MEETING OUR REGION’S NEEDS TODAY AND TOMORROW
NORTH TEXAS MUNICIPAL WATER DISTRICT

WATER SUPPLY

WASTEWATER TREATMENT

SOLID WASTE DISPOSAL
A MESSAGE FROM JAMES M. (JIM) PARKS, EXECUTIVE DIRECTOR

Since the establishment of the North Texas Municipal Water District (NTMWD) as a conservation and reclamation district by the Texas Legislature in 1951, we have continued to provide our cities and customers with the basic services of water, wastewater treatment, and solid waste disposal in order to support our rapidly growing region. As envisioned by the progressive-thinking leaders of the original Member Cities for a dependable water supply for their communities, NTMWD is meeting our region’s needs today and tomorrow. We are planning, developing, and delivering cost-effective services that enable positive growth and economic prosperity.

More than five decades ago, the NTMWD’s service area population was just over 32,000 in a 1,600 square mile area. Today the NTMWD serves over 1.3 million citizens with a dependable, reliable water supply. As dramatic as the region’s growth has been in the past, we must realize demand for NTMWD’s regional services may increase even more rapidly during the next 50 years.

The region’s experiences with growth are evidence that we are utilizing our existing resources fully and must develop new sources of water, construct new treatment facilities and delivery systems, and incorporate emerging technology into each program. Balance is a key term for describing our services and operations.

NTMWD bears a responsibility to the State of Texas and to its citizens to act as a faithful steward of water resources by protecting our water quality and conserving our natural resources throughout all of our operations. In each of our services, we accept responsibility to maximize our performance to avoid even the potential for pollution.

As the early Directors of the NTMWD developed the concept of regionalization to go beyond a treated water supply, we broadened services to include wastewater and solid waste disposal. Growth in these areas has been tremendous. Our wastewater system continues to treat increasing wastewater flows, and we continue to plan and construct larger regional facilities, such as the Panther Creek and Muddy Creek Wastewater Treatment Plants.

Our new 121 Regional Disposal Facility (121 RDF) is now operational and will provide the residents of Collin County a safe and reliable means to dispose of household municipal waste for the next 40 years. Our Board of Directors guides the NTMWD’s future with vision and fiscal responsibility. As quoted by one of our past Directors, Loncy Leake, “Our strength lies in our unity and in our ability to work together for the benefit of all our cities. From the beginning, there’s been a rare spirit of cooperation and feeling of camaraderie on our Board.” With this as our motto, we will most assuredly continue to provide a high standard of living for the citizens we serve.
PHILOSOPHY AND MISSION

The North Texas Municipal Water District (NTMWD) is a model for how to provide water, wastewater treatment and solid waste disposal services on a regional basis. Since it was established in 1951, the NTMWD has set many precedents and distinguished itself for its quality and affordable systems, operating over 1,600 square miles with a population of over 1.3 million people.

The NTMWD is authorized to acquire, treat, and distribute potable water, and to collect, treat and dispose of wastes, both liquid and solid, in order to reduce pollution, conserve and develop the natural resources of Texas.

NTMWD is a conservation and reclamation district and political subdivision of the State of Texas, created and functioning under Article XVI, Section 59, of the Texas Constitution, pursuant to Chapter 62, Acts of 1951, 52nd Legislature of Texas, Regular Session.

In order to respond to the requests of the Member Cities through the authorization provided by the Texas Legislature, the NTMWD operates three systems, which provide the basic services required for residential, commercial, and industrial growth in the communities served. These systems include the Regional Water System, the Regional Wastewater System, and the Regional Solid Waste System.

NTMWD has never levied or spent a single cent of tax money for capital or operating expenses. It has wide-ranging authority to serve any member community. All services are provided through contracts in which municipalities pledge payments from water, sewer, and solid waste customer revenues. NTMWD’s three systems are completely separate financially; no system may subsidize nor draw revenue from the other.

A Board of Directors appointed by the elected city councils of the Member Cities governs the NTMWD. Board members are appointed for two-year terms on a staggered basis. If a community has a population above 5,000, two representatives are appointed to serve on the Board of Directors. If a community has a population below 5,000, one representative is appointed to serve on the Board.

The Board of Directors employs an Executive Director who oversees all day-to-day operations and is responsible to the Board for operating the NTMWD in accordance with all laws and NTMWD policies.

The NTMWD Regional Water System provides treated drinking water supplies to over 1.3 million people in the 59 cities, towns, special utility districts, and water supply corporations served by the NTMWD through voluntary contracts. The raw water supply utilized by the NTMWD is provided from the conservation pool of Lavon Lake. Additional sources of raw water are utilized from water right permits held by the NTMWD in Lake Texoma and Lake Jim Chapman, also known as Cooper Lake. Additional sources of raw water supplies
are being developed to supply the rapidly increasing needs of the NTMWD Member Cities and Customers.

As a conservation and reclamation district, NTMWD has established forward-thinking policies that are flexible enough to fit the ever-changing needs of this dynamic service area. Protection of the environment is not only a primary goal but is actually a self-mandated requirement. The NTMWD continues to provide high-quality drinking water meeting all State and Federal standards for quality and safety. Likewise, the NTMWD operates a majority of its wastewater treatment systems under the State’s most stringent discharge standards. Additionally, solid waste disposal facilities have been designed and are being operated to protect our streams, lakes, ground water resources and land areas from any threat of pollution that may exist in the communities we serve.
In the early 1940s, community leaders in a 1,600 square-mile area, generally east and north of the City of Dallas, grew concerned about the dwindling ground water supplies. These community leaders petitioned the federal government to authorize the construction of Lavon Lake; and in 1945, when that authorization passed the U.S. Congress, these same leaders persuaded the Texas Legislature to include municipal and industrial water supply as an additional purpose to this flood control reservoir. Construction of Lavon Lake began in 1948.

In 1946, the local leaders from 10 communities formed the Tri-County Reservoir Association. The Tri-County Reservoir Association requested that the Legislature authorize the formation of the North Texas Municipal Water District (NTMWD) and to provide this organization with the authority to develop, finance, construct, and operate facilities to meet their future water needs. The dedication of these communities in establishing the NTMWD and in obtaining approval for Lavon Lake set the cooperative tone, which has guided the relationship between the NTMWD, the individual members of its Board of Directors, and the communities it was established to serve.

The post World War II era was one of dreams. The future for Texas and Texans had never looked brighter. The reality was, however, that without ample water supplies, communities large and small in north Texas would never grow and prosper. With everyone working together, regional cooperation was truly born.
1956 - 1957 - 1958

1961

1964 STATISTICS:
Member Cities: 10
Customer Cities: 6
Population: Approximately 60,000
Services Provided: Water
Number of Water Plants: 1
Where we were: Seeking water rights permit for Cooper Lake
Annual Budget: $1,245,242

1966

1968

CONGRESS AUTHORIZED CONSTRUCTION OF COOPER LAKE PROJECT
CONSTRUCTION OF CHANNEL AND LEVEE IMPROVEMENTS BELOW LAKE SITE BEGIN
WATER PLANT I EXPANDED
WATER PLANT I EXPANDED
NTMWD GRANTED COOPER LAKE PROJECT WATER RIGHTS PERMIT
USACE CONTRACT SIGNED FOR ACTUAL CONSTRUCTION TO BEGIN ON COOPER LAKE PROJECT
DELIVERED FIRST TREATED WATER
WATER PLANT I, 20 MGD
COOPER LAKE PROJECT
COOPER LAKE PROJECT
COOPER LAKE PROJECT
COOPER LAKE PROJECT
Texans understand the value of water, and they also know that cooperation results in success. The cooperative spirit of the Member Cities of the NTMWD has been the reason our region has a viable infrastructure that supports positive growth and economic prosperity. Water treatment and delivery, wastewater treatment and solid waste disposal services are essential to a community’s well-being, and NTMWD’s mission is to make certain its members receive these services efficiently, safely and cost-effectively. Representatives of the NTMWD’s Member Cities are appointed by their respective city councils to work on a regional basis for the benefit of all.

NTMWD is an active participant in the Texas Water Development Board’s Region C Water Planning Group. Development of a regional water plan is mandated by Texas Senate Bill 1 and Texas Senate Bill 2. Other entities who are working with NTMWD are Tarrant Regional Water District, the cities of Dallas, Irving, and Fort Worth, the Trinity River Authority, and the Upper Trinity Regional Water District. Also providing input into the regional planning process are retail suppliers including other cities and towns, water supply corporations, special utility districts and private water companies.

The region’s growth provides tremendous challenges. By 2020, NTMWD is likely to be serving 700,000 more people than it serves today. By 2050, the population is expected to be 3.5 million. That means that the NTMWD will need to add the equivalent of one Lavon Lake to its system every decade for the next 50 years.

As part of Region C’s plan, NTMWD is pursuing the following recommended water management strategies:

- Conservation
- Interim treated water purchase from Dallas Water Utilities
- Additional Wilson Creek reuse project
- East Fork reuse project
- Additional Lavon Lake yield
- Interim purchase of Lake Texoma water from GTUA/Sherman
- Upper Sabine Basin supply
- New supply from Lake Texoma
- Lower Bois D’Arc Creek Reservoir
- Fannin County water supply system
- Marvin Nichols Reservoir
- Toledo Bend Reservoir
- Oklahoma water
- Water treatment plant and distribution improvements
North Texas Municipal Water District began treated water deliveries to the north Texas area in 1956, meeting the potable water needs of approximately 32,000 citizens. Currently, the water needs of over 1.3 million people are met on a daily basis through the long-term planning of the NTMWD’s Board of Directors and Staff.

NTMWD utilizes surface water supplies from Lavon Lake, Lake Texoma, and Lake Chapman. The NTMWD ensures water quality utilizing state-of-the-art technology and barriers in the treatment process in order to deliver tap water that is safe and reliable for public use. The water treatment process removes particulates, impurities, and water-borne microorganisms. NTMWD routinely performs an array of water tests before, during, and after the treatment process to maintain high quality water for delivery to its Member Cities and Customers.

Major construction projects have included the expansion of Water Treatment Plant III, which increased the plant’s treatment capacity to 280 million gallons per day (MGD). This expansion increases the NTMWD’s treatment capabilities up to 630 MGD. Construction is underway on Water Treatment Plant IV. Plant IV will mirror Plant III with a treatment capacity of 280 MGD, bringing the ultimate system capacity to 910 MGD.
The treatment process results in superior water quality for the District's customers.
WASTEWATER SYSTEM

Since the early 1970s, NTMWD has provided wastewater treatment services while protecting water quality and the environment. NTMWD owns and operates four regional treatment facilities that provide tertiary level treatment. In addition to the regional facilities, NTMWD operates 16 smaller treatment plants that are included in NTMWD’s Sewer System.

Wastewater System construction projects have included a 16 MGD expansion to the Wilson Creek WWTP increasing the plant’s treatment capacity to 48 MGD, enhancements to the interceptor systems, odor control and noise abatement projects for the Stewart Creek West WWTP serving the City of Frisco, and the Muddy Creek Regional WWTP serving the cities of Murphy and Wylie.

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<th>WASTEWATER SYSTEM</th>
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NTMWD WASTEWATER TREATMENT

Bar Screens → Primary Treatment

Primary Clarifier

Primary Clarifier → Addition of Lime

Aeration

Addition of Ferric Sulfate

Secondary Treatment

Effluent

Tertiary Treatment

Filtration

UV Disinfection or Chlorine Disinfection and Dechlorination

Solids

Dried Solids Ready for Disposal
NTMWD provides solid waste disposal and transfer services for over 650,000 citizens in five Member Cities and the residents of Collin County. The Solid Waste Member Cities are Allen, Frisco, McKinney, Plano, and Richardson.

The NTMWD operates three transfer stations that serve as collection sites for the commercial and household municipal waste collected within the Solid Waste Member Cities. At each of the transfer stations, municipal waste is loaded into transfer trucks for transport by NTMWD vehicles to the landfill for safe and proper disposal. Previously, NTMWD utilized the Regional Landfill in McKinney until the opening of the 121 Regional Disposal Facility (121 RDF) in August 2004.

The newly opened 121 RDF is a component of the North Central Texas Council of Governments solid waste master plan and is expected to meet the solid waste needs of the area served by the NTMWD for 40 years. The 121 RDF is permitted as a Type 1 solid waste facility, where only municipal waste collected from communities, commercial, institutional, recreational, construction and demolition disposal will be accepted. No hazardous waste is ever accepted at any of the NTMWD’s facilities.

Approximately 450 acres of the more than 1,400 acres owned by the NTMWD has been permitted for use as a disposal area. The NTMWD is providing a buffer area of at least 300 feet between the actual fill area and any adjacent property. In addition, the acreage held by the NTMWD outside the permit boundary can be utilized as green belt preservation areas, public facilities including camping and sports venues, or development as municipal complexes.

NTMWD is committed to meeting and providing the solid waste services needed for the future of this fast growing north Texas area. The NTMWD encourages waste reduction activities such as recycling and composting to minimize the waste stream to lengthen the use of the 121 RDF.

The 121 RDF is open to citizens and private waste haulers Monday through Saturday. It is designed and constructed with a state-of-the-art liner system and leachate collection system. The liner system consists of the following layers: excavation to the Austin Chalk Limestone formation, compacted clay, flexible membrane layer, leachate collection system, and protective cover. This liner system and the leachate collection system provide the barriers that protect the environment and the ground and surface water supplies from contamination.
Solving illegal dumping problems is a top priority for both North Texas Municipal Water District (NTMWD) and Collin County (County). NTMWD has an inter-local agreement with the County for participation in the Clean-Up Day Program provided to the citizens of the County. This inter-local agreement is beneficial to the region and contributes significantly to the solid waste diversion of illegal dumping to an approved landfill in order to meet the goals of the State of Texas. County and municipal governments, as well as regional authorities like NTMWD, must work together to address illegal dumping issues that are intensified with the growth being experienced by counties like Collin. Area clean-ups involving hundreds of volunteers help to rectify specific problems, but the NTMWD also works to educate residents about its health hazards and ways to avoid illegal dumping.
The NTMWD has two important plans in place. One is its own Water Conservation Plan, and the second is a Model Water Conservation Plan for use by its Member Cities and Customers. Both documents follow the guidelines and requirements of the Texas Commission on Environmental Quality. The objectives of the plans are: to reduce water consumption from the levels that would prevail without conservation efforts; to reduce the loss and waste of water; to improve efficiency in the use of water; to document the level of recycling and reuse in the water supply, and to extend the life of current water supplies by reducing the rate of growth in demand. To read the District's Water Conservation Plan, see www.ntmwd.com.

The NTMWD works with its Member Cities and Customers to do the following:
- Decrease waste in lawn irrigation through landscape management regulations
- Keep the per capita municipal water use below the specified amount in gallons per capita per day in a dry year
- Keep the level of unaccounted water in the system below 12 percent annually beginning in 2008
- Maintain a program of universal metering and meter replacement and repair
- Develop system-specific strategies to conserve water during peak demands, thus reducing peak use

As a regional water supplier, NTMWD makes the "Water Wise" educational materials available to local school districts served by the NTMWD. The NTMWD’s public education and outreach department works with the local media and community leaders to make available ways in which to conserve water. For recommendations of how individuals can save water at home, see www.ntmwd.com.

Conservation alone will not meet the future water needs of the NTMWD’s service area. One of the least complicated and cost-efficient ways to quench the region’s thirst will be through a process known as reuse.

The NTMWD already has embarked on the East Fork Reuse Project near Crandall in Kaufman County that will begin providing billions of gallons of “raw water” by 2008, and, in doing so, create 40 times more water than proposed conservation measures. “Raw water” means that the water is not drinkable until it is treated. Water from the East Fork of the Trinity River will be pumped into manmade
wetlands on private property whose owner is the trust estate of a local conservationist and philanthropist. As the water filters through 1,840 acres, the wetland’s plants will polish it—a natural process that removes 95 percent of the sediment, 80 percent of the nitrogen and 65 percent of the phosphorus. In fact, the process is really a large-scale recycling project that harnesses the power of nature’s filtration process. The cleansed water from the wetlands will then be piped 40 miles to the north end of Lavon Lake and blended with raw water from Lake Jim Chapman and Lake Texoma.

NTMWD operates its own wetlands nursery and will expand its nursery operations onsite in 2005. The East Fork Reuse Project has another environmental benefit—it returns to nature a part of what has been taken away.

According to the U.S. Parks and Wildlife, Texas has lost 52 percent of its original wetlands to commercial and residential development, displacing wildlife and aquatic plant habit. The manmade wetlands, such as East Fork Reuse Project, create new habitats for wildlife.