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PIONEER MUNICIPAL HIGH INCOME TRUST
Form N-CSR
December 29, 2004

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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, 2004

Date of reporting period: November 1, 2003 through April 30, 2004

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.

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item 1. schedule of investments.

PIONEER

MUNICIPAL
HIGH
INCOME
TRUST

Semiannual
Report

10/31/04

[LOGO] PIONEER
Investments (R)

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Pioneer Municipal High Income Trust

LETTER TO SHAREOWNERS 10/31/04

Dear Shareowner,

High energy prices and rising interest rates caused concern among investors during the third quarter of 2004. As oil prices touched \$50 per barrel for the first time, many consumers, faced with high priced gasoline and anticipating a winter of hefty heating bills, responded by holding back on spending. Consumers account for the bulk of the nation's economic activity, and retail sales over the summer were erratic. Beyond soaring energy costs, which have the effect of a tax increase on individuals and businesses, the slack job creation data of the last few months also undermined confidence in the economic outlook. The markets in general fell during the third quarter. Continued unsettled conditions in Iraq and the ever present specter of terrorism also weighed on investors' minds. Overseas, global markets were fairly stable, after stumbling earlier in the year.

But the fuzzy economic picture was good news for bond investors. Despite three hikes in short-term interest rates, the first increases in four years, bond prices rose and yields fell over the period. Longer-term Treasury securities

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were the strongest performers, with corporate bonds, including high-yield issues, also delivering favorable returns. Lower long-term rates were also beneficial to the housing and mortgage industries. Behind the rally in bonds lies investor skepticism about the strength and durability of the current economic recovery. A slowing recovery leading to an easing of inflationary pressures may convince the Federal Reserve Board to slow the pace of future rate increases. Less inflation would also mean better real returns for bond holders.

Pioneer believes that the economy will continue to expand in 2005, but at a more measured tempo. After an extended period of cutting costs and bolstering balance sheets, many corporations are financially stronger than they have been in some time. And although short-term interest rates have risen, they are still relatively low and do not appear to be a barrier for companies needing to borrow for expansion. Equity valuations now appear better aligned with earnings prospects than was the case a year ago, when prices ran ahead of profit expectations. Therefore, steady but moderate expansion in corporate profits has the potential to drive stock prices higher.

As always, thank you for your investment in Pioneer Municipal High Income Trust.

Respectfully,

/s/ Osbert M. Hood

Osbert M. Hood, President
Pioneer Investment Management, Inc.

Any information in this shareholder 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

PORTFOLIO SUMMARY 10/31/04

Portfolio Diversification

(As a percentage of total investment portfolio)

[The following table was depicted as a pie chart in the printed material.]

| | |
|--------------------|-------|
| Health | 25.0% |
| Insured | 14.7% |
| Airport | 14.5% |
| Tobacco | 9.9% |
| Pollution Control | 8.8% |
| Education | 6.7% |
| Development | 6.3% |
| Power | 3.9% |
| Facilities | 2.8% |
| Other | 2.0% |
| General Obligation | 1.8% |
| Transportation | 1.6% |

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| | |
|-----------|------|
| Housing | 1.5% |
| Utilities | 0.3% |
| Water | 0.2% |

Portfolio Maturity

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

[The following table was depicted as a pie chart in the printed material.]

| | |
|------------|-------|
| 0-1 years | 4.1% |
| 1-3 years | 4.8% |
| 3-6 years | 21.0% |
| 6-8 years | 32.5% |
| 8-10 years | 10.8% |
| 10+ years | 26.8% |

Quality Distribution

(As a percentage of holdings)

[The following table was depicted as a pie chart in the printed material.]

| | |
|------------------|-------|
| AAA | 20.4% |
| AA | 5.9% |
| A | 3.0% |
| BBB | 27.1% |
| BB & Lower | 42.7% |
| Cash Equivalents | 0.9% |

10 Largest Holdings

(As a percentage of long-term holdings)*

| | | |
|-----|---|-------|
| 1. | Greenville County School District, 5.5%, 12/1/28 | 3.75% |
| 2. | Allegheny County Hospital Development Authority Revenue, 9.25%, 11/15/30 | 3.35 |
| 3. | Minneapolis/St. Paul Metropolitan Airports, 7.0%, 4/1/25 | 2.62 |
| 4. | Tobacco Settlement Financing Corp., 6.75%, 6/1/39 | 2.49 |
| 5. | Birmingham Alabama General Obligation, 5.0%, 12/1/32 | 2.42 |
| 6. | Metropolitan Pier & Exposition Authority Dedicated State Tax Revenue, 0.0%, 6/15/22 | 2.33 |
| 7. | Gila County Industrial Development Authority, 5.55%, 1/1/27 | 2.29 |
| 8. | Oklahoma Development Finance Authority Revenue, 5.625%, 8/15/29 | 2.14 |
| 9. | New Jersey Economic Development Authority Revenue, 6.25%, 9/15/29 | 2.01 |
| 10. | Johnson City Health & Educational Facilities Board Hospital Revenue, 7.5%, 7/1/33 | 1.94 |

*This list excludes money market 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 10/31/04

Share Prices and Distributions

Market Value
 per Common Share 10/31/04 4/30/04
 \$14.45 \$13.70

Net Asset Value
 per Common Share 10/31/04 4/30/04
 \$14.97 \$14.76

Distributions
 per Common Share Income Short-Term Long-Term
 (5/1/04 - 10/31/04) Dividends Capital Gains Capital Gains
 \$0.54 \$ - \$ -

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.

 Cumulative Total Returns
 (As of October 31, 2004)

| Period | Net Asset Value | Market Price |
|-------------------------|-----------------|--------------|
| Life-of-Trust (7/17/03) | 13.91% | 5.04% |
| 1 Year | 9.91% | 4.03% |

 [The following table was depicted as a mountain chart in the printed material.]

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Value of \$10,000 Investment+

| | Pioneer Municipal High Income Trust ----- | Lehman Brothers Municipal Bond Index ----- | Lehman Brothers Non-Investment Grade Municipal Bond Index ----- |
|------------|---|--|---|
| 7/31/2003 | \$10,000 | \$10,000 | \$10,000 |
| 4/30/2004 | \$11,020 | \$10,441 | \$11,014 |
| 10/31/2004 | \$11,598 | \$10,504 | \$11,574 |

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. 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 widely recognized, unmanaged measure of approximately 15,000 municipal bonds. Bonds in the Index have a minimum credit rating of BBB, were part of at least a \$50 million issuance made within the past five years and have a maturity of at least two years. 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 the Index.

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Pioneer Municipal High Income Trust

PORTFOLIO MANAGEMENT DISCUSSION 10/31/04

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Municipal bonds continued to deliver relatively strong results during the six-month period ended October 31, 2004. In the following interview, David Eurkus, a member of the Trust's management team, reviews the Trust's investment process, strategy and outlook.

Q: How did the Trust perform during the six-month period ended October 31, 2004?

A: For the period, Pioneer Municipal High Income Trust returned 5.33% at net asset value and 9.54% at market price. As of October 31, 2004, the Trust was selling at a discount of market price to net asset value of 3.47%. The Lehman Brothers Municipal Bond Index returned 4.79% and the Lehman Brothers Non-Investment Grade Municipal Bond Index returned 5.09%. At the end of the period, the Trust held 111 issues in 32 states, including District of Columbia. On October 31, 2004, the Trust's 30-day SEC yield was 7.32%. The performance data quoted represents past performance, which is no guarantee of future results. Investment return and principal value will fluctuate, and shares, when sold, may be worth more or less than their original cost.

Q: What was the environment like during the period?

A: After several months of robust economic growth, a number of reports associated with the economy indicated that the rapid pace of growth had shifted to a slower but steady rate. Despite a slight pullback in the economic expansion, the Federal Reserve maintained a tighter monetary policy. During the period, the Fed boosted the federal funds rate on three occasions, each time by 0.25%. (The federal funds rate is the rate banks charge each other for overnight loans.)

Higher interest rates tend to have a negative impact on most types of bonds, because as rates rise, bond prices decline. However, high-yield securities, like those in the portfolio, are less affected by rising interest rates. This is because interest rates go up when the economy is recovering, and a stronger economy leads to better corporate profits. When a company's profits rise, its bonds become more valuable because its credit quality improves.

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Pioneer Municipal High Income Trust

Q: The Trust outperformed both the Lehman Brothers Municipal Bond Index and the Lehman Brothers Non-Investment Grade Municipal Bond Index. What strategies benefited performance?

A: The Trust remained fully invested in a broad pool of revenue bonds that are backed by revenue from essential services, such as hospitals and health care, transportation, public power and education. Smaller positions in a variety of other sectors accounted for about 23.1% of net assets.

Keeping with our mandate of providing a relatively high level of income, we sought securities in both the investment-grade and below investment-grade areas of the market. This approach allowed us to provide a substantial amount of tax-free income. At the end of the period, 56.4% of the portfolio was in investment-grade bonds, those rated BBB or better, 42.7% was in

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below investment-grade bonds, rated BB or lower, and 0.9% was in cash. When selecting below-investment grade securities, we emphasized the debt of companies whose businesses were poised to improve as the economy strengthened. This lower quality debt accounted for the biggest contribution to performance. Overall, the average credit quality of the Trust was BBB+.

Historically low interest rates enabled the Trust to borrow funds to invest in below investment-grade and investment-grade bonds, and then use the leverage to invest in higher-yielding bonds. This strategy generated additional income to the Trust. At the end of the six months on October 31, 2004, about 23% of the Trust was leveraged, giving a boost to performance as high-yield bonds gained in value.

Q: What detracted from performance?

A: Investments in the air transportation sector detracted the most. Rising oil prices had a big impact on this sector, as the cost of jet fuel substantially increased the airlines' operating costs. In addition, widespread publicity about potential bankruptcies for some high profile airlines pulled down the whole sector.

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Pioneer Municipal High Income Trust

PORTFOLIO MANAGEMENT DISCUSSION 10/31/04

(continued)

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

A: As we move into 2005, we are optimistic in our outlook. We think the economy will continue to grow at a slower pace with no substantial increase in inflation. We also expect corporate earnings to remain relatively strong, although they may pull back from the high levels of the past year. This backdrop should be supportive of the bonds in the Trust. We expect to keep the Trust well diversified in a combination of below investment-grade and investment-grade bonds in a variety of economic sectors.

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. When concentrating on one issuer, the portfolio is sensitive to changes in the value of these securities. 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.

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Pioneer Municipal High Income Trust

 SCHEDULE OF INVESTMENTS 10/31/04 (unaudited)

| Principal Amount | S&P/ Moody's Ratings | | Value |
|---------------------|----------------------------|---|---------------------------------|
| | | TAX EXEMPT OBLIGATIONS - 127.6% of Net Assets | |
| | | Alabama - 3.6% | |
| \$10,000,000 | AAA/Aaa | Birmingham Alabama General Obligation, 5.0%, 12/1/32 | \$ 10,213,700 |
| 1,500,000 | BBB/NR | Camden Alabama Industrial Development Board, 6.125%, 12/1/24 | 1,617,420 |
| | | | ----- \$ 11,831,120 ----- |
| | | Arizona - 7.3% | |
| 5,000,000 | B+/Ba3 | Apache County Industrial Development Authority, 5.85%, 3/1/28 | \$ 4,968,700 |
| 5,000,000 | B+/Ba3 | Apache County Industrial Development Authority, 5.875%, 3/1/33 | 4,962,000 |
| 11,630,000 | B-/Ca | Gila County Industrial Development Authority, 5.55%, 1/1/27 | 9,664,181 |
| 3,000,000 | NR/NR | Maricopa County Industrial Development Authority, 7.875%, 4/1/27 | 3,093,510 |
| 1,000,000 | NR/Baa3 | Pima County Industrial Development Authority, 7.25%, 7/1/31 | 1,068,880 |
| 500,000 | NR/Baa2 | Yavapai County Industrial Development Authority, 6.0%, 8/1/33 | 523,860 |
| | | | ----- \$ 24,281,131 ----- |
| | | California - 11.3% | |
| 7,270,000 | A/A3 | California State General Obligation, 5.25%, 2/1/28 | \$ 7,636,335 |
| 5,150,000 | BBB/Baa3 | Golden State Tobacco Securitization Corp., 7.8%, 6/1/42 | 5,528,886 |
| 7,000,000 | BBB/Baa3 | Golden State Tobacco Securitization Corp., 7.875%, 6/1/42 | 7,548,870 |
| 4,000,000 | AAA/Aaa | Palm Desert Financing Authority Tax Allocation Revenue, 5.0%, 4/1/30 | 4,102,360 |
| 3,000,000 | AAA/Aaa | San Diego Unified School District, 5.0%, 7/1/25 | 3,122,040 |
| 2,500,000 | AAA/Aaa | University of California Revenue, 5.0%, 5/15/25 | 2,611,250 |
| 7,000,000 | B+/NR | Valley Health System Hospital Revenue, 6.5%, 5/15/25 | 6,776,560 |
| | | | ----- \$ 37,326,301 ----- |

The accompanying notes are an integral part of these financial statements. 7

Pioneer Municipal High Income Trust

 SCHEDULE OF INVESTMENTS 10/31/04 (unaudited)

(continued)

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| Principal Amount | S&P/ Moody's Ratings | | |
|------------------|----------------------------|---|---------|
| \$ 2,205,000 | BB/Baa1 | Connecticut - 1.8% Connecticut State Health & Educational Facilities Authority Revenue, 5.375%, 7/1/17 | \$ 2,03 |
| 4,400,000 | BB/Baa1 | Connecticut State Health & Educational Facilities Authority Revenue, 5.5%, 7/1/27 | 3,81 |
| | | | ----- |
| | | | \$ 5,85 |
| | | | ----- |
| 5,000,000 | BBB/Baa3 | District of Columbia - 3.6% District of Columbia Tobacco Settlement Financing Corp., 6.5%, 5/15/33 | \$ 4,71 |
| 7,325,000 | BBB/Baa3 | District of Columbia Tobacco Settlement Financing Corp., 6.75%, 5/15/40 | 7,10 |
| | | | ----- |
| | | | \$11,81 |
| | | | ----- |
| 2,000,000 | NR/NR | Florida - 4.4% Beacon Lakes Community Development, 6.9%, 5/1/35 | \$ 2,09 |
| 2,300,000 | CC/C | Hillsborough County Aviation Authority Revenue, 6.8%, 1/1/24 | 92 |
| 1,650,000 | BBB-/Baa2 | Polk County Industrial Development Revenue, 5.85%, 12/1/30 | 1,67 |
| 2,000,000 | NR/NR | Seminole Tribe Convention-A, 8.95%, 10/1/33 | 2,32 |
| 1,900,000 | NR/NR | Seminole Tribe Convention-A, 10.0%, 10/1/33 | 2,34 |
| 5,000,000 | NR/Baa2 | Tallahassee Health Facilities Revenue, 6.375%, 12/1/30 | 5,08 |
| | | | ----- |
| | | | \$14,43 |
| | | | ----- |
| 1,325,000 | NR/NR | Georgia - 0.4% Brunswick & Glynn County Development Authority Revenue, 7.25%, 1/1/35 | \$ 1,31 |
| | | | ----- |
| 5,000,000 | BB+/Ba3 | Idaho - 1.6% Power County Industrial Development Corp., 6.45%, 8/1/32 | \$ 5,12 |
| | | | ----- |
| 1,000,000 | NR/NR | Illinois - 4.0% Centerpoint Intermodal Center, 8.0%, 6/15/23 (144A) | \$ 97 |
| 2,790,000 | CC/C | Chicago Illinois O'Hare International Airport, 6.45%, 5/1/18 | 92 |
| 1,500,000 | NR/NR | Illinois Health Facilities Authority Revenue, 6.9%, 11/15/33 | 1,50 |
| 16,880,000 (a) | AAA/Aaa | Metropolitan Pier & Exposition Authority Dedicated State Tax Revenue, 0.0%, 6/15/22 | 9,85 |
| | | | ----- |
| | | | \$13,25 |
| | | | ----- |

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

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Pioneer Municipal High Income Trust

| Principal Amount | S&P/ Moody's Ratings | | Value |
|---------------------|----------------------------|---|--------------------------------|
| | | Indiana - 1.6% | |
| \$1,000,000 | BBB+/Baa1 | Indiana State Development Finance Authority Revenue, 5.6%, 12/1/32 | \$ 1,018,530 |
| 4,300,000 | CCC+/Caa2 | Indiana State Development Finance Authority Revenue, 5.75%, 10/1/11 | 4,297,592 |
| | | | ----- \$ 5,316,122 ----- |
| | | Kentucky - 2.0% | |
| 7,050,000 | CC/Ca | Kenton County Airport Revenue, 7.5%, 2/1/12 | \$ 5,217,353 |
| 1,965,000 | CC/Ca | Kenton County Airport Revenue, 7.5%, 2/1/20 | 1,375,500 |
| | | | ----- \$ 6,592,853 ----- |
| | | Massachusetts - 10.6% | |
| 1,300,000 | NR/Aaa | Ashland Massachusetts General Obligation, 5.25%, 5/15/17 | \$ 1,464,905 |
| 1,305,000 | NR/Aaa | Ashland Massachusetts General Obligation, 5.25%, 5/15/21 | 1,439,467 |
| 2,435,000 | AAA/Aaa | Massachusetts Health & Educational Facilities Authority Revenue, 5.0%, 7/15/35 | 2,494,487 |
| 7,050,000 | AAA/Aaa | Massachusetts Health & Educational Facilities Authority Revenue, 5.125%, 7/15/37 | 7,299,993 |
| 1,000,000 | AA/NR | Massachusetts Health & Educational Facilities Authority Revenue, 5.25%, 10/15/33 | 1,044,950 |
| 3,500,000 | BBB-/Baa3 | Massachusetts Health & Educational Facilities Authority Revenue, 6.25%, 7/1/22 | 3,708,495 |
| 5,000,000 | BBB-/NR | Massachusetts Health & Educational Facilities Authority Revenue, 6.75%, 10/1/33 | 5,259,400 |
| 75,000 | BB/NR | Massachusetts State Development Finance Agency, 5.25%, 10/1/18 | 64,882 |
| 5,000,000 | AAA/Aaa | Massachusetts State Development Finance Agency, 5.75%, 1/1/42 | 5,898,100 |
| 1,075,000 | NR/A2 | Massachusetts State Development Finance Agency, 6.0%, 8/1/17 | 1,290,484 |
| 5,055,000 | AA-/Aa3 | Massachusetts State Housing Finance Agency, 5.25%, 12/1/33 | 5,121,018 |
| | | | ----- \$35,086,181 ----- |

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

Pioneer Municipal High Income Trust

SCHEDULE OF INVESTMENTS 10/31/04 (unaudited)

(continued)

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| Principal Amount | S&P/ Moody's Ratings | | Value |
|------------------|----------------------------|--|--------------|
| | | Michigan - 4.1% | |
| \$ 1,500,000 | BBB-/NR | John Tolfree Health System Corp., 6.0%, 9/15/23 | \$ 1,453,485 |
| 4,010,000 | BBB-/Ba1 | Michigan State Hospital Finance Authority Revenue, 6.0%, 2/1/24 | 3,872,938 |
| 2,000,000 | NR/NR | Michigan State Hospital Finance Authority Revenue, 6.4%, 1/1/15 | 1,981,240 |
| 7,690,000 | NR/NR | Wayne Charter County Michigan Special Airport Facilities Revenue, 6.75%, 12/1/15 | 6,340,405 |
| | | | ----- |
| | | | \$13,648,068 |
| | | | ----- |
| | | Minnesota - 4.3% | |
| 1,675,000 | BB/NR | Duluth Economic Development Authority Health Care Facilities Revenue, 7.25%, 6/15/32 | \$ 1,757,913 |
| 13,260,000 | NR/NR | Minneapolis/St. Paul Metropolitan Airports, 7.0%, 4/1/25 | 11,067,989 |
| 1,430,000 | BB/Ba2 | St. Paul Housing & Redevelopment Authority, 6.625%, 11/1/17 | 1,444,786 |
| | | | ----- |
| | | | \$14,270,688 |
| | | | ----- |
| | | Mississippi - 0.9% | |
| 3,000,000 | BBB/Ba1 | Mississippi Business Finance Corp. Pollution Control Revenue, 5.9%, 5/1/22 | \$ 3,031,110 |
| | | | ----- |
| | | Missouri - 1.4% | |
| 5,500,000 | NR/B3 | St. Louis Industrial Development Authority Revenue, 7.25%, 12/15/35 | \$ 4,478,155 |
| | | | ----- |
| | | Nevada - 1.5% | |
| 1,000,000 | BBB-/Baa2 | Clark County Industrial Development Revenue, 5.45%, 3/1/38 | \$ 1,057,540 |
| 1,850,000 | B-/NR | Clark County Industrial Development Revenue, 5.5%, 10/1/30 | 1,775,944 |
| 2,000,000 | NR/NR | Nevada State Department of Business & Industry, 7.25%, 1/1/23 | 1,996,700 |
| | | | ----- |
| | | | \$ 4,830,184 |
| | | | ----- |
| | | New Hampshire - 0.9% | |
| 3,000,000 | AAA/Aaa | Manchester School Facilities Revenue, 5.125%, 6/1/28 | \$ 3,133,530 |
| | | | ----- |

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

Pioneer Municipal High Income Trust

Principal S&P/
Moody's

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| Amount | Ratings | | Value |
|---------------|----------|--|--------------|
| | | New Jersey - 7.9% | |
| \$ 2,000,000 | B/Caa2 | New Jersey Economic Development Authority Revenue, 6.25%, 9/15/19 | \$ 1,555,340 |
| 11,700,000 | B/Caa2 | New Jersey Economic Development Authority Revenue, 6.25%, 9/15/29 | 8,473,608 |
| 1,000,000 | B/Caa2 | New Jersey Economic Development Authority Revenue, 6.4%, 9/15/23 | 777,020 |
| 6,150,000 | B/Caa2 | New Jersey Economic Development Authority Revenue, 7.0%, 11/15/30 | 4,855,118 |
| 10,750,000 | BBB/Baa3 | Tobacco Settlement Financing Corp., 6.75%, 6/1/39 | 10,523,928 |
| | | | ----- |
| | | | \$26,185,014 |
| | | | ----- |
| | | New Mexico - 1.6% | |
| 3,700,000 + | NR/NR | New Mexico Hospital Equipment Loan Council, 6.4%, 6/1/16 | \$ 4,008,025 |
| 1,350,000 (b) | BBB-/NR | Santa Fe Educational Facilities Revenue, 5.75%, 10/1/28 | 1,332,653 |
| | | | ----- |
| | | | \$ 5,340,678 |
| | | | ----- |
| | | New York - 5.8% | |
| 2,000,000 | A/NR | New York City Industrial Development Agency, 5.375%, 6/1/23 | \$ 2,068,120 |
| 5,625,000 | CCC/Caa2 | New York City Industrial Development Agency, 6.9%, 8/1/24 | 3,546,338 |
| 5,000,000 | AAA/Aaa | New York City Trust Cultural Resources Revenue, 5.125%, 7/1/31 | 5,193,950 |
| 2,000,000 | NR/NR | Suffolk County Industrial Development Agency, 7.25%, 1/1/30 | 1,970,160 |
| 6,000,000 | AAA/Aaa | Triborough Bridge & Tunnel Authority Revenue, 5.25%, 11/15/30 | 6,363,240 |
| | | | ----- |
| | | | \$19,141,808 |
| | | | ----- |
| | | North Carolina - 1.5% | |
| 2,000,000 | AA+/Aa2 | Charlotte North Carolina Certificates of Participation, 5.0%, 6/1/33 | \$ 2,044,760 |
| 4,600,000 (c) | NR/NR | Charlotte North Carolina Special Facilities Revenue, 7.75%, 2/1/28 | 1,932,000 |
| 1,000,000 | AA+/Aa2 | Charlotte North Carolina Storm Weather Fee Revenue, 5.0%, 6/1/34 | 1,031,010 |
| | | | ----- |
| | | | \$ 5,007,770 |
| | | | ----- |

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

Pioneer Municipal High Income Trust

 SCHEDULE OF INVESTMENTS 10/31/04 (unaudited)

(continued)

Principal S&P/
 Moody's

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| Amount | Ratings | | V |
|-----------------|-----------|--|---------|
| | | Oklahoma - 5.2% | |
| \$ 3,000,000 ++ | AAA/Aaa | Oklahoma Development Finance Authority Revenue, 5.625%, 8/15/19 | \$ 3,39 |
| 8,000,000 ++ | AAA/Aaa | Oklahoma Development Finance Authority Revenue, 5.625%, 8/15/29 | 9,02 |
| 4,100,000 | B-/Caa2 | Tulsa Municipal Airport Revenue, 5.65%, 12/1/35 | 3,79 |
| 1,225,000 | B-/Caa2 | Tulsa Municipal Airport Revenue, 6.25%, 6/1/20 | 95 |
| | | | ----- |
| | | | \$17,17 |
| | | | ----- |
| | | Oregon - 4.7% | |
| 1,000,000 | NR/NR | Klamath Falls Electric Revenue, 5.75%, 1/1/13 | \$ 1,01 |
| 7,000,000 | NR/NR | Klamath Falls Electric Revenue, 6.0%, 1/1/25 | 6,94 |
| 7,500,000 | NR/NR | Western Generation Agency Cogeneration Project Revenue, 7.125%, 1/1/21 | 7,63 |
| | | | ----- |
| | | | \$15,59 |
| | | | ----- |
| | | Pennsylvania - 9.6% | |
| 1,550,000 | NR/Baa1 | Allegheny County Hospital Development Authority Revenue, 5.125%, 5/1/25 | \$ 1,38 |
| 12,300,000 | B/B1 | Allegheny County Hospital Development Authority Revenue, 9.25%, 11/15/30 | 14,16 |
| 2,500,000 | BBB-/Baa2 | Beaver County Industrial Development Authority, 7.625%, 5/1/25 | 2,61 |
| 1,000,000 | BB-/NR | Columbia County Hospital Authority Health Care Revenue, 5.9%, 6/1/29 | 80 |
| 5,000,000 | BBB/Baa3 | Delaware County Industrial Development Authority Revenue, 6.1%, 7/1/13 | 5,35 |
| 1,000,000 | BBB/Ba2 | Hazleton Health Services Authority Hospital Revenue, 5.625%, 7/1/17 | 84 |
| 1,280,000 | NR/B2 | Langhorne Manor Borough Higher Education & Health Authority Revenue, 7.35%, 7/1/22 | 1,26 |
| 500,000 | BBB+/NR | Pennsylvania Higher Educational Facilities Authority Revenue, 5.4%, 7/15/36 | 51 |
| 5,000,000 | BBB-/Baa2 | Philadelphia Hospitals & Higher Education Facilities Authority Revenue, 6.5%, 11/15/22 | 5,00 |
| | | | ----- |
| | | | \$31,94 |
| | | | ----- |

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

Pioneer Municipal High Income Trust

| Principal Amount | S&P/ Moody's Ratings | | Value |
|------------------|----------------------|---|--------------|
| | | South Carolina - 8.1% | |
| \$ 4,250,000 | BBB/Baa2 | Georgetown County Environmental Improvement Revenue, 5.95%, 3/15/14 | \$ 4,786,265 |
| 15,000,000 | AA-/A1 | Greenville County School District, 5.5%, 12/1/28 | 15,834,750 |

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| | | | |
|-----------|-----------|---|--------------|
| 5,850,000 | BBB/Baa2 | South Carolina Jobs Economic Development Authority Revenue, 6.375%, 8/1/34 | 6,247,391 |
| | | | ----- |
| | | | \$26,868,406 |
| | | | ----- |
| | | Tennessee - 3.8% | |
| 7,000,000 | BBB+/Baa2 | Johnson City Health & Educational Facilities Board Hospital Revenue, 7.5%, 7/1/33 | \$ 8,212,400 |
| 4,480,000 | NR/Baa3 | Knox County Health Educational & Housing Facilities Board Hospital Revenue, 6.375%, 4/15/22 | 4,527,622 |
| | | | ----- |
| | | | \$12,740,022 |
| | | | ----- |
| | | Texas - 5.2% | |
| 7,500,000 | CCC/Caa2 | Alliance Airport Authority Special Facilities Revenue, 7.5%, 12/1/29 | \$ 4,799,925 |
| 1,345,000 | NR/Baa3 | Bexar County Housing Finance Corp., 8.0%, 12/1/36 | 1,402,082 |
| 5,500,000 | CC/Ca | Dallas-Fort Worth International Airport Revenue, 7.125%, 11/1/26 | 1,815,000 |
| 2,800,000 | CC/Ca | Dallas-Fort Worth International Airport Revenue, 7.6%, 11/1/11 | 924,000 |
| 750,000 | CC/Ca | Dallas-Fort Worth International Airport Revenue, 7.625%, 11/1/21 | 247,500 |
| 4,000,000 | NR/NR | Decatur Hospital Authority Revenue, 7.0%, 9/1/25 | 4,050,480 |
| 1,000,000 | BB/NR | Georgetown Health Facilities Development Corp., 6.25%, 8/15/29 | 959,090 |
| 3,750,000 | B-/Caa2 | Houston Airport System Special Facilities Revenue, 5.7%, 7/15/29 | 2,503,725 |
| 500,000 | BBB/Baa2 | Sabine River Authority Pollution Control Revenue, 6.15%, 8/1/22 | 541,715 |
| | | | ----- |
| | | | \$17,243,517 |
| | | | ----- |
| | | Vermont - 0.5% | |
| 1,500,000 | A-/A3 | Vermont Educational & Health Buildings Financing Agency Revenue, 6.0%, 10/1/28 | \$ 1,677,225 |
| | | | ----- |
| | | Virginia - 1.4% | |
| 1,000,000 | BBB/Baa3 | Peninsula Ports Authority, 6.0%, 4/1/33 | \$ 1,038,720 |
| 4,000,000 | BB/NR | Pocahontas Parkway Association of Virginia Toll Road Revenue, 5.5%, 8/15/28 | 3,630,560 |
| | | | ----- |
| | | | \$ 4,669,280 |
| | | | ----- |

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

Pioneer Municipal High Income Trust

SCHEDULE OF INVESTMENTS 10/31/04 (unaudited)

(continued)

| Principal Amount | S&P/ Moody's Ratings |
|---------------------|----------------------------|
|---------------------|----------------------------|

Washington - 5.5%

Value

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| | | | |
|--------------|----------|--|------------------|
| \$ 4,710,000 | AAA/Aaa | Spokane Public Facilities District Hotel/Motel Tax & Sales, 5.75%, 12/1/27 | \$ 5,294,699 |
| 7,025,000 | BBB/Baa3 | Tobacco Settlement Authority Washington, 6.625%, 6/1/32 | 6,754,116 |
| 14,315,000 | AAA/Aaa | Washington State General Obligation, 0.0%, 6/1/22 | 6,119,949 |
| | | | ----- |
| | | | \$ 18,168,764 |
| | | | ----- |
| 5,000,000 | BB+/Ba3 | Wyoming - 1.5% Sweetwater County Solid Waste Disposal Revenue, 6.9%, 9/1/24 | \$ 5,081,050 |
| | | | ----- |
| | | TOTAL TAX-EXEMPT OBLIGATIONS (Cost \$409,040,749) | \$ 422,469,614 |
| | | | ----- |
| Shares | | TAX-EXEMPT MONEY MARKET MUTUAL FUND - 1.1% of Net Assets | |
| 3,775,289 | | BlackRock Provident Institutional Municipal Fund | \$ 3,775,289 |
| | | | ----- |
| | | TOTAL TAX-EXEMPT MONEY MARKET MUTUAL FUND (Cost \$3,775,289) | \$ 3,775,289 |
| | | | ----- |
| | | TOTAL INVESTMENTS IN SECURITIES - 128.7% (Cost \$412,816,038) (d) (e) | \$ 426,244,903 |
| | | | ----- |
| | | OTHER ASSETS AND LIABILITIES - 1.8% | \$ 5,821,711 |
| | | | ----- |
| | | PREFERRED SHARES AT REDEMPTION VALUE - (30.5)% | \$ (101,000,000) |
| | | | ----- |
| | | NET ASSETS APPLICABLE TO COMMON SHAREOWNERS - 100.0% | \$ 331,066,614 |
| | | | ===== |

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

Pioneer Municipal High Income Trust

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, 2004 the value of these securities amounted to \$974,690 or 0.3% of net assets applicable to common shareholders.

+ 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.

++ 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.

(a) Indicates a security that has a zero coupon that remains in effect until a predetermined date at which time the stated coupon rate becomes

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effective until final maturity.

- (b) This security, or portion thereof, has been purchased on a "when issue" basis.
- (c) Security is in default and is non-incoming producing.
- (d) The concentration of investments by type of obligation/market sector is as follows:

| | |
|---------------------------|--------|
| Insured | 14.7% |
| General Obligation | 1.8 |
| Revenue Bonds: | |
| Health Revenue | 25.0 |
| Airport Revenue | 14.5 |
| Tobacco Revenue | 9.9 |
| Pollution Control Revenue | 8.8 |
| Education Revenue | 6.7 |
| Development Revenue | 6.3 |
| Power Revenue | 3.9 |
| Facilities Revenue | 2.8 |
| Other | 2.0 |
| Transportation Revenue | 1.6 |
| Housing Revenue | 1.5 |
| Utilities Revenue | 0.3 |
| Water Revenue | 0.2 |
| | ----- |
| | 100.0% |
| | ===== |

- (e) At October 31, 2004, the net unrealized gain on investments based on cost for federal income tax purposes of \$412,149,345 was as follows:

| | |
|--|---------------|
| Aggregate gross unrealized gain for all investments in which there is an excess of value over tax cost | \$ 29,502,769 |
| Aggregate gross unrealized loss for all investments in which there is an excess of tax cost over value | (15,407,211) |
| | ----- |
| Net unrealized gain | \$ 14,095,558 |
| | ===== |

For financial reporting purposes net unrealized gain on investments was \$13,428,865 and cost of investments aggregated \$412,816,038

Purchases and sales of securities (excluding temporary cash investments) for the six months ended October 31, 2004, aggregated \$68,121,396 and \$68,745,116, respectively.

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

Pioneer Municipal High Income Trust

STATEMENT OF ASSETS AND LIABILITIES 10/31/04 (unaudited)

ASSETS:

| | |
|--|---------------|
| Investments in securities, at value (cost \$412,816,038) | \$426,244,903 |
| Receivables - | |
| Investment securities sold | 79,513 |
| Interest | 8,742,063 |
| Prepaid expenses | 23,600 |
| | ----- |
| Total assets | \$435,090,079 |

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| | |
|---|---------------|
| LIABILITIES: | |
| Payables - | |
| Investment securities purchased | \$ 2,621,727 |
| Net interest rate swaps payable | 37,123 |
| Unrealized depreciation on interest rate swaps | 25,050 |
| Due to affiliates | 218,576 |
| Administration fee payable | 25,481 |
| Accrued expenses | 95,508 |
| | ----- |
| Total liabilities | \$ 3,023,465 |
| | ----- |
| 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 |
| Undistributed net investment income | 987,377 |
| Accumulated net realized gain on investments and | |
| interest rate swaps | 1,512,870 |
| Net unrealized gain on investments | 13,428,865 |
| Net unrealized loss on interest rate swaps | (25,050) |
| | ----- |
| Net assets applicable to common shareowners | \$331,066,614 |
| | ===== |
| NET ASSET VALUE PER SHARE: | |
| No par value, (unlimited number of shares authorized) | |
| Based on \$331,066,614/22,120,893 common shares | \$ 14.97 |
| | ===== |

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

Pioneer Municipal High Income Trust

STATEMENT OF OPERATIONS (unaudited)

For the Six Months Ended 10/31/04

| | |
|----------------------------------|--------------|
| INVESTMENT INCOME: | |
| Interest | \$14,200,881 |
| | ----- |
| EXPENSES: | |
| Management fees | \$ 1,279,170 |
| Administration fees | 149,237 |
| Transfer agent fees and expenses | 24,582 |
| Auction agent fees | 134,533 |
| Custodian fees | 10,005 |
| Registration fees | 11,241 |
| Professional fees | 28,701 |
| Printing expense | 8,661 |
| Trustees' fees | 4,581 |
| Miscellaneous | 16,440 |
| | ----- |
| Total expenses | \$ 1,667,151 |
| | ----- |
| Net investment income | \$12,533,730 |
| | ----- |

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REALIZED AND UNREALIZED GAIN (LOSS) ON INVESTMENTS

AND INTEREST RATE SWAPS:

Net realized gain (loss) from:

| | | |
|---------------------|--------------|--------------|
| Investments | \$ 3,042,821 | |
| Interest rate swaps | (358,894) | \$ 2,683,927 |
| | ----- | ----- |

Change in net unrealized gain (loss) on:

| | | |
|---------------------|--------------|--------------|
| Investments | \$ 2,842,625 | |
| Interest rate swaps | (1,161,850) | \$ 1,680,775 |
| | ----- | ----- |

Net gain on investments and interest rate swaps

\$ 4,364,702

DISTRIBUTIONS TO PREFERRED SHAREOWNERS FROM

NET INVESTMENT INCOME

\$ (600,050)

Net increase in net assets applicable to common shareowners resulting from operations

\$16,298,382

=====

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

Pioneer Municipal High Income Trust

STATEMENTS OF CHANGES IN NET ASSETS (unaudited)

For the Six Months Ended 10/31/04 and the Period Ended 4/30/04

| | Six Months Ended 10/31/04 (unaudited) | 7/21/03 (Commencement of Operations) to 4/30/04 |
|---|--|--|
| FROM OPERATIONS: | | |
| Net investment income | \$ 12,533,730 | \$ 17,506,653 |
| Net realized gain (loss) on investments and interest rate swaps | 2,683,927 | (1,231,658) |
| Net unrealized gain on investments and interest rate swaps | 1,680,775 | 11,723,040 |
| Distributions to preferred shareowners from net investment income | (600,050) | (539,580) |
| | ----- | ----- |
| Net increase in net assets applicable to common shareowners | \$ 16,298,382 | \$ 27,458,455 |
| | ----- | ----- |
| DISTRIBUTIONS TO COMMON SHAREOWNERS: | | |
| Net investment income (\$0.54 and \$0.72 per share, respectively) | \$ (11,945,282) | \$ (15,907,493) |
| | ----- | ----- |
| Total dividends to common shareowners | \$ (11,945,282) | \$ (15,907,493) |
| | ----- | ----- |
| FROM TRUST SHARE TRANSACTIONS: | | |
| Net proceeds from the issuance of common shares | \$ - | \$293,662,500 |
| Net proceeds from underwriters' over-allotment option exercised | - | 21,487,500 |
| Reinvestment of distributions | - | 1,673,643 |

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| | | |
|--|---------------|---------------|
| Changes in estimated common share offering expenses | 123,849 | (660,000) |
| Changes in estimated preferred share offering expenses | - | (1,224,943) |
| <hr style="border-top: 1px dashed black;"/> | | |
| Net increase in net assets applicable to common shareowners resulting from Trust share transactions | \$ 123,849 | \$314,938,700 |
| <hr style="border-top: 1px dashed black;"/> | | |
| Net increase in net assets applicable to common shareowners | \$ 4,476,949 | \$326,489,662 |
| NET ASSETS APPLICABLE TO COMMON SHAREOWNERS: | | |
| Beginning of period | 326,589,665 | 100,003 |
| <hr style="border-top: 1px dashed black;"/> | | |
| End of period (including undistributed net investment income of \$987,377 and \$998,979, respectively) | \$331,066,614 | \$326,589,665 |
| | ===== | ===== |

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

Pioneer Municipal High Income Trust

FINANCIAL HIGHLIGHTS

| | Six Months Ended 10/31/04 (unaudited) | July 21, 2003 April 30, 2004 |
|---|--|---------------------------------|
| Per Common Share Operating Performance (a) | | |
| Net asset value, beginning of period | \$ 14.76 | \$ 14.33+ |
| <hr style="border-top: 1px dashed black;"/> | | |
| Increase (decrease) from investment operations: | | |
| Net investment income | \$ 0.57 | \$ 0.80 |
| Net realized and unrealized gain on investments and interest rate swaps | 0.21 | 0.46 |
| Distributions to preferred shareowners from net investment income | (0.03) | (0.02) |
| <hr style="border-top: 1px dashed black;"/> | | |
| Net increase from investment operations | \$ 0.75 | \$ 1.24 |
| Distributions to common shareowners: | | |
| Net investment income | (0.54) | (0.72) |
| Changes in (estimated) with respect to issuance of: | | |
| Common shares | -* | (0.03) |
| Preferred shares | - | (0.06) |
| <hr style="border-top: 1px dashed black;"/> | | |
| Net increase in net asset value | \$ 0.21 | \$ 0.43 |
| <hr style="border-top: 1px dashed black;"/> | | |
| Net asset value, end of period** | \$ 14.97 | \$ 14.76 |
| <hr style="border-top: 1px dashed black;"/> | | |
| Market value, end of period** | \$ 14.45 | \$ 13.70 |
| <hr style="border-top: 1px dashed black;"/> | | |
| Total return++ | 9.54% | (4.11)% |
| Ratios to average net assets of common shareowners | | |
| Net Expenses+++ | 1.03%*** | 0.95%*** |

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| | | |
|---|-----------|-----------|
| Net investment income before preferred share dividends | 7.72%*** | 6.91%** |
| Preferred share dividends | 0.37%*** | 0.21%** |
| Net investment income available to common shareowners | 7.35%*** | 6.70%** |
| Portfolio turnover | 17% | 54% |
| Net assets of common shareowners, end of period (in thousands) | \$331,067 | \$326,590 |
| Preferred shares outstanding (in thousands) | \$101,000 | \$101,000 |
| Asset coverage per preferred share, end of period | \$106,947 | \$105,839 |
| 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 | | |
| Net Expenses+++ | 1.03%*** | 0.96%** |
| Net investment income before preferred share dividends | 7.72%*** | 6.90%** |
| Preferred share dividends | 0.37%*** | 0.21%** |
| Net investment income available to common shareowners | 7.35%*** | 6.69%** |

- (a) The per common 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.
- * Amount is less than \$0.01 per share.
- ** 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.
- *** Annualized.
- + Net asset value immediately after the closing of the first public offering was \$14.30.
- ++ 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.
- +++ Ratios do not reflect the effect of dividend payments to preferred shareowners.

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. 19

Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/04 (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, and the sale and issuance to Pioneer Investment Management, Inc. ("PIM"), the Trust's investment

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adviser, a wholly owned indirect subsidiary of UniCredito Italiano S.p.A. (UniCredito Italiano), of 6,981 shares of beneficial interest at an aggregate purchase price of \$100,003. PIM has agreed to reimburse the amount by which the aggregate of all the Trust's organizational expenses and offering costs for common shares (other than the sales load) exceeds \$0.03 per share of common share offering. The investment objective of the Trust is to seek a high level of current income exempt from regular federal income tax and the Trust may seek capital appreciation to the extent that it is consistent with its primary investment objective.

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 accounting principles generally accepted in the United States of America 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

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Pioneer Municipal High Income Trust

a summary of significant accounting policies consistently followed by the Trust in preparation of its financial statements, which are consistent with those 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. As of October 31, 2004, there were no securities fair valued.

Discount and premium on fixed income 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. Temporary cash investments are valued at amortized cost.

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

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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 amount and characterization of distributions to shareowners for financial reporting purposes is 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.

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Pioneer Municipal High Income Trust

 NOTES TO FINANCIAL STATEMENTS 10/31/04 (unaudited)

(continued)

At April 30, 2004, the Trust had a capital loss carryforward of \$1,170,962 which will expire in 2012 if not utilized.

The tax character of current year distributions paid will be determined at the end of the current fiscal year. The tax character of distributions paid to common and preferred shareowners during the period ended April 30, 2004 was as follows:

| ----- | |
|--------------------------|--------------|
| 2004 | |
| Distributions paid from: | |
| Tax exempt income | \$16,447,073 |
| Long-term capital gain | - |
| | ----- |
| Total | \$16,447,073 |
| | ----- |

The following shows components of distributable earnings on a federal income tax basis at April 30, 2004.

| ----- | |
|---------------------------------|--------------|
| 2004 | |
| Undistributed tax-exempt income | \$ 431,774 |
| Capital loss carryforward | (1,170,962) |
| Unrealized appreciation | 12,290,150 |
| | ----- |
| Total | \$11,550,962 |
| | ----- |

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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 and the tax deferral of losses on wash sales.

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

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Pioneer Municipal High Income Trust

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. 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.

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Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/04 (unaudited)

(continued)

In addition, under PIM's management and administration agreements, certain other services and costs are paid by the Trust. PIM has retained Princeton Administrators, L.P., an affiliate of Merrill Lynch, Pierce, Fenner & Smith Incorporated, to provide certain administrative services to the Trust on its behalf. The Trust pays Princeton Administrators, L.P. 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.

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 expenses, 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. Under this agreement, PIM may subsequently recover reimbursed expenses (within three years of being incurred) from the Trust if the Trust's total expenses are less than 0.80% of average daily managed assets. As of October 31, 2004, 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. 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.

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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. 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.

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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 and exchange of net interest payments between the parties. For financial reporting purposes, the Trust records the net receivable or payable for the net interest expected to be received or paid as net realized gains or losses from interest rate swaps in 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" to reflect the market value of the swap. 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, the Trust does not anticipate non-performance by any counterparty.

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, 2004 were as follows:

| Counterparty | Termination Date | Notional Amount (000) | Fixed Rate | Floating Rate | Unrealized Depreciation |
|--------------|---------------------|--------------------------|---------------|---------------|----------------------------|
| UBS AG | April 5, 2009 | \$50,000 | 2.665% | 1 month BMA | \$ (25,050) |

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, 2004, PIM owned 6,981 shares.

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Pioneer Municipal High Income Trust

NOTES TO FINANCIAL STATEMENTS 10/31/04 (unaudited) (continued)

Transactions in common shares of beneficial interest for the six months ended October 31, 2004 and the period from July 21, 2003 (commencement of investment operations) to April 30, 2004 were as follows:

| | 9/04 | 4/04 |
|--|------|------------|
| Shares issued in connection with initial public offering | - | 20,500,000 |
| Shares issued from underwriters' over-allotment option exercised | | 1,500,000 |
| Reinvestment of distributions | - | 113,912 |
| | - | ----- |
| Net increase in shares outstanding | - | 22,113,912 |
| Shares outstanding at beginning | | |

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| | | |
|-------------------------------------|------------|------------|
| of period | - | 6,981 |
| | - | ----- |
| 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, 2004, there were 4,040 Auction Preferred Shares ("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 0.96% to 1.55% during the six months ended October 31, 2004.

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.

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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. Subsequent Events

Subsequent to October 31, 2004 the Board of Trustees of the Trust declared a dividend from undistributed net investment income of \$0.09 per common share payable November 30, 2004, to shareowners of record on November 15, 2004.

For the period November 1, 2004 to November 30, 2004, dividends declared on preferred stock totaled \$139,354 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

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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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TRUSTEES, OFFICERS AND SERVICE PROVIDERS

Officers

John F. Cogan, Jr., Chairman
Mary K. Bush
Richard H. Egdahl, M.D.
Margaret B.W. Graham
Osbert M. Hood
Marguerite A. Piret
Stephen K. West
John Winthrop

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.

Trustees

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

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 6-month period ended October 31, 2004 is publicly available to shareowners at www.pioneerfunds.com. This information is also available on the Securities and Exchange Commission's web site at <http://www.sec.gov>.

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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 | 1-800-710-0935 |
| 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 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 |

Please consider the Trust's investment objectives, risks, charges and expenses carefully before investing. The prospectus contains this and other information about the Trust and should be read carefully before you invest or send money. To obtain a prospectus and for other information on any Pioneer fund, call 1-800-225-6292 or visit our website 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 website 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.

[LOGO] PIONEER
Investments (R)

Pioneer Investment Management, Inc.
60 State Street
Boston, MA 02109
www.pioneerfunds.com

16550-00-1204
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Underwriter of Pioneer mutual funds
Member SIPC

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

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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)).

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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

SECTION I - POLICY PURPOSE AND APPLICABILITY

The Pioneer Funds recognizes 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 recognizes 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

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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 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, | <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 |

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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 |
|-------------------|--|---|
| III. TAX SERVICES | 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 | <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 |

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confidentiality.

| 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 |
|--|--|--|
| IV. OTHER SERVICES A. SYNERGISTIC, UNIQUE QUALIFICATIONS | 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, 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. | <ul style="list-style-type: none"> o Business Risk Management support o Other control and regulatory compliance projects |

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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 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 |

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impermissible

AUDIT COMMITTEE APPROVAL POLICY

AUDIT COMMITTEE
REPORTING POLICY

- | | |
|---|---|
| <ul style="list-style-type: none">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. | <ul style="list-style-type: none">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 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.

The Fund's independent auditor, Ernst & Young LLP ("E&Y"), recently has advised the Securities and Exchange Commission, the Public Company Accounting Oversight Board, and the Audit

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Committee of the Fund's Board of Trustees that certain non-audit work performed by E&Y's China affiliate has raised questions regarding E&Y's independence with respect to its performance of audit services for the Fund. In July 2004, E&Y became aware that member firms in China ("E&Y China") provided certain tax services to offices of UniCredito Italiano, S.p.A. ("UCI"), a member of the Fund's Investment Company Complex. The services included receipt and disbursement of monies transferred to E&Y China by UCI in payment of individual expatriate income taxes due on returns prepared by E&Y China for certain UCI employees located in China from October 1998 to May 2003. E&Y became auditors of the Fund in May 2002. These expatriate tax services were discontinued in May 2003. The fees received by E&Y China for all such services totaled \$N/A.

The Fund's Audit Committee and E&Y have discussed the matter, including the nature of the services provided, the personnel involved in providing the services and the fees received by E&Y for performing the services. The Committee continues to review the facts and circumstances surrounding the matter, including the issue of whether the monies transferred for employees' taxes were de facto monies due the employees for tax payments rather than monies belonging to UCI. E&Y has informed the Audit Committee that based on its internal reviews and the de minimis nature of the services provided and fees received, it does not believe its independence with respect to the Fund has been impaired.

(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

ITEMS 5-6. [RESERVED]

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 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

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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.

Not applicable.

ITEM 8. [RESERVED]

ITEM 9. 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 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.

ITEM 10. 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

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[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, 2004

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, 2004

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

Date December 28, 2004

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