3,000,000	BB/Ba2	Allegheny County Hospital Development Authority Revenue, 5.00%, 11/15/28	\$ 2,786,
1,550,000	NR/Baa1	Allegheny County Hospital Development Authority Revenue, 5.125%, 5/1/25	1,540,
12,300,000+	AAA/Ba3	Allegheny County Hospital Development Authority Revenue, 9.25%, 11/15/30	14,521,
1,000,000	B/NR	Columbia County Hospital Authority Health Care Revenue, 5.9%, 6/1/29	928,
1,000,000	BBB/Ba2	Hazleton Health Services Authority Hospital Revenue, 5.625%, 7/1/17	995,
1,280,000	NR/B2	Langhorne Manor Borough Higher Education & Health Authority Revenue, 7.35%, 7/1/22	1,292,
500,000	BBB+/NR	Pennsylvania Higher Educational Facilities Authority Revenue, 5.4%, 7/15/36	506,

			\$ 22,570,

		Rhode Island - 1.3%	
4,000,000	NR/NR	Central Falls Detention Facilities Revenue, 7.25%, 7/15/35	\$ 4,384,

		South Carolina - 2.0%	
5,185,000+	BBB+/Baa1	South Carolina Jobs Economic Development Authority Revenue, 6.375%, 8/1/34	\$ 5,902,
665,000+	BBB+/Baa1	South Carolina Jobs Economic Development Authority Revenue, 6.375%, 8/1/34	755,

			\$ 6,658,

		Tennessee - 3.1%	
7,000,000	BBB+/Baa1	Johnson City Health & Educational Facilities Board Hospital Revenue, 7.5%, 7/1/33	\$ 7,968,
2,480,000	NR/Ba2	Knox County Health Educational & Housing Facilities Board Hospital Revenue, 6.375%, 4/15/22	2,528,

			\$ 10,496,

16 The accompanying notes are an integral part of these financial statements.

Pioneer Municipal High Income Trust

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Principal Amount	S&P/Moody's Ratings (unaudited)		Va
\$ 1,345,000	NR/Ba2	Texas - 12.7% Bexar County Housing Finance Corp., 8.0%, 12/1/36	\$ 1,399,
1,000,000	CCC+/Caal	Dallas-Fort Worth International Airport Revenue, 6.0%, 11/1/14	989,
5,000,000	CCC+/Caal	Dallas-Fort Worth International Airport Revenue, 6.15%, 5/1/29	4,997,
4,000,000	NR/NR	Decatur Hospital Authority Revenue, 7.0%, 9/1/25	4,234,
1,000,000+	NR/NR	Georgetown Health Facilities Development Corp., 6.25%, 8/15/29	1,065,
2,000,000	NR/NR	Gulf Coast Industrial Development Authority Revenue, 7.0%, 12/1/36	2,024,
3,750,000	B-/B3	Houston Airport System Special Facilities Revenue, 5.7%, 7/15/29	3,523,
5,340,000	NR/NR	Lubbock Health Facilities Development Corp., 6.625%, 7/1/36	5,557,
2,450,000 (a)	NR/NR	Northside Independent School District, RIB, 7.548%, 6/15/33 (144A)	2,710,
500,000	CCC/Caal	Sabine River Authority Pollution Control Revenue, 6.15%, 8/1/22	503,
7,040,000 (a)	NR/Aa1	Texas State, RIB, 7.165%, 4/1/30 (144A)	7,757,
1,365,000 (c)	AAA/NR	Willacy County Local Government Corp. Revenue, 6.0%, 3/1/09	1,392,
1,500,000	NR/NR	Willacy County Local Government Corp. Revenue, 6.0%, 9/1/10	1,525,
5,250,000	NR/NR	Willacy County Local Government Corp. Revenue, 6.875%, 9/1/28	5,531,
			----- \$ 43,212, -----
800,000	NR/NR	Utah - 0.2% Spanish Fork City Charter School Revenue, 5.55%, 11/15/26	\$ 769,
1,500,000	A-/A3	Vermont - 0.5% Vermont Educational & Health Buildings Financing Agency Revenue, 6.0%, 10/1/28	\$ 1,642,
1,000,000	BBB+/Baa2	Virginia - 0.3% Peninsula Ports Authority, 6.0%, 4/1/33	\$ 1,041,

The accompanying notes are an integral part of these financial statements. 17

Pioneer Municipal High Income Trust

SCHEDULE OF INVESTMENTS 10/31/07 (unaudited)

(continued)

Principal Amount

S&P/Moody's Ratings (unaudited)

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

\$ 4,710,000	AAA/Aaa	Washington - 7.3%	
		Spokane Public Facilities District Hotel/Motel Tax & Sales, 5.75%, 12/1/27	\$ 5,12
7,025,000	BBB/Baa3	Tobacco Settlement Authority Revenue, 6.625%, 6/1/32	7,27
14,315,000	AAA/Aaa	Washington State General Obligation, 0.0%, 6/1/22	7,41
5,000,000	NR/NR	Washington State Housing Finance Committee Nonprofit Revenue Bonds, 5.625%, 1/1/27	4,91

			\$ 24,72

		Wisconsin - 0.7%	
2,400,000	NR/NR	Aztalan Wisconsin Exempt Facilities Revenue, 7.5%, 5/1/18	\$ 2,29

		TOTAL TAX-EXEMPT OBLIGATIONS (Cost \$383,921,355)	\$ 419,42

		MUNICIPAL COLLATERALIZED DEBT OBLIGATION - 2.8% of Net Assets	
10,000,000 (d)	NR/NR	Non-Profit Preferred Funding Trust I, Series E, 12.5%, 9/15/37	\$ 9,56

		TOTAL MUNICIPAL COLLATERALIZED DEBT OBLIGATION (Cost \$10,000,000)	\$ 9,56

Shares		COMMON STOCK - 0.9% of Net Assets	
159,872		Northwest Airlines Corp.	\$ 2,96

		TOTAL COMMON STOCK (Cost \$6,612,756)	\$ 2,96

		TAX-EXEMPT MONEY MARKET MUTUAL FUND - 0.1% of Net Assets	
286,574		BlackRock Liquidity Funds MuniFund Portfolio	\$ 28

		TOTAL TAX-EXEMPT MONEY MARKET MUTUAL FUND (Cost \$286,574)	\$ 28

		TOTAL INVESTMENTS IN SECURITIES - 127.4% (Cost \$400,820,685) (e) (f)	\$ 432,24

		OTHER ASSETS AND LIABILITIES - 2.4%	\$ 8,06

		PREFERRED SHARES AT REDEMPTION VALUE, INCLUDING DIVIDENDS PAYABLE - (29.8)%	\$ (101,00

		NET ASSETS APPLICABLE TO COMMON SHAREOWNERS - 100.0%	\$ 339,30

18 The accompanying notes are an integral part of these financial statements.

Pioneer Municipal High Income Trust

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

RIB Residual Interest Bonds

NR Security not rated by S&P or Moody's.

(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 October 31, 2007 the value of these securities amounted to \$42,417,175 or 12.5% of net assets applicable to common shareowners.

+ Prerefunded bonds have been collateralized by U.S. Treasury securities or U.S. Government Agencies 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.

(a) The interest rate is subject to change periodically and inversely based upon prevailing market rates. The interest rate shown is the rate at October 31, 2007.

(b) Debt obligation initially issued at one coupon which converts to a higher coupon at a specific date. The rate shown is the rate at October 31, 2007.

(c) Escrow to maturity.

(d) The interest rate is subject to change periodically. The interest rate shown is the rate at October 31, 2007.

(e) The concentration of investments by type of obligation/market sector is as follows:

Insured	13.3%
General Obligation	8.3
Revenue Bonds:	
Health Revenue	25.8
Airport Revenue	13.9
Tobacco Revenue	10.5
Facilities Revenue	4.6
Pollution Control Revenue	4.6
Development Revenue	4.6
Education Revenue	4.2
Housing Revenue	2.8
Power Revenue	2.7
Transportation Revenue	1.4
Other Revenue	1.3
Gaming Revenue	1.2
School District Revenue	0.6
Utilities Revenue	0.2

	100.0%
	=====

(f) At October 31, 2007, the net unrealized gain on investments based on cost for federal income tax purposes of \$399,113,705 was as follows:

Aggregate gross unrealized gain for all investments in which there is an excess of

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

value over tax cost	\$40,71
Aggregate gross unrealized loss for all investments in which there is an excess of tax cost over value	(7,58

Net unrealized gain	\$33,12
	=====

The accompanying notes are an integral part of these financial statements. 19

Pioneer Municipal High Income Trust

 SCHEDULE OF INVESTMENTS 10/31/07 (continued)

For financial reporting purposes net unrealized gain on investments was \$31,419,732 and cost of investments aggregated \$400,820,685.

Purchases and sales of securities (excluding temporary cash investments) for the six months ended October 31, 2007, aggregated \$32,847,534 and \$35,112,077, respectively.

20 The accompanying notes are an integral part of these financial statements.

Pioneer Municipal High Income Trust

 STATEMENT OF ASSETS AND LIABILITIES 10/31/07 (unaudited)

ASSETS:

Investments in securities, at value (cost \$400,820,685)	\$432,240,417
Receivables -	
Interest	8,145,300
Unrealized appreciation on interest rate swaps	366,695
Prepaid expenses	30,169

Total assets	\$440,782,581

LIABILITIES:

Due to custodian	\$ 105,333
Due to affiliate	230,988
Administration fee payable	26,185
Accrued expenses	112,687

Total liabilities	\$ 475,193

PREFERRED SHARES AT REDEMPTION VALUE:

\$25,000 liquidation value per share applicable to 4,040 shares, including dividends payable of \$4,863	\$101,004,863

NET ASSETS APPLICABLE TO COMMON SHAREOWNERS:

Paid-in capital	\$315,162,552
Undistributed net investment income	2,799,146
Accumulated net realized loss on investments and interest rate swaps	(10,445,600)
Net unrealized gain on investments	31,419,732
Net unrealized gain on interest rate swaps	366,695

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Net assets applicable to common shareowners \$339,302,525
=====

NET ASSET VALUE PER SHARE:

No par value, (unlimited number of shares authorized)
Based on \$339,302,525/22,120,893 common shares \$ 15.34
=====

The accompanying notes are an integral part of these financial statements. 21

Pioneer Municipal High Income Trust

STATEMENT OF OPERATIONS (unaudited)

For the Six Months Ended 10/31/07

INVESTMENT INCOME:

Interest \$ 13,104,558

EXPENSES:

Management fees	\$ 1,338,797	
Administration fees and reimbursement	195,243	
Transfer agent fees and expenses	19,642	
Auction agent fees	135,286	
Custodian fees	14,899	
Registration fees	12,433	
Professional fees	29,134	
Printing expense	11,069	
Trustees' fees	6,486	
Pricing fees	9,755	

Total expenses \$ 1,772,744

Net investment income \$ 11,331,814

REALIZED AND UNREALIZED GAIN ON
INVESTMENTS AND INTEREST RATE SWAPS:

Net realized gain from:

Investments	\$ 3,129,304	
Interest rate swaps	270,723	\$ 3,400,027

Change in net unrealized gain from:

Investments	\$ (18,571,630)	
Interest rate swaps	(321,461)	\$ (18,893,091)

Net gain on investments and interest rate swaps \$ (15,493,064)

DISTRIBUTIONS TO PREFERRED SHAREOWNERS
FROM NET INVESTMENT INCOME

Net decrease in net assets applicable to common
shareowners resulting from operations \$ (6,025,760)
=====

22 The accompanying notes are an integral part of these financial statements.

Pioneer Municipal High Income Trust

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

STATEMENTS OF CHANGES IN NET ASSETS

For the Six Months Ended 10/31/07 and the Year Ended 4/30/07, respectively

	Six Months Ended 10/31/07 (unaudited)	Year Ended 4/30/07
FROM OPERATIONS:		
Net investment income	\$ 11,331,814	\$ 22,598,909
Net realized gain on investments and interest rate swaps	3,400,027	1,433,015
Change in net unrealized gain on investments and interest rate swaps	(18,893,091)	15,845,695
Distributions to preferred shareowners from net investment income	(1,864,510)	(3,523,640)
	-----	-----
Net increase (decrease) in net assets applicable to common shareowners	\$ (6,025,760)	\$ 36,353,979
	-----	-----
DISTRIBUTIONS TO COMMON SHAREOWNERS FROM:		
Net investment income (\$0.41 and \$0.77 per share, respectively)	\$ (9,158,049)	\$ (16,988,846)
	-----	-----
Total distributions to common shareowners	\$ (9,158,049)	\$ (16,988,846)
	-----	-----
Net increase (decrease) in net assets applicable to common shareowners	\$ (15,183,809)	\$ 19,365,133
NET ASSETS APPLICABLE TO COMMON SHAREOWNERS:		
Beginning of period	\$ 354,486,334	\$ 335,121,201
	-----	-----
End of period	\$ 339,302,525	\$ 354,486,334
	=====	=====
Undistributed net investment income	\$ 2,799,146	\$ 2,489,891
	=====	=====

The accompanying notes are an integral part of these financial statements. 23

Pioneer Municipal High Income Trust

FINANCIAL HIGHLIGHTS

	Six Months Ended 10/31/07 (unaudited)	Year Ended 4/30/07	Year Ended 4/30/06	Year 4/30/05
Per Common Share Operating Performance				
Net asset value, beginning of period	\$ 16.02	\$ 15.15	\$ 15.62	\$ 14.88
	-----	-----	-----	-----
Increase (decrease) from investment operations:(a)				

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Net investment income	\$ 0.51	\$ 1.02	\$ 1.02	\$ 1.02
Net realized and unrealized gain (loss) on investments and interest rate swaps	(0.70)	0.78	(0.48)	0
Dividends and distributions to preferred shareowners from:				
Net investment income	(0.08)	(0.16)	(0.12)	(0)
Net realized gains	-	-	-	0
	-----	-----	-----	-----
Net increase (decrease) from investment operations	\$ (0.27)	\$ 1.64	\$ 0.42	\$ 2
Dividends and distributions to common shareowners from:				
Net investment income	(0.41)	(0.77)	(0.89)	(1)
Net realized gains	-	-	-	(0)
Capital charge with respect to issuance of:				
Common shares	-	-	-	0
Preferred shares	-	-	-	0
	-----	-----	-----	-----
Net increase (decrease) in net asset value	\$ (0.68)	\$ 0.87	\$ (0.47)	\$ 0
	=====	=====	=====	=====
Net asset value, end of period(e)	\$ 15.34	\$ 16.02	\$ 15.15	\$ 15
	=====	=====	=====	=====
Market value, end of period(e)	\$ 14.62	\$ 15.05	\$ 13.22	\$ 14
	=====	=====	=====	=====
Total return(f)	(0.11)%	20.04%	(1.85)%	13
Ratios to average net assets of common shareowners:				
Net expenses(g)	1.03% (h)	1.06%	1.03%	1
Net investment income before preferred share dividends	6.57% (h)	6.49%	6.64%	7
Preferred share dividends	1.08% (h)	1.01%	0.80%	0
Net investment income available to common shareowners	5.49% (h)	5.48%	5.84%	7
Portfolio turnover	7%	18%	20%	
Net assets of common shareowners, end of period (in thousands)	\$339,303	\$354,486	\$335,121	\$345,
Preferred shares outstanding (in thousands)	\$101,000	\$101,000	\$101,000	\$101,
Asset coverage per preferred share, end of period	\$108,987	\$112,759	\$107,962	\$110,
Average market value per preferred share	\$25,000	\$ 25,000	\$ 25,000	\$ 25,
Liquidation value, including dividends payable, per preferred share	\$ 25,001	\$ 25,014	\$ 25,011	\$25,
Ratios to average net assets of common shareowners before reimbursement waivers and reimbursement of expenses:				
Net expenses(g)	1.03% (h)	1.06%	1.03%	1
Net investment income before preferred share dividends	6.57% (h)	6.49%	6.64%	7
Preferred share dividends	1.08% (h)	1.01%	0.80%	0
Net investment income available to common shareowners	5.49% (h)	5.48%	5.84%	7

24 The accompanying notes are an integral part of these financial statements.

Pioneer Municipal High Income Trust

FINANCIAL HIGHLIGHTS

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

- (a) The per common share data presented above is based upon the average common shares outstanding for the periods presented.
- (b) The Trust's common shares were first publicly offered on July 18, 2003.
- (c) Net asset value immediately after the closing of the first public offering was \$14.30.
- (d) Amount is less than \$0.01 per share.
- (e) Net asset value and market value are published in Barron's on Saturday, The Wall Street Journal on Monday and The New York Times on Monday and Saturday.
- (f) Total investment return is calculated assuming a purchase of common shares at the current market value on the first day and a sale at the current market value on the last day of the periods reported. Dividends and distributions, if any, are assumed for purposes of this calculation to be reinvested at prices obtained under the Trust's dividend reinvestment plan. Total investment return does not reflect shareowner brokerage commissions. Total investment return less than a full period is not annualized. Past performance is not a guarantee of future results.
- (g) Expense ratios do not reflect the effect of dividend payments to preferred shareowners.
- (h) Annualized.

The information above represents the operating performance data for a share of common stock outstanding, total investment return, ratios to average net assets of common shareowners and other supplemental data for the periods indicated. This information has been determined based upon financial information provided in the financial statements and market value data for the Trust's common shares.

The accompanying notes are an integral part of these financial statements. 25

Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/07 (unaudited)

1. Organization and Significant Accounting Policies

Pioneer Municipal High Income Trust (the "Trust") was organized as a Delaware statutory trust on March 13, 2003. Prior to commencing operations on July 21, 2003, the Trust had no operations other than matters relating to its organization and registration as a diversified, closed-end management investment company under the Investment Company Act of 1940, as amended. The Trust's primary investment objective is to provide its common shareholders with a high level of current income exempt from regular federal income tax. As a secondary investment objective, the Trust also may seek capital appreciation to the extent consistent with its primary investment objective.

The Trust may invest in both investment and below investment grade (high-yield) municipal securities with a broad range of maturities and credit ratings. Debt securities rated below investment grade are commonly referred to as "junk bonds" and are considered speculative. These securities involve greater risk of loss, are subject to greater price volatility, and are less liquid, especially during periods of economic uncertainty or change, than higher rated debt securities.

Information regarding the Trust's principal risks is contained in the Trust's original offering prospectus with additional information included in the Trust's shareowner reports. Please refer to those documents when considering the Trust's investment risks. At times, the Trust's investments may represent industries or industry sectors that are interrelated or have common risks,

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

making it more susceptible to any economic, political, or regulatory developments or other risks affecting those industries and sectors.

The Trust's financial statements have been prepared in conformity with U.S. generally accepted accounting principles that require the management of the Trust to, among other things, make estimates and assumptions that affect the reported amounts of assets and liabilities, and the reported amounts of income, expenses and gains and losses on investments during the reporting year. Actual results could differ from those estimates.

26

Pioneer Municipal High Income Trust

The following is a summary of significant accounting policies followed by the Trust in the preparation of its financial statements, which are consistent with those policies generally accepted in the investment company industry:

A. Security Valuation

Security transactions are recorded as of trade date. Securities are valued at prices supplied by independent pricing services, which consider such factors as Treasury spreads, yields, maturities and ratings. Valuations may be supplemented by values obtained from dealers and other sources, as required. The values of interest rate swaps are determined by obtaining dealer quotations. Securities for which market quotations are not readily available are valued at their fair values as determined by, or under the direction of, the Board of Trustees. At October 31, 2007 there were no securities fair valued. Temporary cash investments are valued at net asset value.

Dividend income is recorded on the ex-dividend date, except that certain dividends from foreign securities where the ex-dividend date may have passed are recorded as soon as the Trust becomes aware of the ex-dividend data in the exercise of reasonable diligence. Discount and premium on debt securities are accreted or amortized, respectively, daily on an effective yield to maturity basis and are included in interest income. Interest income, including interest bearing cash accounts, is recorded on an accrual basis.

Gains and losses on sales of investments are calculated on the identified cost method for both financial reporting and federal income tax purposes.

B. Federal Income Taxes

It is the Trust's policy to comply with the requirements of the Internal Revenue Code applicable to regulated investment companies and to distribute all of its taxable income and net realized capital gains, if any, to its shareowners. Therefore, no federal income tax provision is required.

The amounts and characterizations of distributions to shareowners for financial reporting purposes are determined in accordance with federal income tax rules. Therefore, the source of the Trust's distributions may be shown in the accompanying financial statements as either from or in excess of net investment income or net

27

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Pioneer Municipal High Income Trust

 NOTES TO FINANCIAL STATEMENTS 10/31/07 (unaudited) (continued)

realized gain on investment transactions, or from paid in-capital, depending on the type of book/tax differences that may exist.

At April 30, 2007, the Trust had a capital loss carryforward of \$13,845,627 which is comprised of \$9,706,870 which will expire in 2014 and \$4,138,757 which will expire in 2015, if not utilized.

The tax character of current year distributions paid to common and preferred shareowners will be determined at the end of the fiscal year. The distributions during the year ended April 30, 2007 was as follows:

	2007

Distributions paid from:	
Tax exempt income	\$20,032,010
Ordinary income	480,476

Total	\$20,512,486
	=====

The following shows the components of distributable earnings on a federal income tax basis at April 30, 2007.

Undistributed tax-exempt income	\$ 682,501
Undistributed ordinary income	192,444
Capital loss carryforward	(13,845,627)
Dividend payable	(58,545)
Unrealized appreciation	52,353,009

Total	\$39,323,782
	=====

The difference between book-basis and tax-basis unrealized appreciation is primarily attributable to the difference between book and tax amortization methods for premiums and discounts on fixed income securities, the accrual of income on securities in default and the difference between book and tax accounting for swap agreements.

C. Automatic Dividend Reinvestment Plan

All common shareowners automatically participate in the Automatic Dividend Reinvestment Plan (the "Plan"), under which participants receive all dividends and capital gain distributions (collectively,

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Pioneer Municipal High Income Trust

"dividends") in full and fractional common shares of the Trust in lieu of cash. Shareowners may elect not to participate in the Plan. Shareowners not participating in the Plan receive all dividends and capital gain distributions in cash. Participation in the Plan is completely voluntary and may be terminated or resumed at any time without penalty by notifying American Stock Transfer & Trust Company, the agent for shareowners in administering the Plan (the "Plan Agent"), in writing prior to any dividend record date; otherwise such termination or resumption will be effective with respect to any subsequently declared dividend or other distribution.

Whenever the Trust declares a dividend on common shares payable in cash, participants in the Plan will receive the equivalent in common shares acquired by the Plan Agent either (i) through receipt of additional unissued but authorized common shares from the Trust or (ii) by purchase of outstanding common shares on the New York Stock Exchange or elsewhere. If, on the payment date for any dividend the net asset value per common share is equal to or less than the market price per share plus estimated brokerage trading fees ("market premium"), the Plan Agent will invest the dividend amount in newly issued common shares. The number of newly issued common shares to be credited to each account will be determined by dividing the dollar amount of the dividend by the net asset value per common share on the date the shares are issued, provided that the maximum discount from the then current market price per share on the date of issuance does not exceed 5%. If, on the payment date for any dividend, the net asset value per common share is greater than the market value ("market discount"), the Plan Agent will invest the dividend amount in common shares acquired in open-market purchases. There are no brokerage charges with respect to newly issued common shares. However, each participant will pay a pro rata share of brokerage trading fees incurred with respect to the Plan Agent's open-market purchases. Participating in the Plan does not relieve shareowners from any federal, state or local taxes which may be due on dividends paid in any taxable year. Shareowners holding Plan shares in a brokerage account may not be able to transfer the shares to another broker and continue to participate in the Plan.

29

Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/07 (unaudited) (continued)

2. Management Agreement

Pioneer Investment Management, Inc. ("PIM"), a wholly owned indirect subsidiary of UniCredito Italiano S.p.A. ("UniCredito Italiano"), manages the Trust's portfolio. Management fees payable under the Trust's Advisory Agreement with PIM are calculated daily at the annual rate of 0.60% of the Trust's average daily managed assets. "Managed assets" is the average daily value of the Trust's total assets minus the sum of the Trust's liabilities, which liabilities exclude debt related to leverage, short-term debt and the aggregate liquidation preference of any outstanding preferred shares. For the six months ended October 31, 2007, the net management fee was equivalent to 0.60% of the Trust's average daily managed assets, which was equivalent to 0.78% of the

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Trust's average daily net assets attributable to the common shareowners.

In addition, under PIM's management and administration agreements, certain other services and costs are paid by PIM and reimbursed by the Trust. At October 31, 2007, \$230,988 was payable to PIM related to management costs, administrative costs and certain other services and is included in "Due to affiliate" on the Statement of Assets and Liabilities.

The Trust has retained Princeton Administrators, LLC ("Princeton") to provide certain administrative services to the Trust on its behalf. The Trust pays Princeton a monthly fee at an annual rate of 0.07% of the average daily value of the Trust's managed assets up to \$500 million and 0.03% for average daily managed assets in excess of \$500 million, subject to a minimum monthly fee of \$10,000.

3. Transfer Agents

Pioneer Investment Management Shareholder Services, Inc. ("PIMSS"), a wholly owned indirect subsidiary of UniCredito Italiano, through a sub-transfer agency agreement with American Stock Transfer & Trust Company provides substantially all transfer agent and shareowner services related to the Trust's common shares at negotiated rates. Deutsche Bank Trust Company Americas ("Deutsche Bank") is the transfer agent, registrar, dividend paying agent and redemption agent with respect to the Trust's Auction Preferred Shares ("APS"). The Trust pays Deutsche Bank an annual fee, as is agreed to from time to time by the Trust and Deutsche Bank, for providing such services.

30

Pioneer Municipal High Income Trust

4. Interest Rate Swaps

The Trust may enter into interest rate swap transactions to attempt to protect itself from increasing dividend or interest expense on its leverage resulting from increasing short-term interest rates. The cost of leverage may rise with an increase in interest rates, generally having the effect of lower yields and potentially lower dividends to common shareowners. Interest rate swaps can be used to "lock in" the cost of leverage and reduce the negative impact that rising short-term interest rates would have on the Trust's leveraging costs.

An interest rate swap is an agreement between two parties, which involves exchanging a floating rate and fixed rate interest payments for a specified period of time. Interest rate swaps involve the accrual of the net interest payments between the parties on a daily basis, with the net amount recorded within the unrealized appreciation/depreciation of interest rate swaps on the Statement of Assets and Liabilities. Once the interim payments are settled in cash, at the pre-determined dates specified in the agreement, the net amount is recorded as realized gain or loss from interest rate swaps on the Statement of Operations. During the term of the swap, changes in the value of the swap are recognized as unrealized gains and losses by "marking-to-market" the value of the swap based on values obtained from dealer quotations. When the swap is terminated, the Trust will record a realized gain or loss equal to the difference, if any, between the proceeds from (or cost of) closing the contract and the cost basis of the contract. The Trust is exposed to credit risk in the event of non-performance by the other party to the interest rate swap. However, at October 31, 2007, the Trust does not anticipate non-performance by any counterparty. Risk may also arise with regard to market movements in the value

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

of the swap arrangement that do not exactly offset the changes in the related dividend requirement or interest expense on the Trust's leverage.

31

Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/07 (unaudited) (continued)

Under the terms of the agreement entered into by the Trust, the Trust receives a floating rate of interest and pays a fixed rate of interest for the term. Details of the swap agreement outstanding as of October 31, 2007 were as follows:

Counterparty	Termination Date	Notional Amount (000)	Fixed Rate	Floating Rate	Unrealized Appreciation
UBS AG	April 5, 2009	\$50,000	2.665%	1 month BMA	\$366,695

5. Trust Shares

There are an unlimited number of common shares of beneficial interest authorized. Of the 22,120,893 common shares of beneficial interest outstanding at October 31, 2007, PIM owned 6,981 shares.

During the six months ended October 31, 2007 and the year ended April 30, 2007, there were no share transactions by the Trust. All reinvested distributions were satisfied with previously issued shares purchased in the open market by the Plan Agent and credited to shareowner accounts.

The Trust may classify or reclassify any unissued common shares of beneficial interest into one or more series of preferred shares of beneficial interest. As of October 31, 2007, there were 4,040 APS as follows: Series A-2,000 and Series B-2,040.

Dividends on Series A and Series B are cumulative at a rate which is reset every seven days based on the results of an auction. Dividend rates ranged from 3.19% to 4.10% during the six months ended October 31, 2007.

The Trust may not declare dividends or make other distributions on its common shares or purchase any such shares if, at the time of the declaration, distribution or purchase, asset coverage with respect to the outstanding preferred shares would be less than 200%.

The APS are redeemable at the option of the Trust, in whole or in part, on any dividend payment date at \$25,000 per share plus any accumulated or unpaid dividends, whether or not declared. The APS are also subject to mandatory redemption at \$25,000 per share plus any accumulated or unpaid dividends, whether or not declared, if certain requirements relating to the composition of the assets and liabilities of the Trust as set forth in the Agreement and Declaration of Trust are not satisfied.

32

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Pioneer Municipal High Income Trust

The holders of APS have voting rights equal to the holders of the Trust's common shares (one vote per share) and will vote together with holders of the common shares as a single class. However, holders of APS are also entitled to elect two of the Trust's Trustees. In addition, the Investment Company Act of 1940, as amended, requires that along with approval by shareowners that might otherwise be required, the approval of the holders of a majority of any outstanding preferred shares, voting separately as a class, would be required to (a) adopt any plan of reorganization that would adversely affect the preferred shares and (b) take any action requiring a vote of security holders, including, among other things, changes in the Trust's subclassification as a closed-end management investment company or changes in its fundamental investment restrictions.

6. New Pronouncements

In September 2006, Statement of Financial Accounting Standards No. 157, Fair Value Measurements ("SFAS 157"), was issued and is effective for fiscal years beginning after November 15, 2007. SFAS 157 defines fair value, establishes a framework for measuring fair value and expands disclosures about fair value measurements. At this time, management is currently evaluating the implications of SFAS 157 and its impact on the Trust's financial statement disclosures, if any, has not yet been determined.

7. Subsequent Events

Subsequent to October 31, 2007, the Board of Trustees of the Trust declared a dividend from undistributed net investment income of \$0.07 per common share payable November 30, 2007, to shareowners of record on November 15, 2007.

Subsequent to October 31, 2007, dividends declared and paid on preferred shares totaled \$297,310 in aggregate for the two outstanding preferred share series through December 6, 2007.

33

Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/07 (unaudited) (continued)

ADDITIONAL INFORMATION (unaudited)

During the period, there were no material changes in the Trust's investment objective or fundamental policies that were not approved by the shareowners. There were no changes in the Trust's charter or By-Laws that would delay or prevent a change in control of the Trust which have not been approved by the shareowners. There have been no changes in the principal risk factors associated with investment in the Trust. Day-to-day management of the Trust's portfolio is the responsibility of David Eurkus. Mr. Eurkus is supported by the fixed income team. Members of this team manage other Pioneer funds investing primarily in fixed income securities. Mr. Eurkus joined Pioneer as a senior vice president in January 2000 and has been an investment professional since 1969.

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Notice is hereby given in accordance with Section 23(c) of the Investment Company Act of 1940 that the Trust may purchase, from time to time, its common shares in the open market.

CEO CERTIFICATION DISCLOSURE (unaudited)

The Trust's Chief Executive Officer has submitted to the New York Stock Exchange the annual CEO certification as required by Section 303A.12(a) of the NYSE Listed Company Manual. In addition, the Trust has filed with the Securities and Exchange Commission the certification of its Chief Executive Officer and Chief Financial Officer required by Section 302 of the Sarbanes-Oxley Act.

34

Pioneer Municipal High Income Trust

RESULTS OF SHAREHOLDER MEETING (unaudited)

On September 11, 2007, Pioneer Municipal High Income Trust held its annual meeting of shareowners to elect Class I Trustees. All Class I Trustees were elected. Here are the detailed results of the votes.

Proposal 1 - To elect Class I Trustees.

Nominee	Affirmative	Withheld
David R. Bock	21,124,932	476,802
Stephen K. West	21,096,842	504,892
John F. Cogan, Jr.+	3,693	8

+ Elected by Preferred Shares only

35

Pioneer Municipal High Income Trust

TRUSTEES, OFFICERS AND SERVICE PROVIDERS

Trustees

John F. Cogan, Jr., Chairman
David R. Bock
Mary K. Bush
Margaret B.W. Graham
Daniel K. Kingsbury
Thomas J. Perna
Marguerite A. Piret
Stephen K. West
John Winthrop

Officers

John F. Cogan, Jr., President
Daniel K. Kingsbury, Executive
Vice President
Vincent Nave, Treasurer
Dorothy E. Bourassa, Secretary

Investment Adviser

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

Pioneer Investment Management, Inc.

Custodian
Brown Brothers Harriman & Co.

Legal Counsel
Bingham McCutchen LLP

Transfer Agent
Pioneer Investment Management Shareholder Services, Inc.

Shareowner Services and Sub-Transfer Agent
American Stock Transfer & Trust Company

Preferred Share Auction/Transfer Agent and Registrar
Deutsche Bank Trust Company Americas

Sub-Administrator
Princeton Administrators, LLC

Proxy Voting Policies and Procedures of the Fund are available without charge, upon request, by calling our toll free number (1-800-225-6292). Information regarding how the Fund voted proxies relating to portfolio securities during the most recent 12-month period ended June 30 is publicly available to shareowners at www.pioneerinvestments.com. This information is also available on the Securities and Exchange Commission's web site at <http://www.sec.gov>.

36

HOW TO CONTACT PIONEER

We are pleased to offer a variety of convenient ways for you to contact us for assistance or information.

You can call American Stock Transfer & Trust Company (AST) for:

Account Information 1-800-710-0935

Or write to AST:

For	Write to
General inquiries, lost dividend checks, change of address, lost stock certificates, stock transfer	American Stock Transfer & Trust Operations Center 6201 15th Ave. Brooklyn, NY 11219

Dividend reinvestment plan (DRIP)	American Stock Transfer & Trust Wall Street Station P.O. Box 922 New York, NY 10269-0560
-----------------------------------	---

Website www.amstock.com

For additional information, please contact your investment advisor or visit our web site www.pioneerinvestments.com.

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

The Trust files a complete statement of investments with the Securities and Exchange Commission for the first and third quarters for each fiscal year on Form N-Q. Shareowners may view the filed Form N-Q by visiting the Commission's web site at <http://www.sec.gov>. The filed form may also be viewed and copied at the Commission's Public Reference Room in Washington, DC. Information regarding the operations of the Public Reference Room may be obtained by calling 1-800-SEC-0330.

The Trust's Chief Executive Officer is required by the New York Stock Exchange's Listing Standards to file annually with the Exchange a certification that he is not aware of any violation by the Trust of the Exchange's Corporate Governance Standards applicable to the Trust. The Trust has filed such certification.

ITEM 2. CODE OF ETHICS.

(a) Disclose whether, as of the end of the period covered by the report, the registrant has adopted a code of ethics that applies to the registrant's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, regardless of whether these individuals are employed by the registrant or a third party. If the registrant has not adopted such a code of ethics, explain why it has not done so.

The registrant has adopted, as of the end of the period covered by this report, a code of ethics that applies to the registrant's principal executive officer, principal financial officer, principal accounting officer and controller.

(b) For purposes of this Item, the term "code of ethics" means written standards that are reasonably designed to deter wrongdoing and to promote:

- (1) Honest and ethical conduct, including the ethical handling of actual or apparent conflicts of interest between personal and professional relationships;
- (2) Full, fair, accurate, timely, and understandable disclosure in reports and documents that a registrant files with, or submits to, the Commission and in other public communications made by the registrant;
- (3) Compliance with applicable governmental laws, rules, and regulations;
- (4) The prompt internal reporting of violations of the code to an appropriate person or persons identified in the code; and
- (5) Accountability for adherence to the code.

(c) The registrant must briefly describe the nature of any amendment, during the period covered by the report, to a provision of its code of ethics that applies to the registrant's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, regardless of whether these individuals are employed by the registrant or a third party, and that relates to any element of the code of ethics definition enumerated in paragraph (b) of this Item. The registrant must file a copy of any such amendment as an exhibit pursuant to Item 10(a), unless the registrant has elected to satisfy paragraph (f) of this Item by posting its code of ethics on its website pursuant to paragraph (f)(2) of this Item, or by undertaking to provide its code of ethics to any person without charge, upon request, pursuant to paragraph (f)(3) of this Item.

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

The registrant has made no amendments to the code of ethics during the period covered by this report.

(d) If the registrant has, during the period covered by the report, granted a waiver, including an implicit waiver, from a provision of the code of ethics to the registrant's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, regardless of whether these individuals are employed by the registrant or a third party, that relates to one or more of the items set forth in paragraph (b) of this Item, the registrant must briefly describe the nature of the waiver, the name of the person to whom the waiver was granted, and the date of the waiver.

Not applicable.

(e) If the registrant intends to satisfy the disclosure requirement under paragraph (c) or (d) of this Item regarding an amendment to, or a waiver from, a provision of its code of ethics that applies to the registrant's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions and that relates to any element of the code of ethics definition enumerated in paragraph (b) of this Item by posting such information on its Internet website, disclose the registrant's Internet address and such intention.

Not applicable.

(f) The registrant must:

(1) File with the Commission, pursuant to Item 10(a), a copy of its code of ethics that applies to the registrant's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, as an exhibit to its annual report on this Form N-CSR;

(2) Post the text of such code of ethics on its Internet website and disclose, in its most recent report on this Form N-CSR, its Internet address and the fact that it has posted such code of ethics on its Internet website; or

(3) Undertake in its most recent report on this Form N-CSR to provide to any person without charge, upon request, a copy of such code of ethics and explain the manner in which such request may be made.
See Item 10(2)

ITEM 3. AUDIT COMMITTEE FINANCIAL EXPERT.

(a) (1) Disclose that the registrant's board of trustees has determined that the registrant either:

(i) Has at least one audit committee financial expert serving on its audit committee; or

(ii) Does not have an audit committee financial expert serving on its audit committee.

The registrant's Board of Trustees has determined that the registrant has at least one audit committee financial expert.

(2) If the registrant provides the disclosure required by paragraph (a)(1)(i) of this Item, it must disclose the name of the audit committee financial expert and whether that person is "independent." In order to be considered "independent" for purposes of this Item, a member of an audit

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

committee may not, other than in his or her capacity as a member of the audit committee, the board of trustees, or any other board committee:

- (i) Accept directly or indirectly any consulting, advisory, or other compensatory fee from the issuer; or
- (ii) Be an "interested person" of the investment company as defined in Section 2(a)(19) of the Act (15 U.S.C. 80a-2(a)(19)).

Ms. Marguerite A. Piret, an independent trustee, is such an audit committee financial expert.

(3) If the registrant provides the disclosure required by paragraph (a)(1)(ii) of this Item, it must explain why it does not have an audit committee financial expert.

Not applicable.

ITEM 4. PRINCIPAL ACCOUNTANT FEES AND SERVICES.

(a) Disclose, under the caption AUDIT FEES, the aggregate fees billed for each of the last two fiscal years for professional services rendered by the principal accountant for the audit of the registrant's annual financial statements or services that are normally provided by the accountant in connection with statutory and regulatory filings or engagements for those fiscal years.

N/A

(b) Disclose, under the caption AUDIT-RELATED FEES, the aggregate fees billed in each of the last two fiscal years for assurance and related services by the principal accountant that are reasonably related to the performance of the audit of the registrant's financial statements and are not reported under paragraph (a) of this Item. Registrants shall describe the nature of the services comprising the fees disclosed under this category.

N/A

(c) Disclose, under the caption TAX FEES, the aggregate fees billed in each of the last two fiscal years for professional services rendered by the principal accountant for tax compliance, tax advice, and tax planning. Registrants shall describe the nature of the services comprising the fees disclosed under this category.

N/A

(d) Disclose, under the caption ALL OTHER FEES, the aggregate fees billed in each of the last two fiscal years for products and services provided by the principal accountant, other than the services reported in paragraphs (a) through (c) of this Item. Registrants shall describe the nature of the services comprising the fees disclosed under this category.

N/A

(e) (1) Disclose the audit committee's pre-approval policies and procedures described in paragraph (c)(7) of Rule 2-01 of Regulation S-X.

PIONEER FUNDS

APPROVAL OF AUDIT, AUDIT-RELATED, TAX AND OTHER SERVICES
PROVIDED BY THE INDEPENDENT AUDITOR

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

SECTION I - POLICY PURPOSE AND APPLICABILITY

The Pioneer Funds recognize the importance of maintaining the independence of their outside auditors. Maintaining independence is a shared responsibility involving Pioneer Investment Management, Inc ("PIM"), the audit committee and the independent auditors.

The Funds recognize that a Fund's independent auditors: 1) possess knowledge of the Funds, 2) are able to incorporate certain services into the scope of the audit, thereby avoiding redundant work, cost and disruption of Fund personnel and processes, and 3) have expertise that has value to the Funds. As a result, there are situations where it is desirable to use the Fund's independent auditors for services in addition to the annual audit and where the potential for conflicts of interests are minimal. Consequently, this policy, which is intended to comply with Rule 210.2-01(C)(7), sets forth guidelines and procedures to be followed by the Funds when retaining the independent audit firm to perform audit, audit-related tax and other services under those circumstances, while also maintaining independence.

Approval of a service in accordance with this policy for a Fund shall also constitute approval for any other Fund whose pre-approval is required pursuant to Rule 210.2-01(c)(7)(ii).

In addition to the procedures set forth in this policy, any non-audit services that may be provided consistently with Rule 210.2-01 may be approved by the Audit Committee itself and any pre-approval that may be waived in accordance with Rule 210.2-01(c)(7)(i)(C) is hereby waived.

Selection of a Fund's independent auditors and their compensation shall be determined by the Audit Committee and shall not be subject to this policy.

SECTION II - POLICY

SERVICE CATEGORY	SERVICE CATEGORY DESCRIPTION	SPECIFIC PRE-APPROVED SERVICE SUBCATEGORIES
I. AUDIT SERVICES	Services that are directly related to performing the independent audit of the Funds	<ul style="list-style-type: none"> o Accounting research assistance o SEC consultation, registration statements, and reporting o Tax accrual related matters o Implementation of new accounting standards o Compliance letters (e.g. rating agency letters) o Regulatory reviews and assistance regarding financial matters o Semi-annual reviews (if requested) o Comfort letters for closed end offerings
II. AUDIT-RELATED SERVICES	Services which are not prohibited under Rule 210.2-01(C)(4) (the "Rule") and are related extensions of the audit services support the audit, or use the knowledge/expertise gained	<ul style="list-style-type: none"> o AICPA attest and agreed-upon procedures o Technology control assessments o Financial reporting control assessments o Enterprise security architecture assessment

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

from the audit procedures as a foundation to complete the project. In most cases, if the Audit-Related Services are not performed by the Audit firm, the scope of the Audit Services would likely increase. The Services are typically well-defined and governed by accounting professional standards (AICPA, SEC, etc.)

AUDIT COMMITTEE APPROVAL POLICY

AUDIT COMMITTEE REPORTING POLICY

o "One-time" pre-approval for the audit period for all pre-approved specific service subcategories. Approval of the independent auditors as auditors for a Fund shall constitute pre approval for these services.

o A summary of all such services and related fees reported at each regularly scheduled Audit Committee meeting.

o "One-time" pre-approval for the fund fiscal year within a specified dollar limit for all pre-approved specific service subcategories

o A summary of all such services and related fees (including comparison to specified dollar limits) reported quarterly.

o Specific approval is needed to exceed the pre-approved dollar limit for these services (see general Audit Committee approval policy below for details on obtaining specific approvals)

o Specific approval is needed to use the Fund's auditors for Audit-Related Services not denoted as "pre-approved", or to add a specific service subcategory as "pre-approved"

SECTION III - POLICY DETAIL, CONTINUED

SERVICE CATEGORY

SERVICE CATEGORY DESCRIPTION

SPECIFIC PRE-APPROVED SERVICE SUBCATEGORIES

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

<p>III. TAX SERVICES</p>	<p>Services which are not prohibited by the Rule, if an officer of the Fund determines that using the Fund's auditor to provide these services creates significant synergy in the form of efficiency, minimized disruption, or the ability to maintain a desired level of confidentiality.</p>	<ul style="list-style-type: none"> o Tax planning and support o Tax controversy assistance o Tax compliance, tax returns, excise tax returns and support o Tax opinions
--------------------------	--	---

AUDIT COMMITTEE APPROVAL POLICY	AUDIT COMMITTEE REPORTING POLICY
<ul style="list-style-type: none"> o "One-time" pre-approval for the fund fiscal year within a specified dollar limit o Specific approval is needed to exceed the pre-approved dollar limits for these services (see general Audit Committee approval policy below for details on obtaining specific approvals) o Specific approval is needed to use the Fund's auditors for tax services not denoted as pre-approved, or to add a specific service subcategory as "pre-approved" 	<ul style="list-style-type: none"> o A summary of all such services and related fees (including comparison to specified dollar limits) reported quarterly.

SECTION III - POLICY DETAIL, CONTINUED

SERVICE CATEGORY	SERVICE CATEGORY DESCRIPTION	SPECIFIC PRE-APPROVED SERVICE SUBCATEGORIES
<p>IV. OTHER SERVICES</p> <p>A. SYNERGISTIC, UNIQUE QUALIFICATIONS</p>	<p>Services which are not prohibited by the Rule, if an officer of the Fund determines that using the Fund's auditor to provide these services creates significant synergy in the form of efficiency, minimized disruption,</p>	<ul style="list-style-type: none"> o Business Risk Management support o Other control and regulatory compliance projects

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

the ability to maintain a desired level of confidentiality, or where the Fund's auditors possess unique or superior qualifications to provide these services, resulting in superior value and results for the Fund.

AUDIT COMMITTEE APPROVAL POLICY

AUDIT COMMITTEE REPORTING POLICY

- o "One-time" pre-approval for the fund fiscal year within a specified dollar limit
- o Specific approval is needed to exceed the pre-approved dollar limits for these services (see general Audit Committee approval policy below for details on obtaining specific approvals)
- o Specific approval is needed to use the Fund's auditors for "Synergistic" or "Unique Qualifications" Other Services not denoted as pre-approved to the left, or to add a specific service subcategory as "pre-approved"
- o A summary of all such services and related fees (including comparison to specified dollar limits) reported quarterly.

SECTION III - POLICY DETAIL, CONTINUED

SERVICE CATEGORY	SERVICE CATEGORY DESCRIPTION	SPECIFIC PROHIBITED SERVICE SUBCATEGORIES
PROHIBITED SERVICES	Services which result in the auditors losing independence status under the Rule.	<ol style="list-style-type: none"> 1. Bookkeeping or other services related to the accounting records or financial statements of the audit client* 2. Financial information systems design and implementation* 3. Appraisal or valuation services, fairness* opinions, or contribution-in-kind reports 4. Actuarial services (i.e., setting actuarial reserves versus actuarial

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

- audit work)*
- 5. Internal audit outsourcing services*
- 6. Management functions or human resources
- 7. Broker or dealer, investment advisor, or investment banking services
- 8. Legal services and expert services unrelated to the audit
- 9. Any other service that the Public Company Accounting Oversight Board determines, by regulation, is impermissible

AUDIT COMMITTEE APPROVAL POLICY

AUDIT COMMITTEE REPORTING POLICY

- o These services are not to be performed with the exception of the(*) services that may be permitted if they would not be subject to audit procedures at the audit client (as defined in rule 2-01(f)(4)) level the firm providing the service.

- o A summary of all services and related fees reported at each regularly scheduled Audit Committee meeting will serve as continual confirmation that has not provided any restricted services.

GENERAL AUDIT COMMITTEE APPROVAL POLICY:

- o For all projects, the officers of the Funds and the Fund's auditors will each make an assessment to determine that any proposed projects will not impair independence.
- o Potential services will be classified into the four non-restricted service categories and the "Approval of Audit, Audit-Related, Tax and Other Services" Policy above will be applied. Any services outside the specific pre-approved service subcategories set forth above must be specifically approved by the Audit Committee.
- o At least quarterly, the Audit Committee shall review a report summarizing the services by service category, including fees, provided by the Audit firm as set forth in the above policy.

(2) Disclose the percentage of services described in each of paragraphs (b) through (d) of this Item that were approved by the audit committee pursuant to paragraph (c)(7)(i)(C) of Rule 2-01 of Regulation S-X.

N/A

(f) If greater than 50 percent, disclose the percentage of hours expended on the principal accountant's engagement to audit the registrant's financial statements for the most recent fiscal year that were attributed to work performed by persons other than the principal accountant's full-time, permanent employees.

N/A

(g) Disclose the aggregate non-audit fees billed by the registrant's accountant

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

for services rendered to the registrant, and rendered to the registrant's investment adviser (not including any sub-adviser whose role is primarily portfolio management and is subcontracted with or overseen by another investment adviser), and any entity controlling, controlled by, or under common control with the adviser that provides ongoing services to the registrant for each of the last two fiscal years of the registrant.

N/A

(h) Disclose whether the registrant's audit committee of the board of trustees has considered whether the provision of non-audit services that were rendered to the registrant's investment adviser (not including any subadviser whose role is primarily portfolio management and is subcontracted with or overseen by another investment adviser), and any entity controlling, controlled by, or under common control with the investment adviser that provides ongoing services to the registrant that were not pre-approved pursuant to paragraph (c)(7)(ii) of Rule 2-01 of Regulation S-X is compatible with maintaining the principal accountant's independence.

N/A

Item 5. Audit Committee of Listed Registrants

(a) If the registrant is a listed issuer as defined in Rule 10A-3 under the Exchange Act (17 CFR 240.10A-3), state whether or not the registrant has a separately-designated standing audit committee established in accordance with Section 3(a)(58)(A) of the Exchange Act (15 U.S.C. 78c(a)(58)(A)). If the registrant has such a committee, however designated, identify each committee member. If the entire board of directors is acting as the registrants audit committee as specified in Section 3(a)(58)(B) of the Exchange Act (15 U.S.C. 78c(a)(58)(B)), so state.

N/A

(b) If applicable, provide the disclosure required by Rule 10A-3(d) under the Exchange Act (17 CFR 240.10A-3(d)) regarding an exemption from the listing standards for audit committees.

N/A

Item 6. Schedule of Investments.

File Schedule I Investments in securities of unaffiliated issuers as of the close of the reporting period as set forth in 210.12-12 of Regulation S-X [17 CFR 210.12-12], unless the schedule is included as part of the report to shareholders filed under Item 1 of this Form.

Included in Item 1

ITEM 7. DISCLOSURE OF PROXY VOTING POLICIES AND PROCEDURES FOR CLOSED-END MANAGEMENT INVESTMENT COMPANIES.

A closed-end management investment company that is filing an annual report on this Form N-CSR must, unless it invests exclusively in non-voting securities, describe the policies and procedures that it uses to determine how to vote proxies relating to portfolio securities, including the procedures that the

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

company uses when a vote presents a conflict between the interests of its shareholders, on the one hand, and those of the company's investment adviser; principal underwriter; or any affiliated person (as defined in Section 2(a)(3) of the Investment Company Act of 1940 (15 U.S.C. 80a-2(a)(3)) and the rules thereunder) of the company, its investment adviser, or its principal underwriter, on the other. Include any policies and procedures of the company's investment adviser, or any other third party, that the company uses, or that are used on the company's behalf, to determine how to vote proxies relating to portfolio securities.

N/A

Item 8. Portfolio Managers of Closed-End Management Investment Companies.

(a) If the registrant is a closed-end management investment company that is filing an annual report on this Form N-CSR, provide the following information:

(1) State the name, title, and length of service of the person or persons employed by or associated with the registrant or an investment adviser of the registrant who are primarily responsible for the day-to-day management of the registrant's portfolio (Portfolio Manager). Also state each Portfolio Manager's business experience during the past 5 years.

Information not required in semi annual reports on form NCSR.

Item 9. Purchases of Equity Securities by Closed-End Management Investment Company and Affiliated Purchasers.

(a) If the registrant is a closed-end management investment company, in the following tabular format, provide the information specified in paragraph (b) of this Item with respect to any purchase made by or on behalf of the registrant or any affiliated purchaser, as defined in Rule 10b-18(a)(3) under the Exchange Act (17 CFR 240.10b-18(a)(3)), of shares or other units of any class of the registrant's equity securities that is registered by the registrant pursuant to Section 12 of the Exchange Act (15 U.S.C. 781). Instruction to paragraph (a). Disclose all purchases covered by this Item, including purchases that do not satisfy the conditions of the safe harbor of Rule 10b-18 under the Exchange Act (17 CFR 240.10b-18), made in the period covered by the report. Provide disclosures covering repurchases made on a monthly basis. For example, if the reporting period began on January 16 and ended on July 15, the chart would show repurchases for the months from January 16 through February 15, February 16 through March 15, March 16 through April 15, April 16 through May 15, May 16 through June 15, and June 16 through July 15.

During the period covered by this report, there were no purchases made by or on behalf of the registrant or any affiliated purchaser as defined in Rule 10b-18(a)(3) under the Securities Exchange Act of 1934 (the Exchange Act), of shares of the registrant's equity securities that are registered by the registrant pursuant to Section 12 of the Exchange Act.

Item 10. Submission of Matters to a Vote of Security Holders.

Describe any material changes to the procedures by which shareholders

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

may recommend nominees to the registrants board of directors, where those changes were implemented after the registrant last provided disclosure in response to the requirements of Item 7(d)(2)(ii)(G) of Schedule 14A (17 CFR 240.14a-101), or this Item.

There have been no material changes to the procedures by which the shareholders may recommend nominees to the registrants board of directors since the registrant last provided disclosure in response to the requirements of Item 7(d)(2)(ii)(G) of Schedule 14(A) in its definitive proxy statement, or this Item.

ITEM 11. CONTROLS AND PROCEDURES.

(a) Disclose the conclusions of the registrant's principal executive officer or officers and principal financial officer or officers, or persons performing similar functions, about the effectiveness of the registrant's disclosure controls and procedures (as defined in Rule 30a-2(c) under the Act (17 CFR 270.30a-2(c))) based on their evaluation of these controls and procedures as of a date within 90 days of the filing date of the report that includes the disclosure required by this paragraph.

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 whether or not there were significant changes in the registrant's internal controls or in other factors that could significantly affect these controls subsequent to the date of their evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

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.

The registrant's principal executive officer and principal financial officer, however, voluntarily are reporting the following information:

In August of 2006 the registrant's investment adviser enhanced its internal procedures for reporting performance information required to be included in prospectuses. Those enhancements involved additional internal controls over the appropriateness of performance data generated for this purpose. Such enhancements were made following an internal review which identified prospectuses relating to certain classes of shares of a limited number of registrants where, inadvertently, performance information not reflecting the deduction of applicable sales charges was included. Those prospectuses were revised, and the revised prospectuses were distributed to shareholders.

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME TRUST - Form N-CSR

ITEM 12. EXHIBITS.

File the exhibits listed below as part of this Form. Letter or number the exhibits in the sequence indicated.

(a) Any code of ethics, or amendment thereto, that is the subject of the disclosure required by Item 2, to the extent that the registrant intends to satisfy the Item 2 requirements through filing of an exhibit.

(b) A separate certification for each principal executive officer and principal financial officer of the registrant as required by Rule 30a-2 under the Act (17 CFR 270.30a-2).

Filed herewith.

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/ John F. Cogan, Jr.
John F. Cogan, Jr, President

Date December 28, 2007

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/ John F. Cogan, Jr.
John F. Cogan, Jr., President

Date December 28, 2007

By (Signature and Title)* /s/ Vincent Nave
Vincent Nave, Treasurer

Date December 28, 2007

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