PIONEER MUNICIPAL HIGH INCOME TRUST Form N-PX August 25, 2005

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

FORM N-PX ANNUAL REPORT OF PROXY VOTING RECORD 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)

Dorothy Bourassa 60 State Street Boston, MA 02109

(Name and address of agent for service)

Registrant's telephone number, including area code: (617) 742-7825

Date of fiscal year end: April 30

Date of reporting period: July 1, 2004 to June 30, 2005

SIGNATURES

Pursuant to the requirements of 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., Chairman and President

Date August 23, 2005

The Fund held no securities during the period covered by this report in which there was a securityholder vote. Accordingly, there are no proxy votes to report.