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APEX MUNICIPAL FUND INC
Form N-CSR
September 02, 2004

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 811-5227

Name of Fund: Apex Municipal Fund, Inc.

Fund Address: P.O. Box 9011
Princeton, NJ 08543-9011

Name and address of agent for service: Terry K. Glenn, President, Apex Municipal
Fund, Inc., 800 Scudders Mill Road, Plainsboro, NJ 08536. Mailing
address: P.O. Box 9011, Princeton, NJ 08543-9011

Registrant's telephone number, including area code: (609) 282-2800

Date of fiscal year end: 06/30/04

Date of reporting period: 07/01/03 - 06/30/04

Item 1 - Report to Stockholders

[LOGO] Merrill Lynch Investment Managers

www.mlim.ml.com

Apex Municipal
Fund, Inc.

Annual Report
June 30, 2004

[LOGO] Merrill Lynch Investment Managers

Apex Municipal Fund, Inc.

Quality Profile (unaudited)

The quality ratings of securities in the Fund as of June 30, 2004 were as follows:

S&P Rating/Moody's Rating	Percent of Total Investments
AAA/Aaa	1.7%
A/A	4.8
BBB/Baa	18.3
BB/Ba	19.4

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financial advisor, who can help you assess the market and economic environment and then develop a strategy most suitable for your circumstances and financial goals.

We thank you for trusting Merrill Lynch Investment Managers with your investment assets, and we look forward to serving you in the months and years ahead.

Sincerely,

/s/ Terry K. Glenn

Terry K. Glenn
President and Director

APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

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[LOGO] Merrill Lynch Investment Managers

A Discussion With Your Fund's Portfolio Manager

The Fund significantly outperformed the Lipper High Yield Municipal Debt Fund's category for the year, benefiting from an above-average exposure to corporate-related tax-exempt debt.

Describe the recent market environment relative to municipal bonds.

Amid significant volatility, long-term bond yields ended the 12-month period considerably higher than where they began. The increase in yields and corresponding fall in prices resulted from concerns that a resurgent economy would lead to inflation, which in turn would encourage the Federal Reserve Board (Fed) to raise short-term interest rates. In fact, the Fed did increase interest rates 25 basis points (.25%) on June 30, 2004, but suggested that its approach to future rate hikes would be gradual.

As the period began, bond yields were on the rise as an increasing amount of data indicated a fast-improving economy. By mid-August 2003, yields on U.S. Treasury bonds had risen to 5.45%, but fell to 4.65% in mid-March 2004 as investors seemed certain that poor job growth meant the Fed would maintain rates at current low levels for some time. In early April, yields began to rise again, prompted by unexpected gains in job growth, improvements in consumer confidence and rising consumer spending. Investors reversed their prior expectations and concluded that the Fed would indeed be forced to raise interest rates to ward off potential inflation. By mid-May, long-term U.S. Treasury bond yields had risen above 5.45%. Later, as fears of inflation diminished somewhat, yields on the U.S. Treasury benchmark bond fell once more, but -- at 5.29% -- still ended the period 70 basis points above year-ago levels. The yield on the 10-year U.S. Treasury note stood at 4.58% on June 30, 2004, an increase of more than 100 basis points over the 12-month period.

Tax-exempt issues also saw considerable variability in yields, though the volatility was more subdued than in the U.S. Treasury market. Yields on long-term revenue bonds, as measured by the Bond Buyer Revenue Bond Index, rose approximately 40 basis points during the year. Thirty-year bonds rated AAA saw their yields rise more than 55 basis points to 5.02%, as reported by Municipal Market Data, while yields on AAA-rated bonds with 10-year maturities rose more than 70 basis points to 3.95%.

The more marked increase in 10-year bond yields may be attributed to the fact that several large issues have been heavily concentrated in the 10-year -

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20-year range. The resulting supply imbalance prompted higher intermediate bond yields (and lower prices). Longer-maturity and lower-rated issues continued to benefit from more favorable supply/demand factors and, therefore, experienced less price depreciation.

Overall, more than \$370 billion in new long-term tax-exempt bonds were issued nationwide during the period, a 5% decline compared to the prior 12 months. New-issue municipal volume is expected to be manageable for the remainder of 2004 and should continue to support the tax-exempt market's favorable technical position. This, in turn, should allow the municipal market to outperform its taxable counterparts in the coming months.

How did the Fund perform during the fiscal year in light of the existing market conditions?

For the 12-month period ended June 30, 2004, the Common Stock of Apex Municipal Fund, Inc. had net annualized yields of 6.24% and 6.90%, based on a year-end per share net asset value of \$9.13 and a per share market price of \$8.26, respectively, and \$.570 per share income dividends. Over the same period, the total investment return on the Fund's Common Stock was +8.64%, based on a change in per share net asset value from \$8.99 to \$9.13, and assuming reinvestment of \$.569 per share ordinary income dividends and \$.003 per share capital gains distributions.

The Fund's total return for the year, based on net asset value, significantly exceeded the +5.04% average return of the Lipper High Yield Municipal Debt Funds category for the 12 months ended June 30, 2004. (Funds in this Lipper category invest at least 50% of their assets in lower-rated municipal debt issues.) The primary reason for the Fund's outperformance was its sector concentrations in corporate-related tax-exempt debt. This included above-average market weightings in cyclically oriented industries such as airlines, forest products and chemicals. Given the accelerating economic recovery in the United States, Fund performance has benefited from tighter credit spreads and the extra income generated by these economically sensitive holdings.

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APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

For the six-month period ended June 30, 2004, the total investment return on the Fund's Common Stock was +3.15%, based on a change in per share net asset value from \$9.15 to \$9.13, and assuming reinvestment of \$.287 per share income dividends.

For a description of the Fund's total investment return based on a change in the per share market value of the Fund's Common Stock (as measured by the trading price of the Fund's shares on the New York Stock Exchange), and assuming reinvestment of dividends, please refer to the Financial Highlights section included in this report. As a closed-end fund, the Fund's shares may trade in the secondary market at a premium or discount to the Fund's net asset value. As a result, total investment returns based on changes in the market value of the Fund's Common Stock can vary significantly from total investment returns based on changes in the Fund's net asset value.

What changes were made to the portfolio during the period?

Our portfolio strategy continued to focus on capturing relative value within the high yield arena as a means to enhance returns over time. This involved an investment process geared toward improved diversification and careful security selection.

In terms of sector allocation, the cyclical nature of many of the portfolio's

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holdings reflects our belief that the improving economy, a moderate pace of inflation and the Federal Reserve Board's measured approach to interest rate increases will sustain investors' risk tolerance and the current trend toward narrower credit spreads.

While maintaining the industry concentrations mentioned earlier, we also established or added to positions in a variety of other sectors, including transportation, education, health care and tax-backed debt. The latter represents an increased exposure to general obligation (GO) debt issued by the State of California, which continues to trade at attractive levels amid stabilizing credit fundamentals. The new purchases enabled us to satisfy a larger goal of bringing the Fund's GO weighting in line with the market average. For some time, we had underweighted this sector because we had concerns about issuers' deteriorating fiscal health. Recent evidence of a gradual, broad-based increase in tax revenues, however, has caused us to revisit this stance.

How would you characterize the Fund's position at the close of the period?

We expect to maintain our focus on the general themes of increased diversification and yield enhancement in the months ahead. Given the Fund's current above-market concentration in credits rated BBB and BB, we intend to explore opportunities to boost the portfolio's income through a reallocation strategy designed to increase exposure to non-rated securities, which are currently at a below-market weighting in the portfolio.

Any further contraction in credit spreads will likely prompt us to reduce exposure in our overweight sectors, most notably airlines. Nevertheless, we remain optimistic about the prospects for an accelerating economic recovery and will look to maintain much of the portfolio's current asset allocation.

Theodore R. Jaeckel Jr.
Vice President and Portfolio Manager

July 1, 2004

APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

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[LOGO] Merrill Lynch Investment Managers

Schedule of Investments

(in Thousands)

State	S&P Ratings@	Moody's Ratings@	Face Amount	Municipal Bonds
Alabama--0.6%	B	NR*	\$ 1,000	Brewton, Alabama, IDB, PCR, Refunding (Co America--Jefferson Smurfit Corp. Project)
Alaska--1.1%	NR*	NR*	2,000	Alaska Industrial Development and Export Bonds (Williams Lynxs Alaska Cargoport),
Arizona--3.0%				Maricopa County, Arizona, IDA, M/F Housin King Apartments Project):
	NR*	Ba1	920	Series A, 6.75% due 5/01/2031
	NR*	NR*	1,500	Sub-Series C, 9.50% due 11/01/2031
	NR*	Caa2	4,000	Phoenix, Arizona, IDA, Airport Facility R (America West Airlines Inc. Project), AMT
	NR*	Baa2	500	Yavapai County, Arizona, IDA, Hospital Fa

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(Yavapai Regional Medical Center), Series				
California--3.7%	BBB	A3	1,800	California State, GO, 5% due 2/01/2033
	BBB	A3	1,300	California State, Various Purpose, GO: 5.25% due 11/01/2025
	BBB	A3	820	5.25% due 4/01/2034
				Golden State Tobacco Securitization Corpo
				Tobacco Settlement Revenue Bonds:
	BBB	Baa3	1,075	Series 2003-A-1, 6.75% due 6/01/203
	BBB-	Baa1	1,860	Series B, 5.50% due 6/01/2043
Colorado--5.5%	NR*	Baa2	3,000	Denver, Colorado, Urban Renewal Authority
	NR*	NR*	2,800	Revenue Bonds (Pavilions), AMT, 7.75% due
	A1	VMIG1+	500	Elk Valley, Colorado, Public Improvement
	NR*	NR*	1,235	Improvement Fee), Series A, 7.30% due 9/0
	NR*	NR*	2,000	Moffat County, Colorado, PCR, Refunding (
				VRDN, 1.08% due 5/01/2013 (a)(e)
				North Range, Colorado, Metropolitan Distr
				7.25% due 12/15/2031
				Plaza Metropolitan District No. 1, Colora
				Revenue Bonds (Public Improvement Fees),
Connecticut--0.7%	NR*	B1	1,220	New Haven, Connecticut, Facility Revenue
				Corporation Project), 9.25% due 5/01/2017
Florida--7.7%	NR*	NR*	865	Arbor Greene Community Development Distri
	NR*	NR*	800	Assessment Revenue Bonds, 7.60% due 5/01/
	NR*	NR*	2,500	Capital Projects Finance Authority, Flori
	NR*	NR*	895	Retirement Revenue Bonds (Glenridge on Pa
	NR*	NR*	1,605	8% due 6/01/2032
	NR*	NR*	3,004	Hillsborough County, Florida, IDA, Exempt
	B-	B1	1,700	Bonds (National Gypsum), AMT, Series A, 7
	NR*	NR*	2,760	Lakewood Ranch, Florida, Community Develo
				5, Special Assessment Revenue Refunding B
				due 5/01/2031
				Orlando, Florida, Urban Community Develop
				Improvement Special Assessment Bonds, Ser
				due 5/01/2033
				Parkway Center, Florida, Community Develo
				Assessment Refunding Bonds, Series B, 8%
				Santa Rosa Bay Bridge Authority, Florida,
				due 7/01/2028
				Tampa Palms, Florida, Open Space and Tran
				Development District Revenue Bonds, Capit
				(Richmond Place Project), 7.50% due 5/01/

Portfolio Abbreviations

To simplify the listings of Apex Municipal Fund, Inc.'s portfolio holdings in the Schedule of Investments, we have abbreviated the names of many of the securities according to the list at right.

AMT	Alternative Minimum Tax (subject to)
EDA	Economic Development Authority
GO	General Obligation Bonds
IDA	Industrial Development Authority
IDB	Industrial Development Board
IDR	Industrial Development Revenue Bonds
M/F	Multi-Family
PCR	Pollution Control Revenue Bonds

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VRDN Variable Rate Demand Notes

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Schedule of Investments (continued) (in Thousands)

State	S&P Ratings@	Moody's Ratings@	Face Amount	Municipal Bonds
Georgia--2.5%	NR*	NR*	\$ 2,000	Atlanta, Georgia, Tax Allocation Revenue Station Project), 7.90% due 12/01/2024
	BBB	NR*	1,500	Milledgeville--Baldwin County, Georgia, D Revenue Bonds (Georgia College and State 5.25% due 9/01/2019
	NR*	NR*	830	Savannah, Georgia, EDA, Revenue Bonds (Ma First Mortgage, Series A, 7.40% due 1/01/
Idaho--0.8%	NR*	NR*	1,470	Idaho Health Facilities Authority, Revenue (Valley Vista Care Corporation), Series A
Illinois--3.4%	CCC	Caa2	3,000	Chicago, Illinois, O'Hare International A Facility Revenue Refunding Bonds (America Project), 8.20% due 12/01/2024
	NR*	NR*	400	Chicago, Illinois, Special Assessment Bon 6.75% due 12/01/2032
	NR*	NR*	3,190	Illinois Development Finance Authority Re Health Care Centers Facilities Acquisitio due 12/01/2016
Indiana--1.9%	NR*	NR*	2,600	Indiana State Educational Facilities Auth Refunding Bonds (Saint Joseph's College P due 10/01/2029
	NR*	NR*	1,820	Indianapolis, Indiana, M/F Revenue Bonds Project), Series B, 7.50% due 10/01/2029
Iowa--2.6%	NR*	NR*	3,910	Iowa Finance Authority, Health Care Facil Refunding Bonds (Care Initiatives Project
Louisiana--3.6%	B	NR*	825	Hodge, Louisiana, Utility Revenue Refundi Container Corporation), AMT, 7.45% due 3/
	BB-	NR*	5,500	Port New Orleans, Louisiana, IDR, Refundi Company Project), 7.50% due 7/01/2013
Maine--0.5%	BB	Ba2	840	Maine Finance Authority, Solid Waste Recy Revenue Bonds (Great Northern Paper Proje 7.75% due 10/01/2022
Maryland--2.1%	AAA	NR*	1,875	Anne Arundel County, Maryland, Special Ob (Arundel Mills Project), 7.10% due 7/01/2
	NR*	NR*	1,500	Maryland State Energy Financing Administr Obligation Revenue Bonds (Cogeneration--A 7.40% due 9/01/2019
Massachusetts--4.7%	BBB	NR*	825	Massachusetts State Development Finance A Recovery Revenue Bonds (Ogden Haverhill A Series A, 6.70% due 12/01/2014 Massachusetts State Development Finance A

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	BB+	NR*	1,245	Refunding Bonds (Eastern Nazarene College) 5.625% due 4/01/2019
	BB+	NR*	1,220	5.625% due 4/01/2029
	BBB-	NR*	850	Massachusetts State Health and Educational Revenue Bonds (Jordan Hospital), Series E
	NR*	Ba2	3,000	Massachusetts State Health and Educational Revenue Refunding Bonds (Bay Cove Human Services Center), Series A, 5.90% due 4/01/2028
	NR*	NR*	1,300	Massachusetts State Industrial Finance Authority Sewer Facility (Resource Control Composting Facility), Series A, 5.625% due 6/01/2010
	BBB	NR*	500	Massachusetts State Industrial Financial Recovery Revenue Refunding Bonds (Ogden Health Center), Series A, 5.60% due 12/01/2019
Michigan--1.1%	A	NR*	1,000	Flint, Michigan, Hospital Building Authority Revenue Refunding Bonds (Hurley Medical Center), Series A, 5.625% due 4/01/2029
	B	Ba3	1,000	Michigan State Hospital Finance Authority Revenue Refunding Bonds (Detroit Medical Center Obligation), Series A, 6.50% due 8/15/2018

APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

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[LOGO] Merrill Lynch Investment Managers

Schedule of Investments (continued)

(in Thousands)

State	S&P Ratings@	Moody's Ratings@	Face Amount	Municipal Bonds
Minnesota--0.7%	NR*	NR*	\$ 1,230	Saint Paul, Minnesota, Port Authority, Harbor Revenue Refunding Bonds (Radisson Kellogg Project), Series A, 5.625% due 8/01/2029
Missouri--0.7%	NR*	NR*	1,200	Fenton, Missouri, Tax Increment Revenue Refunding Bonds (Gravois Bluffs), 7% due 4/01/2029
Nevada--0.2%	NR*	NR*	430	Clark County, Nevada, Improvement District Revenue Refunding Bonds (Assessment), 6.375% due 8/01/2023
New Jersey--13.5%				Camden County, New Jersey, Improvement Authority Revenue Refunding Bonds (Holt Hauling & Warehousing), AMT, Series A, 9.625% due 1/01/2011
	NR*	NR*	2,000	9.625% due 1/01/2011
	NR*	NR*	4,500	9.875% due 1/01/2021
	CCC	B2	6,000	Camden County, New Jersey, Pollution Control Authority, Solid Waste Resource Recovery Revenue Refunding Bonds, AMT, Series A, 7.50% due 12/01/2019
	NR*	Ba3	1,500	New Jersey EDA, IDR, Refunding (Newark Airport), Series A, 7% due 10/01/2014
	NR*	NR*	1,000	New Jersey EDA, Retirement Community Revenue Refunding Bonds (Cedar Crest Village Inc. Facility), Series A, 8.125% due 12/01/2019
	NR*	NR*	3,700	(Seabrook Village Inc.), 8.125% due 12/01/2019
	B	Caa2	3,050	New Jersey EDA, Special Facility Revenue Refunding Bonds (Airlines Inc. Project), AMT, Series A, 6.625% due 9/15/2012

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7.25% due 12/01/2034

Texas--12.6%	BBB-	Baa3	1,000	Austin, Texas, Convention Center Revenue Enterprises Inc.), First Tier, Series A, Brazos River Authority, Texas, PCR, Refun
	BBB	Baa2	2,530	(Texas Utility Company), Series A,
	BBB	Baa2	2,870	(Utilities Electric Company), Serie due 6/01/2030
	BBB-	NR*	1,220	Brazos River Authority, Texas, Revenue Re Energy Inc. Project), Series B, 7.75% due
	A	A3	2,500	Brazos River, Texas, Harbor Navigation Di County Environmental Revenue Refunding Bo Company Project), AMT, Series A-7, 6.625%
	BBB-	Baa3	715	Dallas-Fort Worth, Texas, International A Improvement Corporation Revenue Bonds (Le Series 2001-A-1, 6.15% due 1/01/2016
	NR*	NR*	1,660	Grand Prairie, Texas, Housing Finance Cor (Independent Senior Living Center), 7.75%
	BBB	Baa2	1,000	Gulf Coast, Texas, Waste Disposal Authori Bonds (International Paper Company), AMT, due 8/01/2024
	A1	VMIG1+	300	Harris County, Texas, Health Facilities D Hospital Revenue Bonds (Texas Children's Series B-1, 1.01% due 10/01/2029 (c) (e)
	NR*	NR*	1,000	Houston, Texas, Health Facilities Develop Retirement Facility Revenue Bonds (Buckin Community), Series A, 7.125% due 2/15/203
	A-	A3	1,700	Lower Colorado River Authority, Texas, PC Semiconductor), AMT, 6.375% due 4/01/2027
	BBB	NR*	945	Lufkin, Texas, Health Facilities Developm Health System Revenue Bonds (Memorial Hea Texas), 5.70% due 2/15/2028
	BBB-	Ba2	2,310	Matagorda County, Texas, Navigation Distr Refunding Bonds (Reliant Energy Inc.), Se due 5/01/2029
	A1	NR*	400	North Central Texas, Health Facility Deve Revenue Bonds (Methodist Hospitals--Dalla 1.10% due 10/01/2015 (c) (e)
	BB	Ba3	1,330	Port Corpus Christi, Texas, Individual De Environmental Facilities Revenue Bonds (C Corporation Project), AMT, 8.25% due 11/0
Utah--1.3%	NR*	NR*	2,240	Carbon County, Utah, Solid Waste Disposal Bonds (Laidlaw Environmental), AMT, Serie due 7/01/2017

APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

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[LOGO] Merrill Lynch Investment Managers

Schedule of Investments (concluded)

(in Thousands)

State	S&P Ratings@	Moody's Ratings@	Face Amount	Municipal Bonds
=====	=====	=====	=====	=====

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Virginia--6.6%	NR*	NR*	\$ 2,490	Dulles Town Center, Virginia, Community D Special Assessment Tax (Dulles Town Cente due 3/01/2026
	NR*	NR*	3,000	Pittsylvania County, Virginia, IDA Revenue Exempt Facility, AMT, Series A, 7.50% due Pocahontas Parkway Association, Virginia, Bonds:
	NR*	B1	6,200	First Tier, Sub-Series C, 6.25%** d
	BB	Ba2	32,600	Senior Series B, 5.875%** due 8/15/
=====				
West Virginia--0.4%	B-	B2	875	Princeton, West Virginia, Hospital Revenue (Community Hospital Association Inc. Proj due 5/01/2013
=====				
Wisconsin--0.8%	NR*	NR*	1,320	Wisconsin State Health and Educational Fa Revenue Bonds (New Castle Place Project), due 12/01/2031
=====				
Wyoming--1.0%	BB+	Ba3	1,800	Sweetwater County, Wyoming, Solid Waste D (FMC Corporation Project), AMT, Series A,
=====				
Virgin Islands--1.2%	BBB-	Baa3	2,100	Virgin Islands Government Refinery Facili Bonds (Hovenssa Coker Project), AMT, 6.50%

				Total Municipal Bonds (Cost--\$184,998)--9
=====				
Total Investments (Cost--\$184,998)--98.9%				
Other Assets Less Liabilities--1.1%				
Net Assets--100.0%				

* Not Rated.

** Represents a zero coupon or step bond; the interest rate shown reflects the effective yield at the time of purchase by the Fund.

+ Highest short-term rating by Moody's Investors Service, Inc.

@ Ratings of issues shown are unaudited.

(a) AMBAC Insured.

(b) Non-income producing security.

(c) MBIA Insured.

(d) Prerefunded.

(e) The interest rate is subject to change periodically based upon prevailing market rates. The interest rate shown is the rate in effect at June 30, 2004.

See Notes to Financial Statements.

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APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

Statement of Assets, Liabilities and Capital

As of June 30, 2004

Assets

Investments, in unaffiliated securities, at value

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(identified cost--\$184,997,857)	
Cash	
Receivables:	
Interest	\$ 3,091,819
Securities sold	947,595

Prepaid expenses	
Total assets	
=====	
Liabilities	

Payables:	
Securities purchased	1,908,486
Dividends to shareholders	84,206
Investment adviser	9,514
Other affiliates	943

Accrued expenses	
Total liabilities	
=====	
Net Assets	

Net Assets	
=====	
Capital	

Common Stock, \$.10 par value, 150,000,000 shares authorized; 19,596,732 shares issued and outstanding ...	
Paid-in capital in excess of par	
Undistributed investment income--net	\$ 2,169,276
Accumulated realized capital losses on investments--net .	(17,033,643)
Unrealized depreciation on investments--net	(8,070,820)

Total accumulated losses--net	
Total capital--Equivalent to \$9.13 net asset value per share of Common Stock (market price--\$8.26)	

See Notes to Financial Statements

APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

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[LOGO] Merrill Lynch Investment Managers

Statement of Operations

For the Year Ended June 30, 2004

Investment Income

Interest

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Expenses

Investment advisory fees	\$ 1,160,343
Accounting services	68,627
Transfer agent fees	46,219
Printing and shareholder reports	40,368
Professional fees	23,502
Listing fees	20,800
Pricing fees	13,645
Directors' fees and expenses	12,608
Custodian fees	11,341
Other	20,433

Total expenses	
Investment income--net	

Realized & Unrealized Gain on Investments--Net

Realized gain on investments--net	
Change in unrealized depreciation on investments--net ...	
Total realized and unrealized gain on investments--net ..	
Net Increase in Net Assets Resulting from Operations	

See Notes to Financial Statements.

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Statements of Changes in Net Assets

	For the Jun

Increase (Decrease) in Net Assets:	2004

Operations	

Investment income--net	\$11,663,235
Realized gain (loss) on investments--net	51,260
Change in unrealized depreciation on investments--net ...	2,365,416

Net increase in net assets resulting from operations	14,079,911

Dividends & Distributions to Shareholders	

Investment income--net	(11,150,541)
Realized gain on investments--net	(61,886)

Net decrease in net assets resulting from dividends and distributions to shareholders	(11,212,427)

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Net Assets

Total increase (decrease) in net assets	2,867,484
Beginning of year	176,115,758
End of year*	\$178,983,242
* Undistributed investment income--net	\$ 2,169,276

See Notes to Financial Statements

APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

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[LOGO] Merrill Lynch Investment Managers

Financial Highlights

The following per share data and ratios have been derived from information provided in the financial statements.

	For the Year	
Increase (Decrease) in Net Asset Value:	2004	2003
<hr/>		
Per Share Operating Performance		
<hr/>		
Net asset value, beginning of year	\$ 8.99	\$ 9.24
Investment income--net60+	.58+
Realized and unrealized gain (loss) on investments--net	.11	(.27)
Total from investment operations71	.31
Less dividends and distributions to Common Stock shareholders:		
Investment income--net	(.57)	(.56)
Realized gain on investments--net	--**	--
Total dividends and distributions to Common Stock shareholders	(.57)	(.56)
Net asset value, end of year	\$ 9.13	\$ 8.99
Market price per share, end of year	\$ 8.26	\$ 8.48
<hr/>		
Total Investment Return*		
<hr/>		
Based on market price per share	4.20%	8.18%
Based on net asset value per share	8.64%	4.13%

Ratios to Average Net Assets

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Expenses79%	.90%
Investment income--net	6.52%	6.56%

Supplemental Data

Net assets, end of year (in thousands)	\$178,983	\$176,116
Portfolio turnover	19%	24%

* Total investment returns based on market value, which can be significantly greater or lesser than the net asset value, may result in substantially different returns. Total investment returns exclude the effect of sales charges.

** Amount is less than \$(.01) per share.

+ Based on average shares outstanding.

See Notes to Financial Statements.

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Notes to Financial Statements

1. Significant Accounting Policies:

Apex Municipal Fund, Inc. (the "Fund") is registered under the Investment Company Act of 1940, as amended, as a non-diversified, closed-end management investment company. The Fund's financial statements are prepared in conformity with U.S. generally accepted accounting principles, which may require the use of management accruals and estimates. Actual results may differ from these estimates. The Fund determines and makes available for publication the net asset value of its Common Stock on a daily basis. The Fund's Common Stock is listed on the New York Stock Exchange under the symbol APX. The following is a summary of significant accounting policies followed by the Fund.

(a) Valuation of investments -- Municipal bonds are traded primarily in the over-the-counter markets and are valued at the last available bid price in the over-the-counter market or on the basis of yield equivalents as obtained by the Fund's pricing service from one or more dealers that make markets in the securities. Financial futures contracts and options thereon, which are traded on exchanges, are valued at their closing prices as of the close of such exchanges. Options written or purchased are valued at the last sale price in the case of exchange-traded options. In the case of options traded in the over-the-counter market, valuation is the last asked price (options written) or the last bid price (options purchased). Swap agreements are valued by quoted fair values received daily by the Fund from the counterparty. Short-term investments with a remaining maturity of sixty days or less are valued at amortized cost, which approximates market value. Securities and assets for which market quotations are not readily available are valued at fair value as determined in good faith by or under the direction of the Board of Directors of the Fund, including valuations furnished by a pricing service retained by the Fund, which may utilize a matrix system for valuations. The procedures of the pricing service and its valuations are reviewed by the officers of the Fund under the general supervision of the Board of Directors.

(b) Derivative financial instruments -- The Fund may engage in various portfolio investment strategies both to increase the return of the Fund and to hedge, or

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protect, its exposure to interest rate movements and movements in the securities markets. Losses may arise due to changes in the value of the contract or if the counterparty does not perform under the contract.

- o Financial futures contracts -- The Fund may purchase or sell financial futures contracts and options on such futures contracts. Futures contracts are contracts for delayed delivery of securities at a specific future date and at a specific price or yield. Upon entering into a contract, the Fund deposits and maintains as collateral such initial margin as required by the exchange on which the transaction is effected. Pursuant to the contract, the Fund agrees to receive from or pay to the broker an amount of cash equal to the daily fluctuation in value of the contract. Such receipts or payments are known as variation margin and are recorded by the Fund as unrealized gains or losses. When the contract is closed, the Fund records a realized gain or loss equal to the difference between the value of the contract at the time it was opened and the value at the time it was closed.
- o Options -- The Fund may write covered call options and purchase put options. When the Fund writes an option, an amount equal to the premium received by the Fund is reflected as an asset and an equivalent liability. The amount of the liability is subsequently marked-to-market to reflect the current market value of the option written. When a security is purchased or sold through an exercise of an option, the related premium paid (or received) is added to (or deducted from) the basis of the security acquired or deducted from (or added to) the proceeds of the security sold. When an option expires (or the Fund enters into a closing transaction), the Fund realizes a gain or loss on the option to the extent of the premiums received or paid (or gain or loss to the extent the cost of the closing transaction exceeds the premium paid or received).

Written and purchased options are non-income producing investments.

- o Forward interest rate swaps -- The Fund may enter into forward interest rate swaps. In a forward interest rate swap, the Fund and the counterparty agree to make periodic net payments on a specified notional contract amount, commencing on a specified future effective date, unless terminated earlier. When the agreement is closed, the Fund records a realized gain or loss in an amount equal to the value of the agreement.

(c) Income taxes -- It is the Fund's policy to comply with the requirements of the Internal Revenue Code applicable to regulated investment companies and to distribute substantially all of its taxable income to its shareholders. Therefore, no federal income tax provision is required.

APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

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[LOGO] Merrill Lynch Investment Managers

Notes to Financial Statements (concluded)

(d) Security transactions and investment income -- Security transactions are recorded on the dates the transactions are entered into (the trade dates). Realized gains and losses on security transactions are determined on the identified cost basis. Interest income is recognized on the accrual basis. The Fund amortizes all premiums and discounts on debt securities.

(e) Dividends and distributions -- Dividends from net investment income are declared daily and paid monthly. Distributions of capital gains are recorded on the ex-dividend dates.

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(f) Reclassifications -- U.S. generally accepted accounting principles require that certain components of net assets be adjusted to reflect permanent differences between financial and tax reporting. Accordingly, during the current year, \$7,056,648 has been reclassified between paid-in capital in excess of par and accumulated realized capital losses on investments and \$94,588 has been reclassified between accumulated realized capital losses on investments and undistributed net investment income as a result of permanent differences attributable to the expiration of a capital loss carryforward, payments received on a defaulted security and amortization methods for premiums and discounts on fixed income securities. These reclassifications have no effect on net assets or net asset values per share.

2. Investment Advisory Agreement and Transactions with Affiliates:

The Fund has entered into an Investment Advisory Agreement with Fund Asset Management, L.P. ("FAM"). The general partner of FAM is Princeton Services, Inc. ("PSI"), an indirect, wholly-owned subsidiary of Merrill Lynch & Co., Inc. ("ML & Co."), which is the limited partner.

FAM is responsible for the management of the Fund's portfolio and provides the necessary personnel, facilities, equipment and certain other services necessary to the operations of the Fund. For such services, the Fund pays a monthly fee at an annual rate of .65% of the Fund's average daily net assets.

For the year ended June 30, 2004, the Fund reimbursed FAM \$3,635 for certain accounting services.

Certain officers and/or directors of the Fund are officers and/or directors of FAM, PSI, and/or ML & Co.

3. Investments:

Purchases and sales of investments, excluding short-term securities, for the year ended June 30, 2004 were \$34,948,383 and \$34,058,642, respectively.

Net realized gains for the year ended June 30, 2004 and net unrealized depreciation as of June 30, 2004 were as follows:

	Realized Gains	Unrealized Depreciation
Long-term investments	\$ 51,260	\$(8,070,820)
Total	\$ 51,260	\$(8,070,820)
	=====	=====

For the year ended June 30, 2004, net unrealized depreciation for federal income tax purposes aggregated \$7,839,849, of which \$7,078,139 related to appreciated securities and \$14,917,988 related to depreciated securities. The aggregate cost of investments at June 30, 2004 for federal income tax purposes was \$184,766,886.

4. Common Stock Transactions:

At June 30, 2004, the Fund had one class of shares of Common Stock, par value \$.10 per share, of which 150,000,000 shares were authorized.

5. Distributions to Shareholders:

The Fund paid a tax-exempt income dividend to holders of Common Stock in the

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amount of \$.048000 per share on July 29, 2004 to shareholders of record on July 15, 2004.

The tax character of distributions paid during the fiscal years ended June 30, 2004 and June 30, 2003 was as follows:

	6/30/2004	6/30/2003
Distributions paid from:		
Tax-exempt income	\$11,150,541	\$10,930,489
Ordinary income	61,886	--
Total distributions	\$11,212,427	\$10,930,489

As of June 30, 2004, the components of accumulated losses on a tax basis were as follows:

Undistributed tax-exempt income--net	\$ 2,636,703
Undistributed long-term capital gains--net	--
Total undistributed earnings--net	2,636,703
Capital loss carryforward	(16,465,384) *
Unrealized losses--net	(9,106,506) **
Total accumulated losses--net	\$(22,935,187)

* On June 30, 2004, the Fund had a net capital loss carryforward of \$16,465,384, of which \$1,311,769 expires in 2005, \$938,156 expires in 2006, \$2,975,000 expires in 2008, \$5,341,699 expires in 2009, \$2,075,987 expires in 2010, \$2,163,492 expires in 2011 and \$1,659,281 expires in 2012. This amount will be available to offset like amounts of any future taxable gains.

** The difference between book-basis and tax-basis net unrealized losses is attributable primarily to the difference between book and tax amortization methods for premiums and discounts on fixed income securities, book/tax differences in the accrual of income on securities in default and the deferral of post-October capital losses for tax purposes.

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Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors of
Apex Municipal Fund, Inc.:

We have audited the accompanying statement of assets, liabilities and capital, including the schedule of investments, of Apex Municipal Fund, Inc. as of June 30, 2004, and the related statement of operations for the year then ended, the statements of changes in net assets for each of the two years in the period then ended, and the financial highlights for each of the five years in the period then ended. These financial statements and financial highlights are the responsibility of the Fund's management. Our responsibility is to express an opinion on the financial statements and financial highlights based on our audits.

We conducted our audits in accordance with the standards of the Public Company

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Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements and financial highlights are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. Our procedures included confirmation of securities owned as of June 30, 2004, by correspondence with the custodian and brokers; where replies were not received from brokers, we performed other auditing procedures. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements and financial highlights referred to above present fairly, in all material respects, the financial position of Apex Municipal Fund, Inc. as of June 30, 2004, the results of its operations for the year then ended, the changes in its net assets for each of the two years in the period then ended, and its financial highlights for each of the five years in the period then ended, in conformity with U.S. generally accepted accounting principles.

Deloitte & Touche LLP
Princeton, New Jersey
August 11, 2004

Important Tax Information (unaudited)

All of the net investment income distributions paid monthly by Apex Municipal Fund, Inc. during its taxable year ended June 30, 2004 qualify as tax-exempt interest dividends for federal income tax purposes.

Additionally, the Fund paid a taxable ordinary income distribution of \$.003158 per share to shareholders of record on December 17, 2003.

Please retain this information for your records.

APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

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[LOGO] Merrill Lynch Investment Managers

Automatic Dividend Reinvestment Plan (unaudited)

The following description of the Fund's Automatic Dividend Reinvestment Plan (the "Plan") is sent to you annually as required by federal securities laws.

Pursuant to the Fund's Plan, unless a holder of Common Stock otherwise elects, all dividend and capital gains distributions will be automatically reinvested by The Bank of New York (the "Plan Agent"), as agent for shareholders in administering the Plan, in additional shares of Common Stock of the Fund. Holders of Common Stock who elect not to participate in the Plan will receive all distributions in cash paid by check mailed directly to the shareholder of record (or, if the shares are held in street or other nominee name then to such nominee) by The Bank of New York, as dividend paying agent. Such participants may elect not to participate in the Plan and to receive all distributions of dividends and capital gains in cash by sending written instructions to The Bank of New York, as dividend paying agent, at the address set forth below. Participation in the Plan is completely voluntary and may be terminated or resumed at any time without penalty by written notice if received by the Plan Agent not less than ten days prior to any dividend record date; otherwise such termination will be effective with respect to any subsequently declared dividend or distribution.

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Whenever the Fund declares an income dividend or capital gains distribution (collectively referred to as "dividends") payable either in shares or in cash, non-participants in the Plan will receive cash and participants in the Plan will receive the equivalent in shares of Common Stock. The shares will be acquired by the Plan Agent for the participant's account, depending upon the circumstances described below, either (i) through receipt of additional unissued but authorized shares of Common Stock from the Fund ("newly issued shares") or (ii) by purchase of outstanding shares of Common Stock on the open market ("open-market purchases") on the New York Stock Exchange or elsewhere. If on the payment date for the dividend, the net asset value per share of the Common Stock is equal to or less than the market price per share of the Common Stock plus estimated brokerage commissions (such conditions being referred to herein as "market premium"), the Plan Agent will invest the dividend amount in newly issued shares on behalf of the participant. The number of newly issued shares of Common Stock to be credited to the participant's account will be determined by dividing the dollar amount of the dividend by the net asset value per 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 may not exceed 5%. If on the dividend payment date the net asset value per share is greater than the market value (such condition being referred to herein as "market discount"), the Plan Agent will invest the dividend amount in shares acquired on behalf of the participant in open-market purchases.

In the event of a market discount on the dividend payment date, the Plan Agent will have until the last business day before the next date on which the shares trade on an "ex-dividend" basis or in no event more than 30 days after the dividend payment date (the "last purchase date") to invest the dividend amount in shares acquired in open-market purchases. It is contemplated that the Fund will pay monthly income dividends. Therefore, the period during which open-market purchases can be made will exist only from the payment date on the dividend through the date before the next "ex-dividend" date, which typically will be approximately ten days. If, before the Plan Agent has completed its open-market purchases, the market price of a share of Common Stock exceeds the net asset value per share, the average per share purchase price paid by the Plan Agent may exceed the net asset value of the Fund's shares, resulting in the acquisitions of fewer shares than if the dividend had been paid in newly issued shares on the dividend payment date. Because of the foregoing difficulty with respect to open-market purchases, the Plan provides that if the Plan Agent is unable to invest the full dividend amount in open-market purchases during the purchase period or if the market discount shifts to a market premium during the purchase period, the Plan Agent will cease making open-market purchases and will invest the uninvested portion of the dividend amount in newly issued shares at the close of business on the last purchase date determined by dividing the uninvested portion of the dividend by the net asset value per share.

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APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

The Plan Agent maintains all shareholders' accounts in the Plan and furnishes written confirmation of all transactions in the account, including information needed by shareholders for tax records. Shares in the account of each Plan participant will be held by the Plan Agent in non-certificated form in the name of the participant, and each shareholder's proxy will include those shares purchased or received pursuant to the Plan. The Plan Agent will forward all proxy solicitation materials to participants and vote proxies for shares held pursuant to the Plan in accordance with the instructions of the participants.

In the case of shareholders such as banks, brokers or nominees which hold shares of others who are the beneficial owners, the Plan Agent will administer the Plan on the basis of the number of shares certified from time to time by the record

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shareholders as representing the total amount registered in the record shareholder's name and held for the account of beneficial owners who are to participate in the Plan.

There will be no brokerage charges with respect to shares issued directly by the Fund as a result of dividends or capital gains distributions payable either in shares or in cash. However, each participant will pay a pro rata share of brokerage commissions incurred with respect to the Plan Agent's open-market purchases in connection with the reinvestment of dividends.

The automatic reinvestment of dividends and distributions will not relieve participants of any federal, state or local income tax that may be payable (or required to be withheld) on such dividends.

Shareholders participating in the Plan may receive benefits not available to shareholders not participating in the Plan. If the market price plus commissions of the Fund's shares is above the net asset value, participants in the Plan will receive shares of the Fund at less than they could otherwise purchase them and will have shares with a cash value greater than the value of any cash distribution they would have received on their shares. If the market price plus commissions is below the net asset value, participants will receive distributions in shares with a net asset value greater than the value of any cash distribution they would have received on their shares. However, there may be insufficient shares available in the market to make distributions in shares at prices below the net asset value. Also, since the Fund does not redeem shares, the price on resale may be more or less than the net asset value.

The value of shares acquired pursuant to the Plan will generally be excluded from gross income to the extent that the cash amount reinvested would be excluded from gross income. If, when the Fund's shares are trading at a premium over net asset value, the Fund issues shares pursuant to the Plan that have a greater fair market value than the amount of cash reinvested, it is possible that all or a portion of such discount (which may not exceed 5% of the fair market value of the Fund's shares) could be viewed as a taxable distribution. If the discount is viewed as a taxable distribution, it is also possible that the taxable character of this discount would be allocable to all the shareholders, including shareholders who do not participate in the Plan. Thus, shareholders who do not participate in the Plan might be required to report as ordinary income a portion of their distributions equal to their allocable share of the discount.

Experience under the Plan may indicate that changes are desirable. Accordingly, the Fund reserves the right to amend or terminate the Plan. There is no direct service charge to participants in the Plan; however, the Fund reserves the right to amend the Plan to include a service charge payable by the participants.

All correspondence concerning the Plan should be directed to the Plan Agent at The Bank of New York, Church Street Station, P.O. Box 11258, New York, NY 10286-1258, Telephone: 800-432-8224.

APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

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[LOGO] Merrill Lynch Investment Managers

About Inverse Floaters

As a part of its investment strategy, the Fund may invest in certain securities whose potential income return is inversely related to changes in a floating interest rate ("inverse floaters"). In general, income on inverse floaters will decrease when short-term interest rates increase and increase when short-term

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interest rates decrease. Investments in inverse floaters may be characterized as derivative securities and may subject the Fund to the risks of reduced or eliminated interest payments and losses of invested principal. In addition, inverse floaters have the effect of providing investment leverage and, as a result, the market value of such securities will generally be more volatile than that of fixed rate, tax-exempt securities. To the extent the Fund invests in inverse securities, the market value of the Fund's portfolio and the net asset value of the Fund's shares may also be more volatile than if the Fund did not invest in these securities.

Proxy Results

During the six-month period ended June 30, 2004, Apex Municipal Fund, Inc.'s shareholders voted on the following proposal. The proposal was approved at a shareholders' meeting on April 27, 2004. A description of the proposal and number of shares voted are as follows:

		Shares Voted For	Shares From

1. To elect the Fund's Board of Directors:			
	Andre F. Perold	17,602,484	56
	Robert S. Salomon, Jr.	17,594,824	57

Dividend Policy

The Fund's dividend policy is to distribute all or a portion of its net investment income to its shareholders on a monthly basis. In order to provide shareholders with a more stable level of dividend distributions, the Fund may at times pay out less than the entire amount of net investment income earned in any particular month and may at times in any particular month pay out such accumulated but undistributed income in addition to net investment income earned in that month. As a result, the dividends paid by the Fund for any particular month may be more or less than the amount of net investment income earned by the Fund during such month. The Fund's current accumulated but undistributed net investment income, if any, is disclosed in the Statement of Assets, Liabilities and Capital, which comprises part of the financial information included in this report.

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Officers and Directors (unaudited)

Name	Address & Age	Position(s) Held with Fund	Length of Time Served	Principal Occupation(s) During Past 5 Years
=====				
Interested Director				

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Terry K. Glenn*	P.O. Box 9011 Princeton, NJ 08543-9011 Age: 63	President and Director	1999 to present and 1989 to present	President of the Merrill Lynch Investment Management L.P. ("MLIM")/Fund Asset Management, L.P. ("FAM")--Advised Funds since 1999; Chairman (Americas Region) of MLIM from 2000 to 2002; Executive Vice President of MLIM and FAM (which terms as used herein include their corporate predecessors) from 1983 to 2002; President of FAM Distributors, Inc. ("FAMD") from 1986 to 2002 and Director thereof from 1991 to 2002; Executive Vice President and Director of Princeton Service Inc. ("Princeton Services") from 1993 to 2002; President of Princeton Administrators, L.P. from 1989 to 2002; Director of Financial Data Services Inc. since 1985.
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* Mr. Glenn is a director, trustee or member of an advisory board of certain other investment companies or FAM acts as investment adviser. Mr. Glenn is an "interested person," as described in the Fund based on his present and former positions with MLIM, FAM, FAMD, Princeton Administrators, L.P. The Director's term is unlimited. Directors serve until their death or until December 31 of the year in which they turn 72. As Fund President, Mr. Glenn is one of the Directors.

Independent Directors*

James H. Bodurtha	P.O. Box 9095 Princeton, NJ 08543-9095 Age: 60	Director	2002 to present	Director, The China Business Group, Inc. since 1996 and Executive Vice President thereof from 1996 to 2003; Chairman of the Board, Berkshire Holding Corporation since 1980; Partner, Squire, Sanders & Dempsey from 1980 to 1993.
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Joe Grills	P.O. Box 9095 Princeton, NJ 08543-9095 Age: 69	Director	1994 to present	Member of the Committee of Investment of Employee Benefit Assets of the Association of Financial Professionals ("CIEBA") since 1986; Member of CIEBA's Executive Committee since 1988 and its Chairman from 1991 to 1992; Assistant Treasurer of International Business Machines Corporation ("IBM") and Chief Investment Officer of IBM Retirement Funds from 1986 to 1993; Member of the Investment Advisory Committee of the State of New York Common Retirement Fund since 1989; Member of the Investment Advisory Committee of the Howard Hughes Medical Institute from 1997 to 2000; Director, Duke Management Company since 1992 and Vice Chairman thereof since 1998; Director, LaSalle Street Fund from 1995 to 2001; Director, Kimco Realty Corporation since 1997; Member of the Investment Advisory Committee of the Virginia Retirement System since 1998 and Vice Chairman thereof since 2002; Director, Montpelier Foundation since 1998 and its Vice Chairman since 2000; Member of the Investment Committee of the Woodberry Forest School since 2000; Member of the Investment Committee of the National Trust for Historic Preservation since 2000.
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[LOGO] Merrill Lynch Investment Managers

Officers and Directors (unaudited) (continued)

Name	Address & Age	Position(s) Held with Fund	Length of Time Served	Principal Occupation(s) During Past 5 Years

Independent Directors* (concluded)				

Herbert I. London	P.O. Box 9095 Princeton, NJ 08543-9095 Age: 65	Director	2002 to present	John M. Olin Professor of Humanities, New York University since 1993 and Professor thereof since 1980; President, Hudson Institute since 1997 and Trustee thereof since 1980; Dean, Gallatin Division of New York University from 1976 to 1997; Distinguished Fellow, Herman Kahn Chair, Hudson Institute from 1984 to 1985; Director, Damon Corporation from 1991 to 1995; Overseer, Center for Naval Analyses from 1983 to 1993; Limited Partner, Hypertech LP since 1996.

Andre F. Perold	P.O. Box 9095 Princeton, NJ 08543-9095 Age: 52	Director	2002 to present	Harvard Business School: George Gund Professor of Finance and Banking since 2000; Senior Associate Dean, Director of Faculty Recruiting since 2001; Finance Area Chair from 1996 to 2001; Sylvan C. Coleman Professor of Financial Management from 1993 to 2000; Director, Genbel Securities Limited and Gensee Bank from 1999 to 2003; Director, Stockback, Inc. from 2000 to 2002; Director, Sanlam Limited from 2001 to 2003; Trustee, Commonfund from 1989 to 2001; Director, Sanlam Investment Management from 1999 to 2001; Director, Bulldogresearch.com from 2000 to 2001; Director, Quantec Limited from 1999 to 1999; Director and Chairman of the Board of UNX Inc. since 2003.

Roberta Cooper Ramo	P.O. Box 9095 Princeton, NJ 08543-9095 Age: 61	Director	2002 to present	Shareholder, Modrall, Sperling, Roehl, Harris & Sisk, P.A. since 1993; President, American Bar Association from 1995 to 1996 and Member of the Board of Governors thereof from 1994 to 1997; Shareholder, Poole, Kelly & Ramo, Attorneys at Law, P.C. from 1977 to 1993; Director, Coopers, Inc. since 1999; Director of ECMC Group (service to provider students, schools and lenders) since 2001; Director, United New Mexico Bank (now Wells Fargo) from 1983 to 1988; Director, First National Bank of New Mexico (now Wells Fargo) from 1975 to 1976.

Robert S. Salomon, Jr.	P.O. Box 9095 Princeton, NJ 08543-9095 Age: 67	Director	1996 to present	Principal of STI Management (investment adviser) since 1994; Chairman and CEO of Salomon Brothers Asset Management from 1992 until 1995; Chairman of Salomon Brothers equity mutual funds from 1992 until 1995; regular columnist with Forbes magazine from 1992 to 2002; Director of Stock Research and U.S. Equity Strategist at Salomon

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Brothers from 1975 until 1991; Trustee, Commonfund from 1980 to 2001.

 Stephen B. Swensrud P.O. Box 9095 Princeton, NJ 08543-9095 Director 1989 to present Chairman of Fernwood Associates (investment adviser) since 1996; Principal, Fernwood Associates (financial consultants) since 1975; Chairman of R.P.P. Corporation (manufacturing company) since 1978; Director of International Mobile Communications, Incorporated (telecommunications company) since 1998.
 Age: 71

* The Director's term is unlimited. Directors serve until their resignation, removal or the year in which they turn 72.

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APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

Officers and Directors (unaudited) (concluded)

Name	Address & Age	Position(s) Held with Fund	Length of Time Served	Principal Occupation(s) During Past 5 Years
=====				
Fund Officers*				
Donald C. Burke	P.O. Box 9011 Princeton, NJ 08543-9011 Age: 44	Vice President and Treasurer	1993 to present and 1999 to present	First Vice President of MLIM and FAM since 1999; Senior Vice President and Treasurer of MLIM since 1999; Vice President of FAMD since 1999; Director since 1990.
Kenneth A. Jacob	P.O. Box 9011 Princeton, NJ 08543-9011 Age: 53	Senior Vice President	2002 to present	Managing Director of MLIM since 2000; Director (Management) of MLIM from 1997 to 2000.
John M. Loffredo	P.O. Box 9011 Princeton, NJ 08543-9011 Age: 40	Senior Vice President	2002 to present	Managing Director of MLIM since 2000 and Director (Management) of MLIM from 1998 to 2000.
Theodore R. Jaeckel Jr.	P.O. Box 9011 Princeton, NJ 08543-9011 Age: 44	Vice President	1997 to present	Director (Municipal Tax-Exempt Fund Management) of MLIM from 1994 to 2000.
Phillip S. Gillespie	P.O. Box 9011 Princeton, NJ 08543-9011 Age: 40	Secretary	2004 to present	First Vice President of MLIM since 2001; Director of MLIM from 2000 to 2001; Vice President of MLIM from 1999 with MLIM since 1998.

* Officers of the Fund serve at the pleasure of the Board of Directors.

Custodian

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The Bank of New York
100 Church Street
New York, NY 10286

Transfer Agent

The Bank of New York
101 Barclay Street
New York, NY 10286

NYSE Symbol

APX

APEX MUNICIPAL FUND, INC.

JUNE 30, 2004

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[LOGO] Merrill Lynch Investment Managers

www.mlim.ml.com

Apex Municipal Fund, Inc. seeks to provide shareholders with high current income exempt from federal income taxes by investing primarily in a portfolio of medium-to-lower grade or unrated municipal obligations, the interest on which is exempt from federal income taxes in the opinion of bond counsel to the issuer.

This report, including the financial information herein, is transmitted to shareholders of Apex Municipal Fund, Inc. for their information. It is not a prospectus. Past performance results shown in this report should not be considered a representation of future performance. Statements and other information herein are as dated and are subject to change.

A description of the policies and procedures that the Fund uses to determine how to vote proxies relating to portfolio securities is available (1) without charge, upon request, by calling toll-free 1-800-MER-FUND (1-800-637-3863); (2) at www.mutualfunds.ml.com; and (3) on the Securities and Exchange Commission's Web site at <http://www.sec.gov>. Information about how the Fund voted proxies relating to securities held in the Fund's portfolio during the most recent 12-month period ended June 30 is available (1) at www.mutualfunds.ml.com and (2) on the Securities and Exchange Commission's Web site at <http://www.sec.gov>.

Apex Municipal Fund, Inc.
Box 9011
Princeton, NJ
08543-9011

#10955 -- 6/04

Item 2 - Code of Ethics - The registrant has adopted a code of ethics, as of the end of the period covered by this report, that applies to the registrant's principal executive officer, principal financial officer and principal accounting officer, or persons performing similar functions. A copy of the code of ethics is available without charge upon request by calling toll-free 1-800-MER-FUND (1-800-637-3863).

Item 3 - Audit Committee Financial Expert - The registrant's board of directors has determined that (i) the registrant has the following audit committee financial experts serving on its audit committee and (ii) each audit committee financial expert is independent: (1) Joe Grills, (2) Andre F. Perold, (3) Robert S. Salomon, Jr., and (4) Stephen B. Swensrud.

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Item 4 - Principal Accountant Fees and Services

(a) Audit Fees -	Fiscal Year Ending June 30, 2004 - \$31,200
	Fiscal Year Ending June 30, 2003 - \$24,000
(b) Audit-Related Fees -	Fiscal Year Ending June 30, 2004 - \$0
	Fiscal Year Ending June 30, 2003 - \$0
(c) Tax Fees -	Fiscal Year Ending June 30, 2004 - \$5,610
	Fiscal Year Ending June 30, 2003 - \$4,800

The nature of the services include tax compliance, tax advice and tax planning.

(d) All Other Fees -	Fiscal Year Ending June 30, 2004 - \$0
	Fiscal Year Ending June 30, 2003 - \$0

(e) (1) The registrant's audit committee (the "Committee") has adopted policies and procedures with regard to the pre-approval of services. Audit, audit-related and tax compliance services provided to the registrant on an annual basis require specific pre-approval by the Committee. The Committee also must approve other non-audit services provided to the registrant and those non-audit services provided to the registrant's affiliated service providers that relate directly to the operations and the financial reporting of the registrant. Certain of these non-audit services that the Committee believes are a) consistent with the SEC's auditor independence rules and b) routine and recurring services that will not impair the independence of the independent accountants may be approved by the Committee without consideration on a specific case-by-case basis ("general pre-approval"). However, such services will only be deemed pre-approved provided that any individual project does not exceed \$5,000 attributable to the registrant or \$50,000 for all of the registrants the Committee oversees. Any proposed services exceeding the pre-approved cost levels will require specific pre-approval by the Committee, as will any other services not subject to general pre-approval (e.g., unanticipated but permissible services). The Committee is informed of each service approved subject to general pre-approval at the next regularly scheduled in-person board meeting.

(e) (2) 0%

(f) Not Applicable

(g) Fiscal Year Ending June 30, 2004 - \$16,114,216
Fiscal Year Ending June 30, 2003 - \$17,689,695

(h) The registrant's audit committee has considered and determined that the provision of non-audit services that were rendered to the registrant's 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.

Regulation S-X Rule 2-01(c) (7) (ii) - \$541,640, 0%

Item 5 - Audit Committee of Listed Registrants - The following individuals are members of the registrant's separately-designated standing audit committee established in accordance with Section 3(a) (58) (A) of the

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Exchange Act (15 U.S.C. 78c(a)(58)(A)):

James H. Bodurtha
Joe Grills
Herbert I. London
Andre F. Perold
Robert Cooper Ramo
Robert S. Solomon, Jr.
Stephen B. Swensrud

Item 6 - Schedule of Investments - Not Applicable

Item 7 - Disclosure of Proxy Voting Policies and Procedures for Closed-End Management Investment Companies -

Proxy Voting Policies and Procedures

Each Fund's Board of Directors/Trustees has delegated to Merrill Lynch Investment Managers, L.P. and/or Fund Asset Management, L.P. (the "Investment Adviser") authority to vote all proxies relating to the Fund's portfolio securities. The Investment Adviser has adopted policies and procedures ("Proxy Voting Procedures") with respect to the voting of proxies related to the portfolio securities held in the account of one or more of its clients, including a Fund. Pursuant to these Proxy Voting Procedures, the Investment Adviser's primary objective when voting proxies is to make proxy voting decisions solely in the best interests of each Fund and its shareholders, and to act in a manner that the Investment Adviser believes is most likely to enhance the economic value of the securities held by the Fund. The Proxy Voting Procedures are designed to ensure that that the Investment Adviser considers the interests of its clients, including the Funds, and not the interests of the Investment Adviser, when voting proxies and that real (or perceived) material conflicts that may arise between the Investment Adviser's interest and those of the Investment Adviser's clients are properly addressed and resolved.

In order to implement the Proxy Voting Procedures, the Investment Adviser has formed a Proxy Voting Committee (the "Committee"). The Committee is comprised of the Investment Adviser's Chief Investment Officer (the "CIO"), one or more other senior investment professionals appointed by the CIO, portfolio managers and investment analysts appointed by the CIO and any other personnel the CIO deems appropriate. The Committee will also include two non-voting representatives from the Investment Adviser's Legal department appointed by the Investment Adviser's General Counsel. The Committee's membership shall be limited to full-time employees of the Investment Adviser. No person with any investment banking, trading, retail brokerage or research responsibilities for the Investment Adviser's affiliates may serve as a member of the Committee or participate in its decision making (except to the extent such person is asked by the Committee to present information to the Committee, on the same basis as other interested

knowledgeable parties not affiliated with the Investment Adviser might be asked to do so). The Committee determines how to vote the proxies of all clients, including a Fund, that have delegated proxy voting authority to the Investment Adviser and seeks to ensure that all votes are consistent with the best interests of those clients and are free from unwarranted and inappropriate influences. The Committee establishes general proxy voting policies for the Investment Adviser and is responsible for determining how those policies are applied to

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specific proxy votes, in light of each issuer's unique structure, management, strategic options and, in certain circumstances, probable economic and other anticipated consequences of alternate actions. In so doing, the Committee may determine to vote a particular proxy in a manner contrary to its generally stated policies. In addition, the Committee will be responsible for ensuring that all reporting and recordkeeping requirements related to proxy voting are fulfilled.

The Committee may determine that the subject matter of a recurring proxy issue is not suitable for general voting policies and requires a case-by-case determination. In such cases, the Committee may elect not to adopt a specific voting policy applicable to that issue. The Investment Adviser believes that certain proxy voting issues require investment analysis - such as approval of mergers and other significant corporate transactions - akin to investment decisions, and are, therefore, not suitable for general guidelines. The Committee may elect to adopt a common position for the Investment Adviser on certain proxy votes that are akin to investment decisions, or determine to permit the portfolio manager to make individual decisions on how best to maximize economic value for a Fund (similar to normal buy/sell investment decisions made by such portfolio managers). While it is expected that the Investment Adviser will generally seek to vote proxies over which the Investment Adviser exercises voting authority in a uniform manner for all the Investment Adviser's clients, the Committee, in conjunction with a Fund's portfolio manager, may determine that the Fund's specific circumstances require that its proxies be voted differently.

To assist the Investment Adviser in voting proxies, the Committee has retained Institutional Shareholder Services ("ISS"). ISS is an independent adviser that specializes in providing a variety of fiduciary-level proxy-related services to institutional investment managers, plan sponsors, custodians, consultants, and other institutional investors. The services provided to the Investment Adviser by ISS include in-depth research, voting recommendations (although the Investment Adviser is not obligated to follow such recommendations), vote execution, and recordkeeping. ISS will also assist the Fund in fulfilling its reporting and recordkeeping obligations under the Investment Company Act.

The Investment Adviser's Proxy Voting Procedures also address special circumstances that can arise in connection with proxy voting. For instance, under the Proxy Voting Procedures, the Investment Adviser generally will not seek to vote proxies related to portfolio securities that are on loan, although it may do so under certain circumstances. In addition, the Investment Adviser will vote proxies related to securities of foreign issuers only on a best efforts basis and may elect not to vote at all in certain countries where the Committee determines that the costs associated with voting generally outweigh the benefits. The Committee may at any time override these general policies if it determines that such action is in the best interests of a Fund.

From time to time, the Investment Adviser may be required to vote proxies in respect of an issuer where an affiliate of the Investment Adviser (each, an "Affiliate"), or a money management or other client of the Investment Adviser (each, a "Client") is involved. The Proxy Voting Procedures and the Investment Adviser's adherence to those procedures are designed to address such conflicts of interest. The Committee intends to strictly adhere to the Proxy Voting Procedures in all proxy matters, including matters involving Affiliates and Clients. If, however, an issue representing a non-routine matter that is material to an Affiliate or a widely known Client is involved such that the Committee does not reasonably believe it is able to follow its guidelines (or if the particular proxy matter is not addressed by the guidelines) and vote

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impartially, the Committee may, in its discretion for the purposes of ensuring that an independent determination is reached, retain an independent fiduciary to advise the Committee on how to vote or to cast votes on behalf of the Investment Adviser's clients.

In the event that the Committee determines not to retain an independent fiduciary, or it does not follow the advice of such an independent fiduciary, the powers of the Committee shall pass to a subcommittee, appointed by the CIO (with advice from the Secretary of the Committee), consisting solely of Committee members selected by the CIO. The CIO shall appoint to the subcommittee, where appropriate, only persons whose job responsibilities do not include contact with the Client and whose job evaluations would not be affected by the Investment Adviser's relationship with the Client (or failure to retain such relationship). The subcommittee shall determine whether and how to vote all proxies on behalf of the Investment Adviser's clients or, if the proxy matter is, in their judgment, akin to an investment decision, to defer to the applicable portfolio managers, provided that, if the subcommittee determines to alter the Investment Adviser's normal voting guidelines or, on matters where the Investment Adviser's policy is case-by-case, does not follow the voting recommendation of any proxy voting service or other independent fiduciary that may be retained to provide research or advice to the Investment Adviser on that matter, no proxies relating to the Client may be voted unless the Secretary, or in the Secretary's absence, the Assistant Secretary of the Committee concurs that the subcommittee's determination is consistent with the Investment Adviser's fiduciary duties

In addition to the general principles outlined above, the Investment Adviser has adopted voting guidelines with respect to certain recurring proxy issues that are not expected to involve unusual circumstances. These policies are guidelines only, and the Investment Adviser may elect to vote differently from the recommendation set forth in a voting guideline if the Committee determines that it is in a Fund's best interest to do so. In addition, the guidelines may be reviewed at any time upon the request of a Committee member and may be amended or deleted upon the vote of a majority of Committee members present at a Committee meeting at which there is a quorum.

The Investment Adviser has adopted specific voting guidelines with respect to the following proxy issues:

- o Proposals related to the composition of the Board of Directors of issuers other than investment companies. As a general matter, the Committee believes that a company's Board of Directors (rather than shareholders) is most likely to have access to important, nonpublic information regarding a company's business and prospects, and is therefore best-positioned to set corporate policy and oversee management. The Committee, therefore, believes that the foundation of good corporate governance is the election of qualified, independent corporate directors who are likely to diligently represent the interests of shareholders and oversee management of the corporation in a manner that will seek to maximize shareholder value over time. In individual cases, the Committee may look at a nominee's history of representing shareholder interests as a director of other companies or other factors, to the extent the Committee deems relevant.
- o Proposals related to the selection of an issuer's independent auditors. As a general matter, the Committee believes that corporate auditors have a responsibility to represent the interests of shareholders and provide an independent view on the propriety of financial reporting decisions of

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corporate management. While the Committee will generally defer to a corporation's choice of auditor, in individual cases, the Committee may look at an auditors' history of representing shareholder interests as auditor of other companies, to the extent the Committee deems relevant.

- o Proposals related to management compensation and employee benefits. As a general matter, the Committee favors disclosure of an issuer's compensation and benefit policies and opposes excessive compensation, but believes that compensation matters are normally best determined by an issuer's board of directors, rather than shareholders. Proposals to "micro-manage" an issuer's compensation practices or to set arbitrary restrictions on compensation or benefits will, therefore, generally not be supported.
- o Proposals related to requests, principally from management, for approval of amendments that would alter an issuer's capital structure. As a general matter, the Committee will support requests that enhance the rights of common shareholders and oppose requests that appear to be unreasonably dilutive.
- o Proposals related to requests for approval of amendments to an issuer's charter or by-laws. As a general matter, the Committee opposes poison pill provisions.
- o Routine proposals related to requests regarding the formalities of corporate meetings.
- o Proposals related to proxy issues associated solely with holdings of investment company shares. As with other types of companies, the Committee believes that a fund's Board of Directors (rather than its shareholders) is best-positioned to set fund policy and oversee management. However, the Committee opposes granting Boards of Directors authority over certain matters, such as changes to a fund's investment objective, that the Investment Company Act envisions will be approved directly by shareholders.
- o Proposals related to limiting corporate conduct in some manner that relates to the shareholder's environmental or social concerns. The Committee generally believes that annual shareholder meetings are inappropriate forums for discussion of larger social issues, and opposes shareholder resolutions "micromanaging" corporate conduct or requesting release of information that would not help a shareholder evaluate an investment in the corporation as an economic matter. While the Committee is generally supportive of proposals to require corporate disclosure of matters that seem relevant and material to the economic interests of shareholders, the Committee is generally not supportive of proposals to require disclosure of corporate matters for other purposes.

Item 8 - Purchases of Equity Securities by Closed-End Management Investment Company and Affiliated Purchasers - Not Applicable

Item 9 - Submission of Matters to a Vote of Security Holders - Not Applicable

Item 10 - Controls and Procedures

- 10(a) - The registrant's certifying officers have reasonably designed such disclosure controls and procedures to ensure material information relating to the registrant is made known to us by others particularly during the period in which this report is being prepared. The registrant's certifying officers have determined that the registrant's

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disclosure controls and procedures are effective based on our evaluation of these controls and procedures as of a date within 90 days prior to the filing date of this report.

- 10(b) - There were no changes in the registrant's internal control over financial reporting (as defined in Rule 30a-3(d) under the Act (17 CFR 270.30a-3(d)) that occurred during the second fiscal half-year of the period covered by this report that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting.

Item 11 - Exhibits attached hereto

11(a) (1) - Code of Ethics - See Item 2

11(a) (2) - Certifications - Attached hereto

11(a) (3) - Not Applicable

11(b) - Certifications - Attached hereto

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.

Apex Municipal Fund, Inc.

By: /s/ Terry K. Glenn

Terry K. Glenn,
President of
Apex Municipal Fund, Inc.

Date: August 13, 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: /s/ Terry K. Glenn

Terry K. Glenn,
President of
Apex Municipal Fund, Inc.

Date: August 13, 2004

By: /s/ Donald C. Burke

Donald C. Burke,
Chief Financial Officer of
Apex Municipal Fund, Inc.

Date: August 13, 2004