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APEX MUNICIPAL FUND INC
Form N-CSRS
March 09, 2006

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

FORM N-CSRS

CERTIFIED SHAREHOLDER REPORT OF REGISTERED MANAGEMENT
INVESTMENT COMPANIES

Investment Company Act file number 811-05227

Name of Fund: Apex Municipal Fund, Inc.

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

Name and address of agent for service: Robert C. Doll, Jr., Chief Executive
Officer, 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: 06/30/06

Date of reporting period: 07/01/05 - 12/31/05

Item 1 - Report to Stockholders

Apex Municipal
Fund, Inc.

Semi-Annual Report
December 31, 2005

Apex Municipal Fund, Inc.

Portfolio Information as of December 31, 2005

Quality Ratings by S&P/Moody's	Percent of Total Investments
A/A	2.4%
BBB/Baa	19.3
BB/Ba	15.7
B/B	7.0
CCC/Caa	3.8
NR (Not Rated)	49.6
Other*	2.2

* Includes portfolio holdings in short-term investments, anticipation notes
and variable rate demand notes.

Officers and Directors

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Robert C. Doll, Jr., President and Director
James H. Bodurtha, Director
Kenneth A. Froot, Director
Joe Grills, Director
Herbert I. London, Director
Roberta Cooper Ramo, Director
Robert S. Salomon, Jr., Director
Stephen B. Swensrud, Director
Donald C. Burke, Vice President and Treasurer
Kenneth A. Jacob, Senior Vice President
John M. Loffredo, Senior Vice President
Theodore R. Jaeckel Jr., Vice President
Jeffrey Hiller, Chief Compliance Officer
Alice A. Pellegrino, Secretary

Custodian

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

Transfer Agent

The Bank of New York
101 Barclay Street -- 11 East
New York, NY 10286

NYSE Symbol

APX

Effective January 1, 2006, Stephen B. Swensrud retired as Director of Apex
Municipal Fund, Inc. The Fund's Board of Directors wishes Mr. Swensrud well in
his retirement.

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A Letter From the President

Dear Shareholder

On balance, 2005 was a year of "muddling through" for the U.S. financial markets, as oil prices reached new record highs, the Federal Reserve Board (the Fed) increased the target federal funds rate from 2.25% to 4.25%, the housing market and the consumer finally showed some signs of slowing, and Hurricanes Katrina and Rita ravaged the Gulf Coast, causing yet untold economic damage.

Although they struggled, stocks managed to post their third straight year of positive performance. The year was equally uncertain for fixed income markets, which were bemused by a flattening yield curve and a number of significant credit events that brought a slowdown in high yield market returns. Notably, the one-year results for the major asset classes -- stocks, bonds and cash -- were the closest they have been in more than 100 years. For the 12- and six-month periods ended December 31, 2005, most of the major market indexes managed to land in positive territory:

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Total Returns as of December 31, 2005	6-month	12-mon
U.S. equities (Standard & Poor's 500 Index)	+ 5.77%	+ 4.9
Small-cap U.S. equities (Russell 2000 Index)	+ 5.88	+ 4.5
International equities (MSCI Europe Australasia Far East Index)	+14.88	+13.5
Fixed income (Lehman Brothers Aggregate Bond Index)	- 0.08	+ 2.4
Tax-exempt fixed income (Lehman Brothers Municipal Bond Index)	+ 0.60	+ 3.5
High yield bonds (Credit Suisse First Boston High Yield Index)	+ 1.48	+ 2.2

In hindsight, these numbers are reasonably good given the headwinds facing the markets in 2005. U.S. equities found support in strong corporate earnings, low core inflation and healthy company balance sheets. Strength in the global economy and non-U.S. equity markets helped, as did robust dividend-distribution, share-buyback and merger-and-acquisition activity. International stocks had an excellent year, with many markets benefiting from strong economic statistics, trade surpluses and solid finances. In the U.S. bond market, long-term yields remained low and, at year-end, the Treasury curve appeared ready to invert.

As 2006 begins, the largest question marks center on the Fed's future moves, the U.S. consumer's ability (or inability) to continue spending, the direction of the U.S. dollar following a year of appreciation and the potential for continued strong economic and corporate earnings growth. As you turn the calendar and consider how these factors might impact your investments, remember that the new year is a good time to meet with your financial advisor to review your financial goals, and to make portfolio changes where necessary. For investing insights and timely "food for thought" for investors, we also invite you to visit Shareholder magazine at www.mlim.ml.com/shareholdermagazine.

As always, we thank you for trusting Merrill Lynch Investment Managers with your investment assets, and we look forward to serving you in the new year and beyond.

Sincerely,

/s/ Robert C. Doll, Jr.

Robert C. Doll, Jr.
President and Director

APEX MUNICIPAL FUND, INC.

DECEMBER 31, 2005

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A Discussion With Your Fund's Portfolio Manager

The Fund outperformed the Lipper High Yield Municipal Debt Funds category average for the period, as we continued our efforts to diversify the portfolio among sectors and issuers.

Describe the recent market environment relative to municipal bonds.

Long-term bond yields generally rose over the past six months, while their

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prices, which move in the opposite direction, fell. The decline in bond prices, and corresponding rise in yields, came as investors continued to focus on potential inflationary pressures and a strengthening U.S. economy. For the third quarter of 2005, gross domestic product grew at a faster-than-expected rate of 4.1%. By period-end, 30-year U.S. Treasury bond yields stood at 4.54%, up 35 basis points (.35%) compared to six months earlier.

The Federal Reserve Board (the Fed) continued to raise short-term interest rates at each of its meetings during the period, lifting the federal funds target rate to 4.25%. Investors did not expect the current interest rate tightening cycle to be curtailed in early 2006. Accordingly, the yield curve continued to flatten, indicating that short-term interest rates were rising more than longer-term rates. During the past six months, 10-year Treasury note yields rose 45 basis points to 4.39%, slightly more than the increase seen in long-bond yields.

Tax-exempt bond yields exhibited a similar pattern during the period. According to Municipal Market Data, the yield on AAA-rated issues maturing in 30 years increased by 13 basis points to 4.39%, while the yield on AAA-rated issues maturing in 10 years rose 31 basis points to 3.76%.

Municipalities issued more than \$408 billion in new tax-exempt debt in 2005, nearly 14% over the prior year's issuance and establishing a new annual record. During the six-month period ended December 31, 2005, more than \$200 billion in new long-term municipal bonds was underwritten, an 18% increase over the same six months of 2004. Meanwhile, the volume of refunding issues in 2005 increased by more than 47% compared to 2004 as issuers took advantage of declining long-term bond yields and a flattening yield curve to refinance outstanding higher-coupled debt.

Investor demand for municipal product has generally remained positive. The most current statistics from the Investment Company Institute indicate that, year-to-date through November 2005, net new cash flows into long-term municipal bond funds amounted to \$6.25 billion -- a significant improvement from the \$12.7 billion net outflow seen during the same period in 2004. In December, however, surging equity prices and holiday seasonal factors led to reduced investor interest in long-term tax-exempt bond funds.

In early 2006, we look for the municipal bond market to at least match the performance of the U.S. Treasury market. The fundamentals for the tax-exempt bond market appear very favorable, and continued positive cash flows are anticipated. With municipal bonds currently yielding up to 98% of comparable U.S. Treasury bond yields, and given the prospects for reduced annual issuance in 2006, we believe the municipal bond market could enjoy solid results in the coming months.

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

For the six-month period ended December 31, 2005, the Common Stock of Apex Municipal Fund, Inc. had net annualized yields of 5.83% and 5.84%, based on a period-end per share net asset value of \$9.83 and a per share market price of \$9.82, respectively, and \$.289 per share income dividends. Over the same period, the total investment return on the Fund's Common Stock was +3.13%, based on a change in per share net asset value from \$9.82 to \$9.83, and assuming reinvestment of all distributions.

The Fund's total return, based on net asset value, exceeded the +2.11% average return of the Lipper High Yield Municipal Debt Funds category for the six-month period. (Funds in this Lipper category invest at least 50% of their assets in lower-rated municipal debt issues.) The relative outperformance is largely attributable to our continued above-market exposure to industrial development bonds as well as tax-backed revenue bonds, both of which benefited from the

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ongoing contraction of credit spreads. In addition, our below-market exposure to the poor-performing multi-family housing sector contributed to relative results. This sector historically experiences the highest default rate in the high yield tax-exempt arena, and our underweighting versus many of our competitors proved to be an important factor in the Fund's outperformance.

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APEX MUNICIPAL FUND, INC.

DECEMBER 31, 2005

A further positive influence on performance came from our holdings in airline-backed debt. This sector lagged for the majority of the period, but enjoyed strong results in December against a backdrop of lower oil prices, stronger passenger volumes and investors' increased optimism about airlines' business prospects.

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 of 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?

As the market provided opportunities, we continued to trim the Fund's overweight exposure to corporate-related debt -- the industrial development bonds in the portfolio that outperformed. In particular, we reduced positions in the chemicals, tobacco and forest products industries. We also started to pare back exposure to airlines prior to the decline in that sector. We put those efforts on hold temporarily in an effort to exit our airline-related investments at more attractive levels and, in fact, reduced exposure to Continental Airlines Inc. modestly in the latter half of the period as conditions improved. The portfolio continues to maintain exposure to this credit and others within the industry.

The six-month period also brought the early redemption of one of the Fund's most significant holdings -- an industrial development bond backed by a full-service agricultural company known as Conti Group. Representing approximately 2.7% of the portfolio's net assets, the bond was one of the Fund's largest and longest-held investments. Proceeds from the redemption were invested in the health care and hotels and lodging sectors, both of which we find to exhibit stable credit outlooks.

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

Looking ahead, we expect to make further progress in reducing our overweight position in industrial development bonds. A fuller recovery in the airline sector would likely prompt renewed efforts to trim exposure there as well.

Given the extent to which credit spreads have contracted over the better part of the past two years - three years, we are finding fewer compelling investment opportunities in the high yield investment arena. Having said that, we continue to use that dynamic to trim the portfolio's weaker holdings and believe we have made significant strides in that respect over the past six months. At the same time, we continue to scour the market for suitable opportunities in an effort to provide our shareholders with an attractive level of income and enhance the Fund's returns over time.

Theodore R. Jaeckel Jr., CFA

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Vice President and Portfolio Manager

January 10, 2006

APEX MUNICIPAL FUND, INC.

DECEMBER 31, 2005

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Schedule of Investments

(in Thousands)

Face Amount	Municipal Bonds	Value
=====		
Alabama--0.5%		
\$ 1,000	Brewton, Alabama, IDB, PCR, Refunding (Container Corporation of America--Jefferson Smurfit Corp. Project), 8% due 4/01/2009	\$ 1,018
=====		
Alaska--1.0%		
2,000	Alaska Industrial Development and Export Authority Revenue Bonds (Williams Lynxs Alaska Cargoport), AMT, 8% due 5/01/2023	1,898
=====		
Arizona--3.6%		
1,000	Maricopa County, Arizona, IDA, Education Revenue Bonds (Arizona Charter Schools Project 1), Series A, 6.625% due 7/01/2020	1,005
80	Maricopa County, Arizona, IDA, M/F Housing Revenue Bonds (Sun King Apartments Project), Series A: 5.875% due 11/01/2008	77
20	6% due 11/01/2010	19
1,020	6.75% due 5/01/2031	871
4,000	Phoenix, Arizona, IDA, Airport Facility, Revenue Refunding Bonds (America West Airlines Inc. Project), AMT, 6.30% due 4/01/2023	3,244
1,000	Pima County, Arizona, IDA, Education Revenue Bonds (Arizona Charter Schools Project), Series E, 7.25% due 7/01/2031	1,083
500	Yavapai County, Arizona, IDA, Hospital Facility Revenue Bonds (Yavapai Regional Medical Center), Series A, 6% due 8/01/2033	538
=====		
California--2.2%		
1,800	California State, GO, 5% due 2/01/2033	1,852
1,300	California State, Various Purpose, GO, 5.25% due 11/01/2025	1,385
1,000	Fontana, California, Special Tax, Refunding (Community Facilities District Number 22--Sierra), 6% due 9/01/2034	1,052
=====		
Colorado--5.3%		
2,765	Denver, Colorado, Urban Renewal Authority, Tax Increment Revenue Bonds (Pavilions), AMT, 7.75% due 9/01/2016	2,874
2,800	Elk Valley, Colorado, Public Improvement Revenue Bonds (Public Improvement Fee), Series A, 7.30% due 9/01/2022	2,997
1,235	North Range, Colorado, Metropolitan District Number 1, GO, 7.25% due 12/15/2031	1,306

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2,000	Plaza Metropolitan District Number 1, Colorado, Tax Allocation Revenue Bonds (Public Improvement Fees), 8% due 12/01/2025	2,205
830	Southlands, Colorado, Medical District, GO (Metropolitan District Number 1), 7.125% due 12/01/2034	905
=====		
Connecticut--1.6%		
1,650	Bridgeport, Connecticut, Senior Living Facilities Revenue Bonds (3030 Park Retirement Community Project), 7.25% due 4/01/2035	1,401
490	Connecticut State Development Authority, Airport Facility Revenue Bonds (LearJet Inc. Project), AMT, 7.95% due 4/01/2026	585
1,160	New Haven, Connecticut, Facility Revenue Bonds (Hill Health Corporation Project), 9.25% due 5/01/2017	1,163
=====		
Florida--8.0%		
785	Arbor Greene Community Development District, Florida, Special Assessment Revenue Bonds, 7.60% due 5/01/2018	811
800	Capital Projects Finance Authority, Florida, Continuing Care Retirement Revenue Bonds (Glenridge on Palmer Ranch), Series A, 8% due 6/01/2032	886
2,500	Hillsborough County, Florida, IDA, Exempt Facilities Revenue Bonds (National Gypsum Company), AMT, Series A, 7.125% due 4/01/2030	2,783
845	Lakewood Ranch, Florida, Community Development District Number 5, Special Assessment Revenue Refunding Bonds, Series A, 6.70% due 5/01/2031	901
	Midtown Miami, Florida, Community Development District, Special Assessment Revenue Bonds, Series A: 6% due 5/01/2024	1,599
1,500		
1,350	6.25% due 5/01/2037	1,436
820	Orlando, Florida, Greater Orlando Aviation Authority, Airport Facilities Revenue Bonds (JetBlue Airways Corp.), AMT, 6.375% due 11/15/2026	802
1,555	Orlando, Florida, Urban Community Development District, Capital Improvement Special Assessment Bonds, Series A, 6.95% due 5/01/2033	1,684
1,700	Santa Rosa Bay Bridge Authority, Florida, Revenue Bonds, 6.25% due 7/01/2028	1,711
2,640	Tampa Palms, Florida, Open Space and Transportation Community Development District Revenue Bonds, Capital Improvement (Richmond Place Project), 7.50% due 5/01/2018	2,722
=====		

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)
BAN	Bond Anticipation Notes
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

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PCR Pollution Control Revenue Bonds
 VRDN Variable Rate Demand Notes

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Schedule of Investments (continued) (in Thousands)

Face Amount	Municipal Bonds	Value
=====		
Georgia--3.7%		
	Atlanta, Georgia, Tax Allocation Bonds:	
\$ 2,000	(Atlantic Station Project), 7.90% due 12/01/2024	\$ 2,170
410	(Eastside Project), Series B, 5.40% due 1/01/2020	411
	Brunswick and Glynn County, Georgia, Development Authority, First Mortgage Revenue Bonds (Coastal Community Retirement Corporation Project), Series A:	
830	7.125% due 1/01/2025	843
1,185	7.25% due 1/01/2035	1,203
1,580	Fulton County, Georgia, Development Authority, PCR (General Motors Corporation), Refunding, VRDN, 8% due 4/01/2010 (e)	1,580
830	Savannah, Georgia, EDA, Revenue Bonds (Marshes of Skidaway), First Mortgage, Series A, 7.40% due 1/01/2034	876
=====		
Idaho--0.8%		
1,470	Idaho Health Facilities Authority, Revenue Refunding Bonds (Valley Vista Care Corporation), Series A, 7.75% due 11/15/2016	1,497
=====		
Illinois--8.0%		
1,845	Caseyville, Illinois, Senior Tax Increment Revenue Bonds (Forest Lakes Project), 7% due 12/30/2022	1,943
3,000	Chicago, Illinois, O'Hare International Airport, Special Facility Revenue Refunding Bonds (American Airlines Inc. Project), 8.20% due 12/01/2024	2,838
	Illinois Development Finance Authority Revenue Bonds (Primary Health Care Centers Facilities Acquisition Program):	
585	7.75% due 12/01/2006 (a)	618
2,605	7.75% due 12/01/2016	2,706
	Illinois State Finance Authority Revenue Bonds:	
2,050	(Clare At Water Tower Project), Series A, 6.125% due 5/15/2038	2,055
430	(Landing At Plymouth Place Project), Series A, 6% due 5/15/2037	432
490	(Primary Health Care Centers Program), 6.60% due 7/01/2024	503
755	Lincolnshire, Illinois, Special Service Area Number 1, Special Tax Bonds (Sedgebrook Project), 6.25% due 3/01/2034	803
2,400	Lombard, Illinois, Public Facilities Corporation, First Tier Revenue Bonds (Conference Center and Hotel), Series A-1, 7.125% due 1/01/2036	2,523
265	Naperville, Illinois, IDR (General Motors Corporation), Refunding, VRDN, 8% due 12/01/2012 (e)	265

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	760	Village of Wheeling, Illinois, Revenue Bonds (North Milwaukee/Lake-Cook Tax Increment Financing (TIF) Redevelopment Project), 6% due 1/01/2025	746
=====			
Iowa--2.4%			
	3,855	Iowa Finance Authority, Health Care Facilities, Revenue Refunding Bonds (Care Initiatives Project), 9.25% due 7/01/2025	4,634
=====			
Kansas--0.5%			
	1,230	Wyandotte County, Kansas, Kansas City Unified Government Revenue Refunding Bonds (General Motors Corporation Project), 6% due 6/01/2025	884
=====			
Louisiana--1.3%			
	1,300	Louisiana Public Facilities Authority, Hospital Revenue Bonds (Franciscan Missionaries of Our Lady Health System, Inc.), Series A, 5.25% due 8/15/2036	1,338
	1,290	New Orleans, Louisiana, Sewer Service Revenue Notes, BAN, 3% due 7/26/2006	1,251
=====			
Maine--0.5%			
	840	Maine Finance Authority, Solid Waste Recycling Facilities Revenue Bonds (Great Northern Paper Project--Bowater), AMT, 7.75% due 10/01/2022	854
=====			
Maryland--0.8%			
	1,500	Maryland State Energy Financing Administration, Limited Obligation Revenue Bonds (Cogeneration -- AES Warrior Run), AMT, 7.40% due 9/01/2019	1,522
=====			
Massachusetts--4.7%			
	1,845	Massachusetts State Development Finance Agency, First Mortgage Revenue Bonds (Overlook Communities Inc.), Series A, 6.25% due 7/01/2034	1,885
	1,245	Massachusetts State Development Finance Agency, Revenue Refunding Bonds (Eastern Nazarene College): 5.625% due 4/01/2019	1,257
	1,220	5.625% due 4/01/2029	1,222
	850	Massachusetts State Health and Educational Facilities Authority Revenue Bonds (Jordan Hospital), Series E, 6.75% due 10/01/2033	931
	2,100	Massachusetts State Health and Educational Facilities Authority, Revenue Refunding Bonds: (Bay Cove Human Services Issue), Series A, 5.90% due 4/01/2028	2,120
	500	(Milton Hospital), Series, 5.50% due 7/01/2016	512
	1,200	Massachusetts State Industrial Finance Agency Revenue Bonds, Sewer Facility (Resource Control Composting), AMT, 9.25% due 6/01/2010	1,210
=====			
Michigan--0.6%			
	1,150	Macomb County, Michigan, Hospital Finance Authority, Hospital Revenue Bonds (Mount Clemens General Hospital), Series B, 5.875% due 11/15/2034	1,167
=====			
Minnesota--0.7%			
	1,230	Saint Paul, Minnesota, Port Authority, Hotel Facility, Revenue Refunding Bonds (Radisson Kellogg Project), Series 2, 7.375% due 8/01/2029	1,286
=====			
Missouri--1.2%			

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1,000	Dutchess County, New York, IDA, Civic Facility Revenue Bonds (Saint Francis Hospital), Series B, 7.50% due 3/01/2029	1,093
	New York City, New York, City IDA, Civic Facility Revenue Bonds:	
350	Series C, 6.80% due 6/01/2028	378
1,495	(Special Needs Facility Pooled Program), Series C-1, 6.50% due 7/01/2024	1,418
1,730	New York City, New York, City IDA, Special Facility Revenue Bonds (British Airways Plc Project), AMT, 7.625% due 12/01/2032	1,867
2,080	New York State Dormitory Authority, Non-State Supported Debt, Revenue Bonds (Mount Sinai--NYU Medical Center Health System), 5.50% due 7/01/2026	2,106
1,865	New York State Dormitory Authority, Non-State Supported Debt, Revenue Refunding Bonds (Mount Sinai Hospital), Series C, 5.50% due 7/01/2026	1,888
635	Utica, New York, GO, Public Improvement, 9.25% due 8/15/2006	652
1,180	Westchester County, New York, IDA, Continuing Care Retirement, Mortgage Revenue Bonds (Kendal on Hudson Project), Series A, 6.50% due 1/01/2034	1,261
=====		
North Carolina--0.6%		
1,000	North Carolina Medical Care Commission, Retirement Facilities, First Mortgage Revenue Bonds (Givens Estates Project), Series A, 6.50% due 7/01/2032	1,071
=====		
Oklahoma--0.4%		
750	Norman, Oklahoma, Regional Hospital Authority, Hospital Revenue Bonds, 5.375% due 9/01/2029	759
=====		
Oregon--0.7%		
1,310	Western Generation Agency, Oregon, Cogeneration Project Revenue Bonds (Wauna Cogeneration Project), AMT, Series B, 7.40% due 1/01/2016	1,328
=====		
Pennsylvania--6.8%		
1,160	Bucks County, Pennsylvania, IDA, Retirement Community Revenue Bonds (Ann's Choice Inc.), Series A, 6.125% due 1/01/2025	1,202
1,750	Chester County, Pennsylvania, Health and Education Facilities Authority, Senior Living Revenue Refunding Bonds (Jenners Pond Inc. Project), 7.625% due 7/01/2034	1,992
	Montgomery County, Pennsylvania, Higher Education and Health Authority Revenue Bonds (Faulkeways at Gwynedd Project):	
900	6.75% due 11/15/2024	955
925	6.75% due 11/15/2030	978
1,700	Montgomery County, Pennsylvania, IDA, Revenue Bonds (Whitemarsh Continuing Care Project), 6.25% due 2/01/2035	1,781
	Philadelphia, Pennsylvania, Authority for IDR:	
1,600	(Air Cargo), AMT, Series A, 7.50% due 1/01/2025	1,709
4,460	Commercial Development, 7.75% due 12/01/2017	4,513
=====		
Rhode Island--1.0%		
1,750	Central Falls, Rhode Island, Detention Facility Corporation, Detention Facility, Revenue Refunding Bonds, 7.25% due 7/15/2035	1,887
=====		
South Carolina--0.3%		

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615	South Carolina Jobs, EDA, Economic Development Revenue Refunding Bonds (Westminster Presbyterian Center), 5.375% due 11/15/2030	609
=====		
Tennessee--1.0%		
1,800	Shelby County, Tennessee, Health, Educational and Housing Facilities Board Revenue Bonds (Germantown Village), Series A, 7.25% due 12/01/2034	1,846
=====		
Texas--7.7%		
1,000	Austin, Texas, Convention Center Revenue Bonds (Convention Enterprises Inc.), First Tier, Series A, 6.70% due 1/01/2028	1,070
2,530	Brazos River Authority, Texas, PCR, Refunding, AMT: (Texas Utility Company), Series A, 7.70% due 4/01/2033	2,970
2,760	(Utilities Electric Company), Series B, 5.05% due 6/01/2030	2,777
1,220	Brazos River Authority, Texas, Revenue Refunding Bonds (Reliant Energy Inc. Project), Series B, 7.75% due 12/01/2018	1,338
830	Grand Prairie, Texas, Housing Finance Corporation Revenue Bonds (Independent Senior Living Center), 7.75% due 1/01/2034	868

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Schedule of Investments (concluded) (in Thousands)

Face Amount	Municipal Bonds	Value
=====		
Texas (concluded)		
\$ 1,000	Houston, Texas, Health Facilities Development Corporation, Retirement Facility Revenue Bonds (Buckingham Senior Living Community), Series A, 7.125% due 2/15/2034	\$ 1,098
875	Kerrville, Texas, Health Facilities Development Corporation, Hospital Revenue Bonds (Sid Peterson Memorial Hospital Project), 5.375% due 8/15/2035	891
2,310	Matagorda County, Texas, Navigation District Number 1, Revenue Refunding Bonds (Reliant Energy Inc.), Series C, 8% due 5/01/2029	2,509
1,330	Port Corpus Christi, Texas, Individual Development Corporation, Environmental Facilities Revenue Bonds (Citgo Petroleum Corporation Project), AMT, 8.25% due 11/01/2031	1,405
=====		
Utah--1.2%		
2,240	Carbon County, Utah, Solid Waste Disposal, Revenue Refunding Bonds (Laidlaw Environmental), AMT, Series A, 7.45% due 7/01/2017	2,367
=====		
Virginia--5.2%		
2,480	Dulles Town Center, Virginia, Community Development Authority, Special Assessment Tax (Dulles Town	

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		Center Project), 6.25% due 3/01/2026	2,616
22,600		Pocahontas Parkway Association, Virginia, Toll Road Revenue Bonds, Senior Series B, 5.888%** due 8/15/2025	7,416
=====			
West Virginia--0.5%			
	875	Princeton, West Virginia, Hospital Revenue Refunding Bonds (Community Hospital Association Inc. Project), 6.20% due 5/01/2013	860
=====			
Wisconsin--0.7%			
	1,320	Wisconsin State Health and Educational Facilities Authority Revenue Bonds (New Castle Place Project), Series A, 7% due 12/01/2031	1,367
=====			
U.S. Virgin Islands--1.2%			
	2,100	Virgin Islands Government Refinery Facilities, Revenue Refunding Bonds (Hovenssa Coker Project), AMT, 6.50% due 7/01/2021	2,379

		Total Municipal Bonds (Cost--\$182,028)--96.7%	186,405
=====			

	Shares		
	Held	Short-Term Securities	
=====			
	1,001	Merrill Lynch Institutional Tax-Exempt Fund (d)	1,001
=====			
		Total Short-Term Securities (Cost--\$1,001)--0.5%	1,001
=====			
Total Investments		(Cost--\$183,029*)--97.2%	187,406

Other Assets Less Liabilities--2.8%			5,438

Net Assets--100.0%			\$192,844
=====			

* The cost and unrealized appreciation (depreciation) of investments as of December 31, 2005, as computed for federal income tax purposes, were as follows:

Aggregate cost	\$182,691
	=====
Gross unrealized appreciation	\$ 11,960
Gross unrealized depreciation	(7,245)

Net unrealized appreciation	\$ 4,715
	=====

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

(a) Prerefunded.

(b) Non-income producing security; issuer filed for bankruptcy or is in default of interest payments.

(c) Restricted securities as to resale, representing 0.5% of net assets, were as follows:

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Issue	Acquisition Dates	Cost	Value
Camden County, New Jersey, Improvement Authority, Lease Revenue Bonds (Holt Hauling & Warehousing), AMT, Series A, 9.625% due 1/01/2011	1/29/1997	\$2,116	\$280
Camden County, New Jersey, Improvement Authority, Lease Revenue Bonds (Holt Hauling & Warehousing), AMT, Series A, 9.875% due 1/01/2021	2/06/1996- 1/29/1997	4,644	630
Total		\$6,760	\$910

(d) Investments in companies considered to be an affiliate of the Fund, for purposes of Section 2(a)(3) of the Investment Company Act of 1940, were as follows:

Affiliate	Net Activity	Dividend Income
Merrill Lynch Institutional Tax-Exempt Fund	(2,699)	\$34

(e) Security may have a maturity of more than one year at time of issuance, but has variable rate and demand features that qualify it as a short-term security. The rate disclosed is that currently in effect. This rate changes periodically based upon prevailing market rates.

See Notes to Financial Statements.

APEX MUNICIPAL FUND, INC.

DECEMBER 31, 2005

9

Statement of Assets, Liabilities and Capital

As of December 31, 2005

Assets

Investments in unaffiliated securities, at value (identified cost--\$182,027,217)	
Investments in affiliated securities, at value (identified cost--\$1,001,394)	
Cash	
Receivables:	
Interest	
Securities sold	
Prepaid expenses	
Total assets	

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Liabilities

 Payables:
 Investment adviser
 Other affiliates

 Accrued expenses

 Total liabilities

=====
 Net Assets

 Net Assets

=====
 Capital

 Common Stock, \$.10 par value, 150,000,000 shares authorized; 19,621,673 shares issued
 and outstanding
 Paid-in capital in excess of par
 Undistributed investment income--net
 Accumulated realized capital losses--net
 Unrealized appreciation--net

 Total accumulated losses--net

 Total capital--Equivalent to \$9.83 net asset value per share of Common Stock
 (market price--\$9.82)

See Notes to Financial Statements.

10 APEX MUNICIPAL FUND, INC. DECEMBER 31, 2005

Statement of Operations

For the Six Months Ended December 31, 2005

=====
 Investment Income

 Interest
 Dividends from affiliates

 Total income

=====
 Expenses

 Investment advisory fees
 Accounting services
 Transfer agent fees
 Professional fees
 Printing and shareholder reports
 Listing fees
 Directors' fees and expenses
 Pricing fees

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Custodian fees
 Other

 Total expenses before reimbursement
 Reimbursement of expenses

 Total expenses after reimbursement

 Investment income--net

=====
 Realized & Unrealized Gain (Loss)--Net

Realized gain on investments--net
 Change in unrealized appreciation on investments--net

 Total realized and unrealized gain--net

 Net Increase in Net Assets Resulting from Operations

See Notes to Financial Statements.

APEX MUNICIPAL FUND, INC.

DECEMBER 31, 2005

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Statements of Changes in Net Assets

Increase (Decrease) in Net Assets:
 =====

Operations

Investment income--net
 Realized gain--net
 Change in unrealized appreciation/depreciation--net

 Net increase in net assets resulting from operations

=====
 Dividends to Shareholders

Investment income--net

 Net decrease in net assets resulting from dividends to shareholders

=====
 Common Stock Transactions

Net increase in net assets derived from Common Stock issued to
 shareholders in reinvestment of dividends

=====
 Net Assets

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Total increase in net assets	
Beginning of period	
End of period*	
* Undistributed investment income--net	

See Notes to Financial Statements.

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Financial Highlights

The following per share data and ratios have been derived from information provided in the financial statements.	For the Six Months Ended December 31, 2005	For the Six Months Ended December 31, 2005	For the Six Months Ended December 31, 2005
Per Share Operating Performance			
Net asset value, beginning of period	\$ 9.82	\$ 9.13	\$ 8.82
Investment income--net29+	.58+	.58
Realized and unrealized gain (loss)--net ..	.01	.69	.69
Total from investment operations30	1.27	1.27
Less dividends and distributions to Common Stock shareholders:			
Investment income--net	(.29)	(.58)	(.58)
Realized gain--net	--	--	--
Total dividends and distributions to Common Stock shareholders	(.29)	(.58)	(.58)
Net asset value, end of period	\$ 9.83	\$ 9.82	\$ 9.82
Market price per share, end of period	\$ 9.82	\$ 9.48	\$ 9.48
Total Investment Return**			
Based on net asset value per share	3.13% [@]	14.67%	14.67%
Based on market price per share	6.72% [@]	22.36%	22.36%
Ratios to Average Net Assets			
Expenses, net of reimbursement80%*	.80%	.80%
Expenses81%*	.80%	.80%
Investment income--net	5.83%*	6.11%	6.11%

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=====

Supplemental Data

Net assets, end of period (in thousands) ..	\$192,844	\$192,475	\$178,
Portfolio turnover	11%	22%	

=====

- * Annualized.
- ** 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 effects of sales charges.
- *** Amount is less than \$(.01) per share.
- + Based on average shares outstanding.
- @ Aggregate total investment return.

See Notes to Financial Statements.

APEX MUNICIPAL FUND, INC.

DECEMBER 31, 2005

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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. These unaudited financial statements reflect all adjustments, which are, in the opinion of management, necessary to present a fair statement of the results for the interim period. All such adjustments are of a normal, recurring nature. 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 shares are 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 ("OTC") markets and are valued at the last available bid price in the OTC market or on the basis of values as obtained by a pricing service. Pricing services use valuation matrixes that incorporate both dealer-supplied valuations and valuation models. The procedures of the pricing service and its valuations are reviewed by the officers of the Fund under the general direction of the Board of Directors. Such valuations and procedures are reviewed periodically by the Board of Directors of the Fund. 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 OTC 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's pricing service. Short-term investments with a remaining maturity of 60 days or less are valued at amortized cost, which approximates market value, under which method the investment is valued at cost and any premium or discount is amortized on a straight line basis to maturity. Investments in open-end investment companies are valued at their net asset value each business day. Securities and other 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

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Directors of the Fund.

(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 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.

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Notes to Financial Statements (concluded)

(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.

(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

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declared daily and paid monthly. Distributions of capital gains are recorded on the ex-dividend dates.

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. FAM has agreed to reimburse its management fee by the amount of management fees the Fund pays to FAM indirectly through its investment in Merrill Lynch Institutional Tax-Exempt Fund. For the six months ended December 31, 2005, FAM reimbursed the Fund in the amount of \$2,889.

For the six months ended December 31, 2005, the Fund reimbursed FAM \$2,186 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 six months ended December 31, 2005 were \$20,293,981 and \$24,880,563, respectively.

4. Common Stock Transactions:

At December 31, 2005, the Fund had one class of shares of Common Stock, par value \$.10 per share, of which 150,000,000 shares were authorized.

Shares issued and outstanding for the six months ended December 31, 2005 increased by 24,941 as a result of dividend reinvestment. Shares issued and outstanding for the year ended June 30, 2005 remained constant.

5. Subsequent Event:

The Fund paid a tax-exempt income dividend to holders of Common Stock in the amount of \$.049000 per share on January 30, 2006 to shareholders of record on January 18, 2006.

6. Capital Loss Carryforward:

On June 30, 2005, the Fund had a net capital loss carryforward of \$15,188,907, of which \$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, \$1,659,281 expires in 2012 and \$35,292 expires in 2013. This amount will be available to offset like amounts of any future taxable gains.

APEX MUNICIPAL FUND, INC.

DECEMBER 31, 2005

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Disclosure of Investment Advisory Agreement

Activities and Composition of the Board of Directors

All but one member of the Board of Directors is an independent director whose

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only affiliation with Fund Asset Management, L.P. (the "Investment Adviser") or other Merrill Lynch affiliates is as a director of the Fund and certain other funds advised by the Investment Adviser or its affiliates. The Co-chairmen of the Board are also independent directors. New director nominees are chosen as nominees by a Nominating Committee comprised of independent directors. All independent directors also are members of the Board's Audit Committee and the independent directors meet in executive session at each in-person Board meeting. The Board and the Audit Committee meet in person for at least two days each quarter and conduct other in-person and telephone meetings throughout the year, some of which are formal Board meetings, and some of which are informational meetings. The independent counsel to the independent directors attends all in-person Board and Audit Committee meetings and other meetings at the independent directors' request.

Investment Advisory Agreement - Matters Considered by the Board

Every year, the Board considers approval of the Fund's investment advisory agreement (the "Investment Advisory Agreement"). The Board assesses the nature, scope and quality of the services provided to the Fund by the personnel of the Investment Adviser and its affiliates, including administrative services, shareholder services, oversight of fund accounting, marketing services and assistance in meeting legal and regulatory requirements. The Board also receives and assesses information regarding the services provided to the Fund by certain unaffiliated service providers.

At various times throughout the year, the Board also considers a range of information in connection with its oversight of the services provided by the Investment Adviser and its affiliates. Among the matters considered are: (a) fees (in addition to management fees) paid to the Investment Adviser and its affiliates by the Fund; (b) Fund operating expenses paid to third parties; (c) the resources devoted to and compliance reports relating to the Fund's investment objective, policies and restrictions, and its compliance with its Code of Ethics and the Investment Adviser's compliance policies and procedures; and (d) the nature, cost and character of non-investment management services provided by the Investment Adviser and its affiliates.

The Board believes that the Investment Adviser is one of the most experienced global asset management firms and considers the overall services provided by the Investment Adviser to be of high quality. The Board also believes that the Investment Adviser is financially sound and well managed and notes that the Investment Adviser is affiliated with one of America's largest financial firms. The Board works closely with the Investment Adviser in overseeing the Investment Adviser's efforts to achieve good performance. As part of this effort, the Board discusses portfolio manager effectiveness and, when performance is not satisfactory, discusses with the Investment Adviser taking steps such as changing investment personnel.

Annual Consideration of Approval by the Board of Directors

In the period prior to the Board meeting to consider renewal of the Investment Advisory Agreement, the Board requests and receives materials specifically relating to the Fund's Investment Advisory Agreement. These materials include (a) information compiled by Lipper Inc. ("Lipper") on the fees and expenses and the investment performance of the Fund as compared to a comparable group of funds as classified by Lipper; (b) information comparing the Fund's market price with its net asset value per share; (c) a discussion by the Fund's portfolio management team of investment strategies used by the Fund during its most recent fiscal year; (d) information on the profitability to the Investment Adviser and its affiliates of the Investment Advisory Agreement and other relationships with the Fund; and (e) information provided by the Investment Adviser concerning investment advisory fees charged to other clients, such as other mutual funds and offshore funds under similar investment mandates. The Board also considers

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other matters it deems important to the approval process such as services related to the valuation and pricing of Fund portfolio holdings, allocation of Fund portfolio transactions, the Fund's portfolio turnover statistics, and direct and indirect benefits to the Investment Adviser and its affiliates from their relationship with the Fund.

Certain Specific Renewal Data

In connection with the most recent renewal of the Fund's Investment Advisory Agreement which occurred in November 2005, the independent directors' and Board's review included the following:

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Services Provided by the Investment Adviser -- The Board reviewed the nature, extent and quality of services provided by the Investment Adviser, including the investment advisory services and the resulting performance of the Fund. The Board focused primarily on the Investment Adviser's investment advisory services and the Fund's investment performance. The Board compared Fund performance -- both including and excluding the effects of the Fund's fees and expenses -- to the performance of a comparable group of funds, and the performance of a relevant index or combination of indexes. While the Board reviews performance data at least quarterly, consistent with the Investment Adviser's investment goals, the Board attaches more importance to performance over relatively long periods of time, typically three to five years. For the periods ended August 31, 2005, the Fund's performance after fees and expenses ranked in the first quintile for each of the three- and five-year periods and in the second quintile for the one-year period. Considering these factors, the Board concluded that the nature and quality of these services supported the continuation of the Investment Advisory Agreement.

The Investment Adviser's Personnel and Investment Process -- The Board reviews at least annually the Fund's investment objectives and strategies. The Board discusses with senior management of the Investment Adviser responsible for investment operations and the senior management of the Investment Adviser's municipal investing group the strategies being used to achieve the stated objectives. Among other things, the Board considers the size, education and experience of the Investment Adviser's investment staff, its use of technology, and the Investment Adviser's approach to training and retaining portfolio managers and other research, advisory and management personnel. The Board reviews the Investment Adviser's compensation policies and practices with respect to the Fund's portfolio managers. The Board also considered the experience of the Fund's portfolio manager and noted that Mr. Jaeckel has more than fifteen years of experience in portfolio management. The Investment Adviser and its investment staff have extensive experience in analyzing and managing the types of investments used by the Fund. The Board concluded that the Fund benefits from that expertise.

Management Fees and Other Expenses -- The Board reviews the Fund's contractual management fee rate and actual management fee rate as a percentage of total assets at common asset levels -- the actual rate includes advisory and administrative service fees and the effects of any fee waivers -- compared to the other funds in its Lipper category. It also compares the Fund's total expenses to those of other, comparable funds. The Board did not consider the services provided to and the fees charged by the Investment Adviser to other types of clients with similar investment mandates because the Investment Adviser advised the Board that it had no comparable investment mandates from its clients. The Fund's contractual and actual management fee rates were slightly higher than, and the Fund's actual total expenses were equal to, the median fees and expenses charged by comparable funds as determined by Lipper. The Board has

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concluded that the Fund's management fee and fee rate and overall expense ratio are reasonable compared to those of other comparable funds.

Profitability -- The Board considers the cost of the services provided to the Fund by the Investment Adviser, and the Investment Adviser's and its affiliates' profits relating to the management of the Fund and the MLIM/FAM-advised funds. As part of its analysis, the Board reviewed the Investment Adviser's methodology in allocating its costs to the management of the Fund and concluded that there was a reasonable basis for the allocation. The Board also considered federal court decisions discussing an investment adviser's profitability and profitability levels considered to be reasonable in those decisions. The Board believes the Investment Adviser's profits are acceptable in relation to the nature and quality of services provided.

Economies of Scale -- The Board considered the extent to which economies of scale might be realized as the assets of the Fund increase and whether there should be changes in the management fee rate or structure in order to enable the Fund to participate in these economies of scale. The Board considered economies of scale to the extent applicable to the Fund's closed-end structure and determined that the Fund appropriately benefits from any economies of scale and no changes were currently necessary.

Conclusion

After the independent directors deliberated in executive session, the entire Board, including all of the independent directors, approved the renewal of the existing Investment Advisory Agreement, concluding that the advisory fee was reasonable in relation to the services provided and that a contract renewal was in the best interests of the shareholders.

APEX MUNICIPAL FUND, INC.

DECEMBER 31, 2005

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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 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. As of December 31, 2005, none of the Fund's total net assets were invested in these securities.

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

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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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APEX MUNICIPAL FUND, INC.

DECEMBER 31, 2005

Availability of Quarterly Schedule of Investments

The Fund files its complete schedule of portfolio holdings with the Securities and Exchange Commission ("SEC") for the first and third quarters of each fiscal year on Form N-Q. The Fund's Forms N-Q are available on the SEC's Web site at <http://www.sec.gov>. The Fund's Forms N-Q may also be reviewed and copied at the SEC's Public Reference Room in Washington, DC. Information on the operation of the Public Reference Room may be obtained by calling 1-800-SEC-0330.

Electronic Delivery

The Fund offers electronic delivery of communications to its shareholders. In order to receive this service, you must register your account and provide us with e-mail information. To sign up for this service, simply access this Web site at <http://www.icsdelivery.com/live> and follow the instructions. When you visit this site, you will obtain a personal identification number (PIN). You will need this PIN should you wish to update your e-mail address, choose to discontinue this service and/or make any other changes to the service. This service is not available for certain retirement accounts at this time.

APEX MUNICIPAL FUND, INC.

DECEMBER 31, 2005

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[LOGO] Merrill Lynch Investment Managers
www.mlim.ml.com

Mercury Advisors
A Division of Merrill Lynch Investment Managers
www.mercury.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 1-800-637-3863; (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.

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Box 9011
Princeton, NJ
08543-9011

#10955 -- 12/05

- Item 2 - Code of Ethics - Not Applicable to this semi-annual report
- Item 3 - Audit Committee Financial Expert - Not Applicable to this semi-annual report
- Item 4 - Principal Accountant Fees and Services - Not Applicable to this semi-annual report
- Item 5 - Audit Committee of Listed Registrants - Not Applicable to this semi-annual report
- Item 6 - Schedule of Investments - Not Applicable
- Item 7 - Disclosure of Proxy Voting Policies and Procedures for Closed-End Management Investment Companies - Not Applicable to this semi-annual report
- Item 8 - Portfolio Managers of Closed-End Management Investment Companies - Not Applicable to this semi-annual report
- Item 9 - Purchases of Equity Securities by Closed-End Management Investment Company and Affiliated Purchasers - Not Applicable
- Item 10 - Submission of Matters to a Vote of Security Holders - Not Applicable
- Item 11 - Controls and Procedures
 - 11(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 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.
 - 11(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 last 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 12 - Exhibits attached hereto
 - 12(a) (1) - Code of Ethics - Not Applicable to this semi-annual report
 - 12(a) (2) - Certifications - Attached hereto
 - 12(a) (3) - Not Applicable
 - 12(b) - Certifications - Attached hereto

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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/ Robert C. Doll, Jr.

Robert C. Doll, Jr.,
Chief Executive Officer of
Apex Municipal Fund, Inc.

Date: February 21, 2006

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/ Robert C. Doll, Jr.

Robert C. Doll, Jr.,
Chief Executive Officer of
Apex Municipal Fund, Inc.

Date: February 21, 2006

By: /s/ Donald C. Burke

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

Date: February 21, 2006