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PIONEER MUNICIPAL HIGH INCOME TRUST

Form NSAR-A

December 30, 2010

PAGE 1  
000 A000000 10/31/2010  
000 C000000 0001223026  
000 D000000 N  
000 E000000 NF  
000 F000000 Y  
000 G000000 N  
000 H000000 N  
000 I000000 6.1  
000 J000000 A  
001 A000000 PIONEER MUNICIPAL HIGH INCOME TRUST  
001 B000000 811-21321  
001 C000000 6177427825  
002 A000000 60 STATE STREET  
002 B000000 BOSTON  
002 C000000 MA  
002 D010000 02109  
003 000000 N  
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006 000000 N  
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007 C010300 3  
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007 C010500 5  
007 C010600 6  
007 C010700 7  
007 C010800 8  
007 C010900 9  
007 C011000 10  
008 A000001 PIONEER INVESTMENT MANAGEMENT, INC.  
008 B000001 A  
008 C000001 801-8255  
008 D010001 BOSTON  
008 D020001 MA  
008 D030001 02109  
010 A000001 PIONEER INVESTMENT MANAGEMENT, INC.  
010 B000001 801-8255  
010 C010001 BOSTON  
010 C020001 MA  
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010 A000002 STATE STREET BANK & TRUST COMPANY  
010 C010002 BOSTON  
010 C020002 MA  
010 C030002 02101  
011 A000001 PIONEER FUNDS DISTRIBUTOR, INC.  
011 B000001 8-12345678  
011 C010001 BOSTON  
011 C020001 MA  
PAGE 2  
011 C030001 02109  
011 A000002 UBS INVESTMENT BANK  
011 B000002 8-022651  
011 C010002 STAMFORD  
011 C020002 CT  
011 C030002 06901

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011 A000003 RBC CAPITAL MARKETS CORP.  
011 B000003 8-045411  
011 C010003 MINNEAPOLIS  
011 C020003 MN  
011 C030003 55402  
011 C040003 4422  
011 A000004 ADVEST, INC.  
011 B000004 8-21409  
011 C010004 HARTFORD  
011 C020004 CT  
011 C030004 06103  
011 A000005 JANNEY MONTGOMERY SCOTT, LLC  
011 B000005 8-462  
011 C010005 PHILADELPHIA  
011 C020005 PA  
011 C030005 19103  
011 C040005 1675  
011 A000006 MCDONALD INVESTMENTS, INC.  
011 B000006 8-30177  
011 C010006 CLEVELAND  
011 C020006 OH  
011 C030006 44114  
011 C040006 2603  
011 A000007 STIFEL, NICOLAUS & CO., INC.  
011 B000007 8-001447  
011 C010007 ST. LOUIS  
011 C020007 MO  
011 C030007 63102  
012 A000001 PIONEER INVEST. MGT. SHAREHOLDER SVCS., INC.  
012 B000001 85-01359  
012 C010001 BOSTON  
012 C020001 MA  
012 C030001 02109  
012 A000002 AMERICAN STOCK TRANSFER & TRUST CO. (COMMON)  
012 B000002 85-00000  
012 C010002 BROOKLYN  
012 C020002 NY  
012 C030002 11219  
012 A000003 DEUTSCHE BANK TRUST COMPANY AMERICAS (PREF.)  
012 B000003 85-00000  
012 C010003 NEW YORK  
012 C020003 NY  
012 C030003 10005  
013 A000001 ERNST & YOUNG LLP  
013 B010001 BOSTON  
PAGE 3  
013 B020001 MA  
013 B030001 02116  
013 B040001 5072  
015 A000001 BROWN BROTHERS HARRIMAN & CO.  
015 B000001 C  
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015 E010001 X  
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020 C000003 0

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| 022 | A000002 | B.C. ZIEGLER AND CO.                |
| 022 | B000002 | 39-0727640                          |
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| 022 | A000003 | FIRST TRYON SECURITIES LLC          |
| 022 | B000003 | 56-1986792                          |
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| 022 | A000004 | JEFFERIES & COMPANY, INC.           |
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| 022 | A000005 | PIPER JAFFRAY & CO.                 |
| 022 | B000005 | 41-0953246                          |
| 022 | C000005 | 1004                                |
| 022 | D000005 | 1036                                |
| 022 | A000006 | FMBONDS, INC.                       |
| 022 | B000006 | 59-1842344                          |
| 022 | C000006 | 2033                                |
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| 022 | A000007 | RBC CAPITAL MARKETS CORPORATION     |
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| 026 | G020000 | N                                   |
| 026 | H000000 | N                                   |
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| 048 | 000000  | 0.600                               |
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| 048 | A020000 | 0.000                               |
| 048 | B010000 | 0                                   |

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| 070 | E010000 | Y      |
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| 070 | F010000 | N      |
| 070 | F020000 | N      |
| 070 | G010000 | Y      |
| 070 | G020000 | N      |
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| 070 | H020000 | N      |
| 070 | I010000 | N      |
| 070 | I020000 | N      |
| 070 | J010000 | Y      |
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| 070 | K020000 | Y      |
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| 070 | M010000 | N      |
| 070 | M020000 | N      |
| 070 | N010000 | N      |
| 070 | N020000 | N      |
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| 072 | B000000 | 14506  |
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| 072 | F000000 | 1310   |

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072 G000000 171  
 072 H000000 0  
 072 I000000 6  
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 072 K000000 0

PAGE 7

072 L000000 13  
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 074 R030000 0  
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 074 S000000 101003  
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 074 U010000 22309  
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074 V010000 14.30  
 074 V020000 0.00  
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| 080       | A000000         | ICI MUTUAL INSURANCE CO.   |
| 080       | C000000         | 45000                      |
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| 087       | B010000         | PREFERRED STOCK - SERIES A |
| 087       | B020000         | 723763207                  |
| 087       | C010000         | PREFERRED STOCK - SERIES B |
| 087       | C020000         | 723763306                  |
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| SIGNATURE | MARK E. BRADLEY |                            |
| TITLE     | TREASURER       |                            |