PIONEER MUNICIPAL HIGH INCOME TRUST Form N-CSR January 03, 2006

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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, 2004 through October 31, 2005

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.

ITEM 1. REPORTS TO SHAREOWNERS.

PIONEER

MUNICIPAL

HIGH INCOME TRUST

Semiannual Report

10/31/05

[LOGO] PIONEER
Investments(R)

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Pioneer Municipal High Income Trust

LETTER TO SHAREOWNERS 10/31/05

Dear Shareowner,

Questions about the economic outlook moved from theoretical to real when Hurricanes Katrina and Rita wreaked devastation on people and property across much of the Gulf Coast. Before the storms struck, the economy had been motoring forward, with strong profit growth and good jobs numbers being reported across a range of sectors. Despite 12 straight hikes by the Federal Reserve Board, interest rates were at tolerable levels, and businesses and households were managing to live with rising energy costs. The Fed raised rates again on November 1, 2005, suggesting continued concern that inflationary fires are merely banked, not extinguished. The stimulative effect of massive recovery spending may have been a factor in the Fed's decision. Damage to many Gulf area facilities may also keep oil and gasoline supplies tight and restrain GDP growth for a time. By late in the third quarter, energy prices had backed off peak levels, but remained high enough to prompt worries over their impact on consumers and the economy in general.

Consumers are key to the economy's direction. The national savings rate stands near zero, leaving households with little financial slack to continue absorbing punishing prices at the pump and in their heating and utility bills; confidence understandably sagged after the storms. However, U.S. consumers are notably resilient. If conditions in the job market rebound from storm-induced disruptions, their behavior seems unlikely to change very much.

Barring surprises, the hurricanes have not undercut our favorable expectations for the rest of the year. We believe carefully selected, high-quality stocks and bonds still show potential for solid results even in a slower-growth environment. With that in mind, our global investment experts are well positioned to seek attractive opportunities around the world.

Another Fund Group Joins the Pioneer Family

Pioneer Investment Management recently completed the acquisition of AmSouth Bancorporation's mutual fund management business. This transaction, our fifth in two years, adds seven new funds to our lineup and expands assets under management by over \$5 billion. Transactions such as these increase our ability to offer competitively priced products to our shareowners through the services of their financial advisors.

Respectfully, /s/ Osbert M. Hood

Osbert M. Hood, President Pioneer Investment Management, 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.

Please consider the fund's investment objectives, risks, charges and expenses. Contact your advisor or Pioneer investments for a prospectus containing this information. Please read the information carefully.

1

Pioneer Municipal High Income Trust

PORTFOLIO SUMMARY 10/31/05

Portfolio Diversification

(As a percentage of total investment portfolio)

[THE FOLLOWING DATA WAS REPRESENTED AS A PIE CHART IN THE PRINTED MATERIAL]

Utilities Revenue	0.2%
Housing Revenue	1.1%
Gaming Revenue	1.3%
Transportation Revenue	1.5%
General Obligation	2.1%

Facilities Revenue	3.9%
Development Revenue	5.5%
Power Revenue	6.3%
Education Revenue	6.9%
Pollution Control Revenue	7.1%
Tobacco Revenue	11.1%
Insured	11.9%
Airport Revenue	16.3%
Health Revenue	24.8%

Portfolio Maturity

(Effective life as a percentage of long-term holdings)

[THE FOLLOWING DATA WAS REPRESENTED AS A PIE CHART IN THE PRINTED MATERIAL]

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10+ years 14.9%
8-10 years 8.9%
6-8 years 18.2%
3-6 years 44.8%
1-3 years 5.4%
0-1 years 7.8%
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Quality Distribution

(As a percentage of holdings; based on S&P ratings.)

[THE FOLLOWING DATA WAS REPRESENTED AS A PIE CHART IN THE PRINTED MATERIAL]

AAA		17.6%
AA		4.9%
A		2.7%
BBB		26.0%
BB &	Lower	48.8%

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

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Pioneer Municipal High Income Trust

PERFORMANCE UPDATE 10/31/05

Share Prices and Distributions

Market Value

per Common Share 10/31/05 4/30/05

\$14.38 \$14.33

Net Asset Value

per Common Share 10/31/05 4/30/05

\$14.82 \$15.62

Distributions

per Common Share Income Short-Term Long-Term (5/1/05 - 10/31/05) Dividends Capital Gains Capital Gains

\$0.48 \$ - \$ -

10 Largest Holdings

(As a percentage of long-term holdings)

1.	Greenville County School District, 5.5%, 12/1/28	3.86%
2.	Allegheny County Hospital Development Authority Revenue,	
	9.25%, 11/15/30	3.53
3.	Tobacco Settlement Financing Corp., 6.75%, 6/1/39	2.75
4.	New Jersey Economic Development Authority Revenue,	
	6.25%, 9/15/29	2.60
5.	Massachusetts State Development Finance Agency,	
	9.449%, 10/1/39	2.53
6.	Metropolitan Pier & Exposition Authority Dedicated State Tax	
	Revenue, 0.0%, 6/15/22	2.44
7.	Oklahoma Development Finance Authority Revenue,	
	5.625%, 8/15/29	2.09
8.	Golden State Tobacco Securitization Corp., 7.875%, 6/1/42	2.06
9.	Minneapolis/St. Paul Metropolitan Airports, 7.0%, 4/1/25	2.05
10.	Johnson City Health & Educational Facilities Board Hospital	
	Revenue, 7.5%, 7/1/33	1.96

This list excludes temporary cash and derivative instruments. The portfolio is actively managed, and current holdings may be different.

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Pioneer Municipal High Income Trust

PERFORMANCE UPDATE 10/31/05

Investment Returns

The mountain chart on the right shows the change in value 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.

[THE FOLLOWING DATA WAS REPRESENTED AS A MOUNTAIN CHART IN THE PRINTED MATERIAL]

Value of a \$10,000 Investment

7/03	10000	10000	10000
10/03	10097	10319	10535
	10486	10941	11574
10/05	11261	11219	12663

Cumulative Annual Total Returns (As of October 31, 2005)

Period	Net Asset Value (NAV)	Market Price
Life-of-Trust		
(7/21/03)	21.49%	12.61%
1 Year	6.66	7.21

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Call 1-800-225-6292 or visit www.pioneerfunds.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 market price.

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.

Index comparison begins July 31, 2003. 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, dated date greater than 12-31-90, deal size over \$20 million, maturity size of at least \$3 trillion. 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 an Index.

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Pioneer Municipal High Income Trust

PORTFOLIO MANAGEMENT DISCUSSION 10/31/05

In an environment of rising interest rates, surging energy prices and devastation in the Gulf of Mexico caused by hurricane Katrina, shareowners in Pioneer Municipal High Income Trust continued to earn a relatively high level of income over the six-month period ended October 31, 2005. In the following interview, David Eurkus, a member of the management team for Pioneer Municipal High Income Trust, reviews the factors that affected the Trust's performance over the six months.

- Q: What was the investment environment like during the six-month period ended October 31, 2005?
- A: Despite rising interest rates and record high oil prices, the economy continued to grow at a moderate rate. The Federal Reserve hiked interest rates five times during the last six months, each time by a quarter point. On October 31, 2005, the federal funds rate, the rate banks charge for overnight loans, stood at 4.00%, up from 2.75% on April 30, 2005. In the wake of the Fed's actions, yields on investment-grade municipal bonds (those rated BBB or better) rose across the maturity spectrum, with yields on shorter-term securities moving higher than those on longer-term securities. Yields on lower-quality bonds (those rated BB or lower) declined slightly.
- Q: How did the Trust perform in this environment?
- A: For the period, Pioneer Municipal High Income Trust produced a total return of -2.03% at net asset value and 3.62% at market price. As of October 31, 2005, the Trust was selling at a discount of market price to net asset value of 2.97%. The Lehman Brothers Municipal Bond Index, which tracks the performance only of investment-grade bonds, returned 0.59%. The Lehman Brothers Non-Investment Grade Municipal Bond Index returned 2.12% for the same period. At the end of the period, the Trust held 105 issues in various states and the District of Columbia. On October 31, 2005, the Trust's 30-day SEC yield was 6.65%. On October 31, 2005, the average credit quality of the Trust was BBB.

Call 1-800-225-6292 or visit www.pioneerfunds.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 quarantee of future results. Investment return and principal value will

fluctuate, and shares, when redeemed, may be worth more or less than their original cost.

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Pioneer Municipal High Income Trust

PORTFOLIO MANAGEMENT DISCUSSION 10/31/05

(continued)

Q: Why did the Trust underperform during the period?

- A: Below investment-grade bonds, those rated BB and lower, accounted for about 49% of net assets. While most of the lower-quality bonds in the Trust performed well, some airline bonds, such as Delta and Northwest, detracted from results. Both of these companies voluntarily declared bankruptcy in the face of rising costs, especially those associated with pension benefits and the run-up in the price of jet fuel. While our position in airline bonds disappointed over the six-month reporting period, such bonds had been strong contributors to performance for more than a year.
- Q: What contributed to performance?
- A: The Trust was fully invested in a variety of economic sectors, and its holdings in the health care, education, public power and energy areas were positive for performance.

Tobacco bonds (11.1% of the portfolio holdings) gave performance the biggest boost. These bonds are backed by tobacco companies' payments to states as part of the Master Settlement Agreement in which states agreed to drop their lawsuits against tobacco companies in return for a series of payments. Health care bonds, which accounted 24.8% of the portfolio holdings, turned in the next best performance.

Despite rising short-term interest rates, our leveraging strategy was also helpful and enabled the Trust to continue to provide a relatively high level of income. We leveraged a portion of the Trust more than a year ago when interest rates were at historically low levels. Low interest rates provided us with an opportunity to borrow funds at low rates and invest those funds in high-yield bonds. Over the six-month reporting period, the Trust continued to benefit from the income that the high-yield bonds generated.

- Q: What is your outlook?
- A: We believe economic growth will continue at a moderate pace. While some sectors, such as energy, appear to be inflationary, we do not expect core inflation to rise substantially over the near term. Nevertheless, we expect the Federal Reserve to continue its policy of raising rates at a measured pace. We plan to keep the Trust well diversified among economic sectors and to have a mix of investment-grade and below investment-grade bonds in the portfolio.

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Pioneer Municipal High Income Trust

Investments in high yield or lower-rated securities are subject to greater-than-average risk. When interest rates rise, the prices of fixed income securities in the Trust will generally fall. Conversely, when interest rates fall the prices of fixed income securities in the Trust will generally rise. 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. These risks may increase share price volatility. 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.

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Pioneer Municipal High Income Trust

SCHEDULE OF INVESTMENTS 10/31/05 (unaudited)

Principal Amount	S&P/Moody's Ratings (unaudited)			Value
\$ 5,000,000 1,500,000	AAA/Aaa BBB/NR	TAX EXEMPT OBLIGATIONS - 126.6% of Net Assets Alabama - 2.1% Birmingham Alabama General Obligation, 5.0%, 12/1/32 Camden Alabama Industrial Development Board, 6.125%, 12/1/24	\$	5,113,5 1,652,0
			\$	6,765,5
5,000,000	B+/Bal	Arizona - 6.5% Apache County Industrial Development Authority, 5.85%, 3/1/28	 \$	
5,000,000	B+/Ba1	Apache County Industrial Development Authority,	Ş	5,000,8
11,630,000	D/NR	5.875%, 3/1/33 Gila County Industrial Development Authority,		5,000,9
		5.55%, 1/1/27*		6,559,3
3,000,000	NR/NR	Maricopa County Industrial Development Authority, 7.875%, 4/1/27		3,117,
1,000,000	NR/Baa3	Pima County Industrial Development Authority, 7.25%, 7/1/31		1,078,5
500,000	NR/Baa2	Yavapai County Industrial Development Authority, 6.0%, 8/1/33		531,
			\$	21,288,8
		California - 11.4%		
7,270,000 5,150,000	A/A2 BBB/Baa3	California State General Obligation, 5.25%, 2/1/28 Golden State Tobacco Securitization Corp.,	\$	7,593,8
5,150,000	DDD/Ddd3	7.8%, 6/1/42		6,260,9
7,000,000	BBB/Baa3	Golden State Tobacco Securitization Corp., 7.875%, 6/1/42		8,543,5
4,000,000	AAA/Aaa	Palm Desert Financing Authority Tax Allocation		
3,000,000	AAA/Aaa	Revenue, 5.0%, 4/1/30 San Diego Unified School District, 5.0%, 7/1/25		4,097,8 3,185,4

2,500,000 5,000,000	AAA/Aaa B+/NR	University of California Revenue, 5.0%, 5/15/25 Valley Health System Hospital Revenue,	2,591,9
		6.5%, 5/15/25	5,003,2

\$ 37,276,7

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

Pioneer Municipal High Income Trust

Principal Amount	S&P/Moody's Ratings (unaudited)			Value
\$ 2,000,000	NR/NR	Connecticut - 4.3% Bridgeport Senior Living Facility Revenue,		
2,205,000	DD L /D - 1	7.25%, 4/1/35 Connecticut State Health & Educational Facilities	\$	1,958,600
2,203,000	BB+/Ba1	Authority Revenue, 5.375%, 7/1/17		2,177,592
4,800,000	BB+/Ba1	Connecticut State Health & Educational Facilities		4,646,208
5,000,000	Authority Revenue, 5.5%, 7/1/27 BB+/NR Mohegan Tribe Indians Gaming Authority, 6.25% 1/1/31 (1/44)			5,346,900
			\$ 	14,129,300
5,000,000	BBB/Baa3	District of Columbia - 3.8% District of Columbia Tobacco Settlement Financing Corp., 6.5%, 5/15/33	\$	5 , 783 , 550
6,000,000	BBB/Baa3	District of Columbia Tobacco Settlement Financing Corp., 6.75%, 5/15/40	·	6,593,820
			\$	12,377,370
		Florida - 3.1%		
2,000,000	NR/NR	Beacon Lakes Community Development, 6.9%, 5/1/35	\$	2,098,160
4,140,000	D/C	Hillsborough County Aviation Authority Revenue, 6.8%, 1/1/24*		910,800
1,650,000	BBB-/Baa2	Polk County Industrial Development Revenue,		
5,000,000	NR/Baa2	5.85%, 12/1/30 Tallahassee Health Facilities Revenue,		1,698,362
2,000,000	1111, 2002	6.375%, 12/1/30		5,335,000
			\$	10,042,322
		Georgia - 0.6%		
1,325,000	NR/NR	Brunswick & Glynn County Development Authority Revenue, 7.25%, 1/1/35	\$	1,385,022
450,000	D/C	Fulton County Development Authority Revenue, 5.3%, 5/1/13*		72,000
3,400,000	D/C	Fulton County Development Authority Revenue, 6.85%, 11/1/07*		544,000

6.85%, 11/1/07*

544,000

\$ 2,001,022

Idaho - 1.6%

5,000,000 BBB-/Baa3 Power County Industrial Development Corp.,

6.45%, 8/1/32

\$ 5,236,950

The accompanying notes are an integral part of these financial statements. 9

Pioneer Municipal High Income Trust

SCHEDULE OF INVESTMENTS 10/31/05 (unaudited) (continued)

Principal Amount	S&P/Moody's Ratings (unaudited)		7
\$ 1,000,000 1,500,000 16,880,000(a)	NR/NR NR/NR AAA/Aaa	Illinois - 3.8% Centerpoint Intermodal Center, 8.0%, 6/15/23 (144A) Illinois Health Facilities Authority Revenue, 6.9%, 11/15/33 Metropolitan Pier & Exposition Authority Dedicated State Tax Revenue, 0.0%, 6/15/22	\$ 1,6
			\$ 12,6
1,000,000	BBB+/Baa1	Indiana - 1.7% Indiana State Development Finance Authority Revenue, 5.6%, 12/1/32	\$ 1,0
4,300,000	BBB-/Ba3	Indiana State Development Finance Authority Revenue, 5.75%, 10/1/11	4,4
			\$ 5,4
2,335,000	AAA/Aaa	Massachusetts - 10.2% Massachusetts Health & Educational Facilities Authority Revenue, 5.0%, 7/15/35	\$ 2,3
7,050,000	AAA/Aaa	Massachusetts Health & Educational Facilities Authority Revenue, 5.125%, 7/15/37	7,3
1,000,000	AA/Aa3	Massachusetts Health & Educational Facilities Authority Revenue, 5.25%, 10/15/33	1,(
3,500,000	BBB/Baa3	Massachusetts Health & Educational Facilities Authority Revenue, 6.25%, 7/1/22	3,7
5,000,000	BBB-/NR	Massachusetts Health & Educational Facilities Authority Revenue, 6.75%, 10/1/33	5 , 4
75 , 000	BB/NR	Massachusetts State Development Finance Agency, 5.25%, 10/1/18	,
9,810,000(b)	NR/Aaa	Massachusetts State Development Finance Agency, RIB, 9.449%, 10/1/39 (144A)	10,4
3,055,000	AA-/Aa3	Massachusetts State Housing Finance Agency, 5.25%, 12/1/33	3,1
			\$ 33,5

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

Pioneer Municipal High Income Trust

Principal Amount	S&P/Moody's Ratings (unaudited)			Value
\$ 1,500,000	BBB-/NR	Michigan - 4.1% John Tolfree Health System Corp., 6.0%, 9/15/23	\$	1,512,45
2,000,000	BB-/Ba3	Michigan State Hospital Finance Authority Revenue, 5.5%, 8/15/23		1,914,54
4,010,000	BBB-/Ba1	Michigan State Hospital Finance Authority Revenue, 6.0%, 2/1/24		4,011,72
2,000,000+	NR/NR	Michigan State Hospital Finance Authority		
7,690,000	Revenue, 6.4%, 1/1/15 10,000 NR/NR Wayne Charter County Michigan Special Airport Facilities Revenue, 6.75%, 12/1/15*		2,050,96 4,094,92	
			 \$	13,584,59
		Minnegets 2.19		
1,675,000	BB/NR	Minnesota - 3.1% Duluth Economic Development Authority Health Care Facilities Revenue, 7.25%, 6/15/32	\$	1,791,44
13,260,000	NR/NR	Minneapolis/St. Paul Metropolitan Airports, 7.0%, 4/1/25*		8,486,40
			\$	10,277,84
3,000,000	BBB-/Ba1	Mississippi - 0.9% Mississippi Business Finance Corp. Pollution Control Revenue, 5.9%, 5/1/22	\$	3,055,50
5,500,000	NR/B3	Missouri - 1.4% St. Louis Industrial Development Authority Revenue, 7.25%, 12/15/35	\$	4,687,21
1,000,000	BBB-/Baa2	Nevada - 1.5% Clark County Industrial Development Revenue,	 \$	1,054,88
1,850,000	B-/NR	5.45%, 3/1/38 Clark County Industrial Development Revenue,	Ş	
2,000,000	NR/NR	5.5%, 10/1/30 Nevada State Department of Business & Industry, 7.25%, 1/1/23		1,814,49 2,081,96
			 \$	4,951,33
		New Hampshire - 1.0%		
3,000,000	AAA/Aaa	Manchester School Facilities Revenue, 5.125%, 6/1/28	\$	3,126,06

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

Pioneer Municipal High Income Trust

SCHEDULE OF INVESTMENTS 10/31/05 (unaudited) (continued)

Principal Amount	S&P/Moody's Ratings (unaudited)			Value
\$ 2,000,000	B/Caa2	New Jersey - 9.2% New Jersey Economic Development Authority Revenue, 6.25%, 9/15/19	\$	1,698,50
13,350,000	B/Caa2	New Jersey Economic Development Authority	Ŧ	
1,000,000	B/Caa2	Revenue, 6.25%, 9/15/29 New Jersey Economic Development Authority		10,793,07
6,150,000	B/Caa2	Revenue, 6.4%, 9/15/23 New Jersey Economic Development Authority		842 , 85
10,000,000	BBB/Baa3	Revenue, 7.0%, 11/15/30 Tobacco Settlement Financing Corp.,		5,297,85
		6.75%, 6/1/39		11,397,20
			\$	30,029,48
3,700,000++	NR/NR	New Mexico - 1.6% New Mexico Hospital Equipment Loan Council, 6.4%, 6/1/16	\$	3,836,34
1,350,000	BBB-/NR	Santa Fe Educational Facilities Revenue, 5.75%, 10/1/28		1,358,34
			 \$	 5,194,68
2,000,000	A/NR	New York - 6.2% New York City Industrial Development Agency,		
6,225,000	CCC/Caa2	5.375%, 6/1/23 New York City Industrial Development Agency,	\$	2,063,44
	CCC/ Cad2	6.9%, 8/1/24		4,584,96
5,000,000	AAA/Aaa	New York City Trust Cultural Resources Revenue, 5.125%, 7/1/31		5,172,15
2,000,000	NR/NR	Suffolk County Industrial Development Agency, 7.25%, 1/1/30		1,995,18
6,000,000	AAA/Aaa	Triborough Bridge & Tunnel Authority Revenue, 5.25%, 11/15/30		6,354,54
			\$	20,170,27
4,600,000	NR/NR	North Carolina - 1.2% Charlotte North Carolina Special Facilities Revenue, 7.75%, 2/1/28	\$	3,945,19

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

Pioneer Municipal High Income Trust

Prin Amou	cipal nt	S&P/Moody's Ratings (unaudited)			V
\$	3,000,000+	AAA/Aaa	Oklahoma - 6.4% Oklahoma Development Finance Authority		
Ÿ	3,000,0001	11111/1100	Revenue, 5.625%, 8/15/19	\$	3,2
	8,000,000+	AAA/Aaa	Oklahoma Development Finance Authority Revenue, 5.625%, 8/15/29		8,6
	4,100,000	B-/Caa2	Tulsa Municipal Airport Revenue, 5.65%, 12/1/35		3,8
	1,225,000 4,350,000	B-/Caa2 B-/Caa2	Tulsa Municipal Airport Revenue, 6.25%, 6/1/20 Tulsa Municipal Airport Revenue, 7.35%, 12/1/11		1,0 4,2
				\$	21,1
			Oregon - 4.4%		
	1,000,000	NR/NR	Klamath Falls Electric Revenue, 5.75%, 1/1/13	\$	8
	7,000,000	NR/NR	Klamath Falls Electric Revenue, 6.0%, 1/1/25		5 , 9
	7,500,000	NR/NR	Western Generation Agency Cogeneration Project Revenue, 7.125%, 1/1/21		7,6
				\$	 14 , 4
	1,550,000	NR/Baa1	Pennsylvania - 6.0% Allegheny County Hospital Development Authority Revenue, 5.125%, 5/1/25	\$	1,4
	12,300,000	B/B1	Allegheny County Hospital Development Authority Revenue, 9.25%, 11/15/30		14,6
	1,000,000	BB-/NR	Columbia County Hospital Authority Health Care Revenue, 5.9%, 6/1/29		2 1, 0
	1,000,000	BBB/Ba2	Hazleton Health Services Authority Hospital Revenue, 5.625%, 7/1/17		9
	1,280,000	NR/B2	Langhorne Manor Borough Higher Education &		1 0
	500,000	BBB+/NR	Health Authority Revenue, 7.35%, 7/1/22 Pennsylvania Higher Educational Facilities Authority Revenue, 5.4%, 7/15/36		1 , 2
				\$	19 , 7
			Rhode Island - 1.3%		
	4,000,000	NR/NR	Central Falls Detention Facilities Revenue, 7.25%, 7/15/35	\$	4,1
			South Carolina - 8.3%		
	4,250,000	BBB/Baa2	Georgetown County Environmental Improvement	ċ	1 6
	15,000,000	AA-/Aa3	Revenue, 5.95%, 3/15/14 Greenville County School District, 5.5%, 12/1/28	\$	4,6 16,0
	5,850,000	BBB+/Baa1	South Carolina Jobs Economic Development Authority Revenue, 6.375%, 8/1/34		6 , 4
			nucholicy hevenue, 0.3738, 0/1/34		· · · · · · · · · · · · · · · · · · ·
				\$	27 , 1

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

Pioneer Municipal High Income Trust SCHEDULE OF INVESTMENTS 10/31/05 (unaudited) (continued)

Principal Amount	S&P/Moody's Ratings (unaudited)			Value
\$ 7,000,000	BBB+/Baa2	Tennessee - 3.9% Johnson City Health & Educational Facilities Board	Ś	0 154 00
4,480,000	NR/Baa3	Hospital Revenue, 7.5%, 7/1/33 Knox County Health Educational & Housing Facilities Board Hospital Revenue,	Ş	8,154,02
		6.375%, 4/15/22		4 , 711 , 39
			\$	12,865,41
		Texas - 7.5%		
7,500,000	CCC/Caa2	Alliance Airport Authority Special Facilities	<u> </u>	F 640 07
1,345,000	NR/Ba1	Revenue, 7.5%, 12/1/29 Bexar County Housing Finance Corp.,	\$	5,649,07
1,313,000	NII, Bai	8.0%, 12/1/36		1,375,28
1,000,000	CCC/Caa2	Dallas-Fort Worth International Airport Revenue,		=== ==
5,000,000	CCC/Caa2	6.0%, 11/1/14 Dallas-Fort Worth International Airport Revenue,		758 , 86
3,000,000	ccc/caaz	6.15%, 5/1/29		4,629,60
20,800,000	D/C	Dallas-Fort Worth International Airport Revenue, 7.125%, 11/1/26*		3,432,00
4,000,000	NR/NR	Decatur Hospital Authority Revenue, 7.0%, 9/1/25		4,299,12
1,000,000	BB/NR	Georgetown Health Facilities Development Corp.,		1 005 15
3,750,000	B-/Caa2	6.25%, 8/15/29 Houston Airport System Special Facilities Revenue,		1,035,15
	,	5.7%, 7/15/29		2,745,63
500,000	BBB-/Baa2	Sabine River Authority Pollution Control Revenue, 6.15%, 8/1/22		544,71
			\$	24,469,44
		Vermont - 0.5%		
1,500,000	A-/A3	Vermont Educational & Health Buildings Financing Agency Revenue, 6.0%, 10/1/28	\$	1,662,30
		Virginia - 1.6%		
1,000,000 4,000,000	BBB/Baa3 BB-/Ba3	Peninsula Ports Authority, 6.0%, 4/1/33 Pocahontas Parkway Association of Virginia Toll	\$	1,068,11
, ,	•	Road Revenue, 5.5%, 8/15/28		4,119,08
			 \$	E 107 10
			Ş	5,187,19

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

Pioneer Municipal High Income Trust

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

Value

		Washington - 5.9%	
\$ 4,710,000	AAA/Aaa	Spokane Public Facilities District Hotel/Motel	¢ F 242 260
7,025,000	BBB/Baa3	Tax & Sales, 5.75%, 12/1/27 Tobacco Settlement Authority Washington,	\$ 5,243,360
7,023,000	ממט / שמט	6.625%, 6/1/32	7,663,713
14,315,000	AAA/Aaa	Washington State General Obligation,	, ,
		0.0%, 6/1/22	6,404,960
			\$ 19,312,033
		Wyoming - 1.5%	
5,000,000	BBB-/Baa3	Sweetwater County Solid Waste Disposal Revenue,	
		6.9%, 9/1/24	\$ 5,046,000
		TOTAL TAX-EXEMPT OBLIGATIONS	
		(Cost \$393,222,981)	\$ 414,966,003
Shares			
		TAX-EXEMPT MONEY MARKET MUTUAL	
		FUND - 0.0% of Net Assets	
65 , 887		BlackRock Provident Institutional Municipal Fund	\$ 65,887
		TOTAL TAX-EXEMPT MONEY MARKET	
		MUTUAL FUND	
		(Cost \$65,887)	\$ 65,887
		TOTAL INVESTMENTS IN SECURITIES - 126.6%	
		(Cost \$393,288,868) (c) (d)	\$ 415,031,890
		OTHER ASSETS AND LIABILITIES - 4.2%	\$ 13,759,754
		PREFERRED SHARES AT	
		REDEMPTION VALUE - (30.8)%	\$(101,000,000
		NET ASSETS APPLICABLE TO COMMON	
		SHAREOWNERS - 100.0%	\$ 327,791,644

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

Pioneer Municipal High Income Trust

SCHEDULE OF INVESTMENTS 10/31/05 (unaudited) (continued)

Schedule of investments 10/31/03 (unaudited) (continued)

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, 2005 the value of these securities amounted to \$16,796,276 or 5.1% of net assets applicable to common shareowners.
- * Security is in default and is non-income producing.
- + Prerefunded bonds have been collateralized by U.S. Treasury securities which are held in escrow to pay interest and principal on the tax exempt issue and to retire the bonds in full at the earliest refunding date.

- ++ Prerefunded bonds have been collateralized by cash sufficient to pay interest and principal on the tax exempt issue and to retire the bonds in full at the earliest refunding date.
- (a) Debt obligation initially issued at one coupon which converts to a higher coupon at a specific date. The rate shown is the rate at period end.
- (b) The interest rate is subject to change periodically and inversely based upon revailing market rates. The interest rate shown was the rate at October 31, 2005.
- (c) The concentration of investments by type of obligation/market sector is as follows:

Insured	11.9%
General Obligation	2.1
Revenue Bonds:	
Health Revenue	24.8
Airport Revenue	16.3
Tobacco Revenue	11.1
Pollution Control Revenue	7.1
Education Revenue	6.9
Power Revenue	6.3
Development Revenue	5.5
Facilities Revenue	3.9
Transportation Revenue	1.5
Gaming Revenue	1.3
Housing Revenue	1.1
Utilities Revenue	0.2
	100.0%

(d) At October 31, 2005, the net unrealized gain on investments based on cost for federal income tax purposes of \$392,037,990 was as follows:

Aggregate gross unrealized gain for all investments in which there is an excess of value over tax $\cos t$

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

Net unrealized gain

For financial reporting purposes net unrealized gain on investments was \$21,743,022 and cost of investments aggregated \$393,288,868

RIB Residual Interest Bonds

Purchases and sales of securities (excluding temporary cash investments) for the period ended October 31, 2005, aggregated \$24,938,788 and \$25,889,669, respectively.

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

\$38,788

(15,794

\$22**,**993

Pioneer Municipal High Income Trust	
STATEMENT OF ASSETS AND LIABILITIES 10/31/05	
ASSETS:	
Investments in securities, at value (cost \$393,288,868) Receivables -	\$415,031,890
Investment securities sold	6,640,648
Interest	7,469,387
Unrealized appreciation on interest rate swaps Prepaid expenses and other assets	1,321,730 82,141
Trepara expenses and other assets	
Total assets	\$430,545,796
LIABILITIES:	
Due to custodian	\$ 1,361,001
Due to affiliate Administration fee payable	219 , 978 25 , 684
Accrued expenses	147,489
Total liabilities	\$ 1,754,152
PREFERRED SHARES AT REDEMPTION VALUE:	
\$25,000 liquidation value per share applicable to 4,040 shares	\$101,000,000
NET ASSETS APPLICABLE TO COMMON SHAREOWNERS:	
Paid-in capital	\$315,162,552
Distributions in excess of net investment income	(484,726)
Accumulated net realized loss on investments and interest rate swaps	(9,950,934)
Net unrealized gain on investments	21,743,022
Net unrealized gain on interest rate swaps	1,321,730
Net assets applicable to common shareowners	\$327,791,644
NET ASSET VALUE PER SHARE:	
No par value, (unlimited number of shares authorized)	
Based on \$327,791,644/22,120,893 common shares	\$ 14.82
The accompanying notes are an integral part of these financial	statements. 17
Pioneer Municipal High Income Trust	
STATEMENT OF OPERATIONS	
For the Six Months Ended 10/31/05	
INVESTMENT INCOME: Interest	\$ 12,898,176
INCELESC	
EXPENSES:	

Management fees Administration fees and reimbursement Transfer agent fees and expenses Auction agent fees Custodian fees Registration fees Professional fees Printing expense Trustees' fees Pricing fees Insurance fees Miscellaneous	\$ 1,347,189 174,464 25,353 134,934 6,556 11,876 29,468 9,744 6,904 8,484 9,602 7,347	
Total expenses		\$ 1,771,921
Net investment income		\$ 11,126,255
REALIZED AND UNREALIZED GAIN (LOSS) ON INVESTMENTS AND INTEREST RATE SWAPS: Net realized loss from: Investments Interest rate swaps	\$ (7,762,604) (32,619)	\$ (7,795,223)
Change in net unrealized gain on: Investments Interest rate swaps	\$ (9,783,813) 504,423	\$ (9,279,390)
Net loss on investments and interest rate swaps		\$ (17,074,613)
DIVIDENDS TO PREFERRED SHAREOWNERS FROM NET INVESTMENT INCOME:		\$ (1,196,555)
Net decrease in net assets appilcable to common shareowners resulting from operations		(7,144,913)

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

Pioneer Municipal High Income Trust

STATEMENTS OF CHANGES IN NET ASSETS

For the Six Months Ended 10/31/05 and the Year Ended 4/30/05

	Six Months Ended 10/31/05 unaudited)	Year Ended 4/30/05
FROM OPERATIONS:		
Net investment income	\$ 11,126,255	\$ 25,177,837
Net realized gain (loss) on investments and interest		
rate swaps	(7,795,223)	258 , 653
Change in net unrealized gain on investments and		
interest rate swaps	(9,279,390)	20,621,102
Dividends and distributions to preferred		

shareowners from: Net investment income Net realized gains	(1,196,555)	(1,444,764) (90,681)
Net increase (decrease) in net assets applicable to common shareowners resulting from operations	\$ (7,144,913) 	\$ 44,522,147
DIVIDENDS AND DISTRIBUTIONS TO COMMON SHAREOWNERS FROM: Net investment income (\$0.48 and \$1.07		
per share, respectively) Net realized gains (\$0.00 and \$0.09	\$ (10,618,029)	\$ (23,669,356)
per share, respectively)	-	(2,011,719)
Total distributions to common shareowners	\$ (10,618,029) 	\$ (25,681,075)
FROM TRUST SHARE TRANSACTIONS: Changes in (estimated) common share offering expenses	\$ -	\$ 123 , 849
Net increase in net assets applicable to common shareowners resulting from Trust share transactions	\$ -	\$ 123,849
Net increase (decrease) in net assets applicable to common shareowners NET ASSETS APPLICABLE TO COMMON SHAREOWNERS:	\$ (17,762,942)	\$ 18,964,921
Beginning of period	345,554,586	326,589,665
End of period (including undistributed net investment income (loss) of \$(484,726) and		
\$203,603, respectively)	\$ 327,791,644 =======	\$ 345,554,586 ======

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

	Six Months Ended 10/31/05 (unaudited)	Year Ended 4/30/05
Per Common Share Operating Performance Net asset value, beginning of period	\$ 15.62 	\$ 14.76
Increase (decrease) from investment operations: (a) Net investment income (d) Net realized and unrealized gain (loss) on investments	\$ 0.50	\$ 1.14
and interest rate swaps Dividends and distributions to preferred shareowners from: Net investment income	(0.77)	(0.07)

Net realized gains		0.00(d)
Net increase (decrease) from investment operations	\$ (0.32)	\$ 2.02
Dividends and distributions to common shareowners from:		
Net investment income	(0.48)	(1.07)
Net realized gains	_	(0.09)
Changes in (estimated) with respect to issuance of:		
Common shares	_	0.00(d)
Preferred shares	_	_
Net increase (decrease) in net asset value	\$ (0.80)	\$ 0.86
Net asset value, end of period(e)	\$ 14.82 ======	\$ 15.62 ======
Market value, end of period(e)	\$ 14.38	\$ 14.33
Total return(f)	3.62%	13.34%
Ratios to average net assets of common shareowners		
Net expenses(g)	1.02%(h)	1.04%
Net investment income before preferred share dividends(h)	6.41%(h)	7.60%
Preferred share dividends	0.69%(h)	0.43%
Net investment income available to common shareowners	5.72%(h)	7.17%
Portfolio turnover		25%
Net assets of common shareowners, end of period (in thousands)	\$327 , 792	\$345 , 555
Preferred shares outstanding (in thousands)	\$101,000	\$101,000
Asset coverage per preferred share, end of period	\$106 , 137	\$110,533
Average market value per preferred share	\$25,000	\$25 , 000
Liquidation value per preferred share	\$25 , 000	\$25 , 000
Ratios to average net assets of common shareowners before		
reimbursement of organization expenses and expense reductions		
Net expenses(h)	1.02%(h)	1.04%
Net investment income before preferred share dividends(h)	6.41%(h)	7.60%
Preferred share dividends	0.69%(h)	0.43%
Net investment income available to common shareowners	5.72%(h)	7.17%

- (a) The per share data presented above is based upon the average common shares outstanding for the periods presented.
- (b) Trust 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 brokerage commissions. Total investment return less than a full period is not annualized. Past performance is not a guarantee of future results.
- (g) 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.

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

Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/05

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 may invest in municipal securities with a broad range of maturities and credit ratings, including both investment grade and below investment grade municipal securities.

The Trust invests in below investment grade (high-yield) municipal securities. 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.

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, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of income, expenses and gains and losses on investments during the reporting period. Actual results could differ from those estimates. 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 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.

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Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/05 (c

(continued)

As of October 31, 2005, there were no securities fair valued. Temporary cash investments are valued at amortized cost.

Discount and premium on debt securities are accreted or amortized daily, respectively, on an effective yield to maturity basis and are included in

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

The tax character of current year distributions will be determined at the end of the fiscal year. The tax character of distributions paid to common and preferred shareowners during the year ended April 30, 2005 was as follows:

	2005
Distributions paid from: Tax exempt income Ordinary income Net long-term capital gains	\$25,094,466 1,196,946 925,108
Total	\$27,216,520

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Pioneer Municipal High Income Trust

(2, 155, 695)

The following shows the components of distributable earnings on a federal income tax basis at April 30, 2005.

-----_____ Undistributed tax-exempt income \$ 1,074,362 Dividend payable - common shares (1,769,671) Unrealized appreciation
Post-October loss deferred 33,243,038

Total \$ 30,392,034

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, tax deferral of losses on wash sales and other book/tax differences.

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, "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 by notifying Mellon Investor Services LLC, the agent for shareowners in administering the Plan (the "Plan Agent"), 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.

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Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/05 (continued)

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.

2. Management Agreement

PIM manages the Trust's portfolio. Management fees 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. At October 31, 2005, \$219,978 was payable to PIM related to management fees.

In addition, under PIM's management and administration agreements, certain other services and costs are paid by PIM and reimbursed by the Trust. For the six months ended October 31, 2005, the Trust recorded \$17,218 in reimbursements and is included in "Administration fees and reimbursement" on the Statement of Operations.

The Trust has retained Princeton Administrators, L.P., ("Princeton") an affiliate of Merrill Lynch, Pierce, Fenner & Smith Incorporated, 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 weekly value of the Trust's managed assets, subject to a minimum monthly fee of \$10,000.

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Pioneer Municipal High Income Trust

Also, PIM has agreed for the first three years of the Trust's investment operations to limit the Trust's total annual expenses (excluding organizational and offering costs for common and preferred shares, interest expense, the cost of defending or prosecuting any claim or litigation to which the Trust is a party, (together with any amount in judgment or settlement), indemnification expenses or taxes incurred due to the failure of the Trust to qualify as a regulated investment company under the Code or any other non-recurring or non-operating expenses) to 0.80% of the Trust's average daily managed assets. The dividend on any preferred shares is not an expense for this purpose. As of October 31, 2005, the Trust's expenses were not reduced under such arrangements.

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 Mellon Investor Services LLC, provides substantially all transfer agent and shareowner services related to the Trust's common shares at negotiated rates which are paid by the Trust. Deutsche Bank Trust Company Americas 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 Trust Company Americas an annual fee, as is agreed to from time to time by the Trust and Deutsche Bank Trust Company Americas, for providing such services.

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/

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Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/05 (continued)

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 market 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, 2005 the Trust does not anticipate non-performance by any counterparty. Risk may also arise with regard to market movements in the value of the swap arrangement that do not exactly offset the changes in the related dividend requirement or interest expense on the Trust's leverage.

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, 2005 were as follows:

		Notional			
Counterparty	Termination Date	Amount (000)	Fixed Rate	Floating Rate	Unrealized Appreciation
UBS AG	April 5, 2009	\$50,000	2.665%	1 month BMA	\$1,321,730

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, 2005, PIM owned 6,981 shares.

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Pioneer Municipal High Income Trust

Transactions in common shares of beneficial interest for the six months ended

October 31, 2005 and the year ended April 30, 2005 were as follows:

	10/2005	4/2005	
Shares outstanding at beginning of period Reinvestment of distributions	22 , 120 , 893	22 , 120 , 893	
Shares outstanding at end of period	22,120,893	22,120,893	

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, 2005, there were 4,040 APS as follows: Series A-2,000 and Series B-2,040.

Dividends on Series A and Series B APS are cumulative at a rate which is reset every seven days based on the results of an auction. Dividend rates ranged from 1.78% to 2.80% during the six months ended October 31, 2005.

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.

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

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Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/05 (continued)

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. Subsequent Events

Subsequent to October 31, 2005, the Board of Trustees of the Trust declared a dividend from undistributed net investment income of \$0.08 per common share payable November 30, 2005, to shareowners of record on November 15, 2005.

For the period November 1, 2005 to November 30, 2005, dividends declared on preferred stock totaled \$251,144 in aggregate for the two outstanding preferred share series.

ADDITIONAL INFORMATION (unaudited)

During the period, there have been no material changes in the Trust's investment objective or fundamental policies that have not been approved by the shareowners. There have been 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. There have been no changes in the persons who are primarily responsible for the day-to-day management of the Trust's portfolio.

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.

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Pioneer Municipal High Income Trust

RESULTS OF SHAREOWNER MEETING

On August 16, 2005, Pioneer Municipal High Income Trust held its annual meeting of shareowners to elect three Class I Trustees. All three Trustees were elected. Here are the detailed results of the votes.

Proposal 1 - To elect Class II Trustees.

Nominee	Affirmative	Withheld
Margaret B.W. Graham Osbert M. Hood John Winthrop	22,145,070 22,148,571 22,139,000	390,510 387,009 396,580

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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 Osbert M. Hood Marguerite A. Piret Stephen K. West John Winthrop

Officers
John F. Cogan, Jr., President
Osbert M. Hood, Executive
Vice President
Vincent Nave, Treasurer
Dorothy E. Bourassa, Secretary

Investment Adviser
Pioneer Investment Management, Inc.

Custodian
Brown Brothers Harriman & Co.

Legal Counsel Wilmer Cutler Pickering Hale and Dorr LLP

Transfer Agent
Pioneer Investment Management Shareholder Services, Inc.

Shareowner Services and Sub-Transfer Agent Mellon Investor Services LLC

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

Sub-Administrator Princeton Administrators, L.P.

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

This page for your notes.

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HOW TO CONTACT PIONEER

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

You can call Mellon Investor Services LLC for:

Account Information

Telecommunications Device for the Deaf (TDD) 1-800-231-5469

Or write to Mellon Investor Services LLC:

For Write to

General inquiries, lost dividend checks P.O. Box 3315

South Hackensack, NJ

1-800-710-0935

07606-1915

Change of address, account consolidation P.O. Box 3316

South Hackensack, NJ

07606-1916

Lost stock certificates P.O. Box 3317

South Hackensack, NJ

07606-1917

Stock transfer P.O. Box 3312

South Hackensack, NJ

07606-1912

Dividend reinvestment plan (DRIP) P.O. Box 3338

South Hackensack, NJ

07606-1938

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

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. Shareholders 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.

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.

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 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)).

 ${\tt Ms.}$ 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 TrustS

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

SECTION I - POLICY PURPOSE AND APPLICABILITY

The Pioneer Trusts 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 Trusts recognize that a Trust's independent auditors: 1) possess knowledge of the Trusts, 2) are able to incorporate certain services into the scope of the audit, thereby avoiding redundant work, cost and disruption of Trust personnel and processes, and 3) have expertise that has value to the Trusts. As a result, there are situations where it is desirable to use the Trust'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 Trusts 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 Trust shall also constitute approval for any other Trust 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 Trust'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 DESCRIP	FION SPECIFIC PRE-APPROVED SERVICE SUBCATEGORIES
I. AUDIT SERVICES	Services that are directl related to performing the independent audit of the	o SEC consultation, registration
II. AUDIT-RELATED SERVICES	Services which are not prohibited under Rule 210.2-01(C)(4) (the "Rule and are related extension the audit services suppor audit, or use the knowledge/expertise gaine from the audit procedures foundation to complete th project. In most cases, the Audit-Related Service not performed by the Audi firm, the scope of the Au Services would likely increase. The Services a typically well-defined an governed by accounting professional standards (A SEC, etc.)	s of o Enterprise security architecture the assessment d as a e if s are the dit
o "One-time" pi for the audit pre-approved	s period for all s specific service rs. Approval of the s	AUDIT COMMITTEE REPORTING POLICY summary of all such ervices and related fees eported at each regularly cheduled Audit Committee
auditors for	a Trust shall re approval for es.	secting.

for the Trust fiscal year within services and related fee a specified dollar limit (including comparison to for all pre-approved specified dollar limits) specific service subcategories reported quarterly.

services and related fees

- 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 Trust'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
p: i d T: t! s t! m t:	rohibited by the Rule, f an officer of the Trust letermines that using the	o Tax planning and support o Tax controversy assistance o Tax compliance, tax returns tax returns and support o Tax opinions	, excise

AUDIT COMMITTEE APPROVAL POLICY AUDIT COMMITTEE

REPORTING POLICY

- o "One-time" pre-approval o A summary of for the Trust fiscal year all such ser within a specified dollar limit related fees
 - all such services and (including comparison to specified dollar limits) reported quarterly.
- 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 Trust's auditors for tax 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
		o Business Risk Management support o Other control and regulatory compliance projects
UNIQUE QUALIFICATIONS	determines that using the Trust's auditor to provide these services creates significant synergy in the form of efficiency, minimized disruption, the ability to maintain a desired level of confidentiality, or where the Trust's auditors posses unique or superior qualifications to provide	
	these services, resulting in superior value and results for the Trust.	

AUDIT COMMITTEE APPROVAL POLICY AUDIT COMMITTEE

REPORTING POLICY

o "One-time" pre-approval o A summary of for the Trust fiscal year within all such services and a specified dollar limit

related fees (including comparison to specified dollar limits) reported quarterly.

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 Trust'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"

SERVICE CA	ATEGORY	DESCRIPTION	SPECIFIC PROHIBITED SERVICE SUBCATEGORIES
PROHIBITED S	SERVICES	Services which result in the auditors losing independence status under the Rule.	 Bookkeeping or other services related to the accounting records or financial statements of the audit client* Financial information systems design and implementation* Appraisal or valuation services, fairness* opinions, or contribution—in—kind reports Actuarial services (i.e., setting actuarial reserves versus actuarial audit work)* Internal audit outsourcing services* Management functions or human resources Broker or dealer, investment advisor, or investment banking services Legal services and expert services unrelated to the audit Any other service that the Public Company Accounting Oversight Board determines, by regulation, is impermissible
AUDIT CC	OMMITTEE A	PPROVAL POLICY	AUDIT COMMITTEE REPORTING POLICY

performed with the exception of the(*) services and related services that may be permitted fees reported at each if they would not be subject to audit procedures at the audit client (as defined in rule 2-01(f)(4)) level will serve as continual the firm providing the service.

not provided any restricted services.

GENERAL AUDIT COMMITTEE APPROVAL POLICY:

- o For all projects, the officers of the Trusts and the Trust'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 regis