



City of Mesquite Master Plan

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Public Services and Facilities Element

Note: This document represents one of several elements which constitute the City of Mesquite Master Plan.

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CHAPTER 1 - PUBLIC SAFETY

Introduction

One of the most valued services that government offers to our citizens is public safety. Our dedicated, public safety personnel are called “first responders”, because they regularly arrive first to an emergency situation, whether it involves a fire, flood, accident, or criminal encounter. Fire, police, and court facility personnel have taken a proactive approach to keeping pace with the growing needs and population of Mesquite.



The City of Mesquite Master Plan translates community goals and values into realistic policies and action programs to guide decisions about growth and development. When making decisions about development, it is important to consider the impacts related to public safety. This Master Plan Element strives to anticipate future needs, while coordinating the potential effects of growth to City departments and the citizens of the community.

Law Enforcement Services and Facilities

The City of Mesquite Police Department offers criminal investigation, emergency response services, traffic enforcement, preventative patrol, education and all other law enforcement services within the City. Although the crime rate in Mesquite is low, the goals and policies of the Public Safety chapter are formed with the intent of keeping crime rates low while planning for additional growth in a practical manner. This requires ongoing improvement programs. The current location of existing Police stations is shown on Figure 1-1, while possible future locations are indicated on Figure 1-2.

It is recognized that agreeing to provide each police vehicle with computer terminals and other state of the art equipment, results in the vehicles becoming each officer’s personal office. Doing so lets the officers respond to most calls without having to physically be at the Police Station or a sub-station. With this in mind, the City has purchased a larger building to create one centralized Police Station in an area easily accessed along Hardy Way. A small facility would likely remain in the Courthouse to handle prisoners, and should development occur on the far western end of the City, another facility may be needed.

Fire Department Services and Facilities

The City of Mesquite Fire Department responds to fire, paramedic, hazardous materials emergencies and natural disasters. These are a few of the most fundamental, but essential services provided by the City to the citizens. Fire prevention, construction plan review, and public safety education are added services, which improve protection and response when fires occur. These services are made available within the City boundaries and in neighboring areas to a limited extent. Mutual aid agreements enhance the level of emergency response by pooling resources when necessary. Such agreements are in place with Clark County, Nevada and Mohave County, Arizona. Other such agreements are being contemplated. The City

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also helps meet fire suppression needs through the use of codes related to built-in protection such as early warning and detection systems, automatic fire sprinklers, fire resistant design of structures and materials, and through the fire fighting and public safety capabilities of the Fire Department.

Insurance Rates and Fire Protection

The City's Fire Department currently has an Insurance Services Office (ISO) rating of class 4 to 9. The rating translates to an indicator of safety of 4 in the more urbanized areas and up to a 9 in the areas which are more distant. The rating is based upon over 50 different issues revolving around adequate response time, fire service communications, adequate provision of water sources, access, early warning and detection systems, automatic fire sprinklers and other similar issues.

Table 1-1 below indicates the relative values assigned to the three major groups analyzed by the ISO. The rating affects citizens by allowing for higher or lower fire insurance premiums on their residences. It is one measure of the fire protection agency's ability to prevent, control and extinguish fires.

Table 1-1 ISO Fire Suppression Rating Schedule	
Major Group	Maximum Credits
Water Supply	40
Fire Department	50
Fire Service Communications	10
Totals	100
Source: National Fire Protection Association	

Fire Protection Response Planning

Measuring response time, from when the fire begins to when the fire department arrives, presents another method to analyze fire protection. Effective response requires logical placement of facilities, in order to reduce response time to the maximum number of structures. Even though some land uses are more intense or hazardous, this does not necessarily result in the need for more facilities. A change in land use patterns, however, may require expansion or relocation of facilities to minimize response times. Therefore, the Public Safety chapter designates general, rather than precise locations for fire protection facilities. Current and possible future locations are shown in Figures 1-1 and 1-2, respectively.

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The response times indicated on Figures 1-1 and 1-2 calculate a 1.5 minute dispatch time and then assume a 35 miles per hour travel speed. The response time estimates can be affected by many factors. The National Fire Protection Handbook indicates that to be minimally effective in controlling a fire, the initial responding apparatus should reach the scene and begin to apply the extinguishing agent within approximately ten (10) minutes of ignition unless other fire protection measures are in place.

Figure 1-3 shows a demonstration of Fire Growth vs. Reflex Time (with sprinklers and without). The demonstration does not consider many other factors such as building materials, attempts by citizens to put out the fire, etc. Table 1-2 indicates the Cycle of a Fire, mitigation measures and necessary community infrastructure.

Table 1-2 The Cycle of a Fire (Ignition to Extinguishment) And its Relationship To Fire Protection Planning Activities		
Fire Cycle	Mitigation Measures	Necessary Community Infrastructure
Pre-Fire activity	Application of Building Code and Fire Code. Public education for fire safety.	Fire Prevention Section and Building and Safety Division with appropriate facilities.
Fire ignites	Prevention reduces number of ignitions.	Fire Prevention Section.
Fire discovered or detected	Smoke detectors and fire sprinklers provide early detection.	Ordinances and enforcement.
Fire reported	Supervised alarm system, fire sprinkler systems and enhanced 911 telephone facilities speed reporting.	Ordinances and State Law. Central answering point for 911 telephone system. Enhanced 911 telephone system with ALI and ANI.*
Response units notified	Computer assisted dispatch and emergency response mapping produced with GIS enhanced dispatch process.	Dispatch Communications Center. GIS* Computer Capabilities.
Units respond to fire	A regional approach, regardless of jurisdictional boundary lines, enhances the response of the closest units.	Well placed fire stations and facilities, an efficient road system and traffic signals activated by the fire department.
Units arrive at scene	Appropriate access to all buildings and structures is provided. Fire hydrants are well located.	Well placed fire hydrants at appropriate intervals.
Fire extinguishing activity occurs	Knowledge, training, tactics, strategy and command functions combine to provide coordination of fire control efforts by fire department.	Water distribution system with adequate pressure and/or mobile water supply.
Fire extinguished	Ignition source is determined.	
Notes: * ALI=Automatic Location Identification; ANI = Automatic Number Identification; GIS = Geographic Information System		
Source: Truckee Meadows Fire Protection District, Washoe County, Nevada		

Municipal and Justice Court

The Mesquite Municipal Court handles traffic violations and misdemeanor charges within the City and is overseen by a Municipal Court Judge, who is appointed by the City Council. Some of the most common traffic violations include speeding, unlicensed drivers, no proof of insurance and unlawful handicap parking. Some of the more serious misdemeanors handled in the Court are domestic violence and driving under the influence of alcohol/drugs (DUI).

According to Clark County, the Mesquite Township Justice Court has responsibility for felony arraignments and preliminary hearings, small civil cases (up to \$10,000), small claims cases (up to \$5,000) and landlord-tenant disputes. The court also issues search warrants and arrest warrants, holds arraignments and trials for misdemeanor cases and handles felony and gross misdemeanor cases from the initial arrest through the preliminary hearing stage, including bail setting and probable cause determination.

The courthouse is located at 500 Hillside Drive. A small jail facility is also located at the courthouse to handle prisoners. The current Municipal Court Judge is also the Mesquite Township Justice of the Peace, which is an elected post for the community. Logically, the courthouse operates as both the Mesquite Township Justice Court and the Municipal Court.

Over the next five years, the existing courthouse may need to be expanded to accommodate additional staff and record storage needs. Within 20 years, a new facility will likely be needed. As demands on the court system increase with community growth, better coordination with Clark County will be essential to service delivery. The courthouse will also need to update computer hardware and software to improve connections with other court offices.

In the spring of 2008, the Court reported the following statistics concerning violations within the City:

Speeding violations had risen by 50 percent from 2007, and fines for speeding range from \$72 - \$450, depending on the amount of speed over the posted limit.

Violations for unlicensed drivers have slightly increased. NRS 483.230 provides that “a person shall not drive any motor vehicle upon a highway in this State unless such person has a valid license.” A valid license does not include a driver’s license from another country. Persons who reside in Nevada for more than 30 days must obtain a valid Nevada driver’s license. Also, parents must be aware that if your Juvenile operates your vehicle without a valid driver’s license, and you are aware of it, you can be held liable both criminally and civilly. A juvenile that has an instruction permit must have a licensed driver who is at least 21 years of age in the vehicle with them. The fine amount for driving without a valid license in Mesquite is \$680.00.

The number of domestic violence violations has gone down in 2008. The Court handles first and second domestic violence offenses. The penalties on a first offense may be up to a \$1000 fine, six months in jail, 120 hours community service and domestic violence counseling for not less than 1 1/2 hours per week for up to six months at the defendant’s expense. A third offense is considered a Category “C” Felony with the penalties of up to five years in prison with a fine up to \$10,000.

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The number of DUI's within the City has doubled since 2007. The penalties on a first and second DUI may be up to a \$1000 fine, six months in jail, 96 hours community service and six months to one year alcohol/substance abuse counseling. A third offense DUI is a Category "B" Felony, which has a mandatory prison sentence up to six years.

Public Safety Goals, Policies and Actions

The following goals emphasize the desired results that the community wants to achieve over the long term. The policy and action statements identify specific activities and standards to achieve the goals for Public Safety.

Public Safety

Goal: Provide quality Public Safety services to residents, businesses and visitors to the City of Mesquite.

Policy/Actions:

- PS.1.1 Consider joint use of facilities with other City uses when appropriate.**
- PS.1.2 Seek regional cooperative agreements for all public safety issues and emergency response matters.**
- PS.1.3 Increase public safety through community education and crime prevention programs. Continue to offer programs and workshops wherein a safety representative (police, fire, EMT, etc) teaches methods that citizens can use to increase safety in the community.**
 - A. Training programs may include: Heimlich maneuver to stop choking; neighborhood watch; CPR/CERT courses; use of fire extinguishers, and explaining emergency response plans and citizen roles.**
- PS.1.4 Improve stable communication systems.**
 - PS.1.4.1 Maintain and update an effective emergency/disaster plan and warning system.
 - PS.1.4.2 Conduct training exercises for emergency management preparedness.
 - PS.1.4.3 Invite cell phone companies to discuss coverage issue.
 - PS.1.4.4 Implement an expandable 911 System and dedicated surcharge, workable capital improvement plan, and create an oversight committee to monitor the same.
 - PS.1.4.5 Take measures to avoid communications system failure, especially during emergencies.
 - PS.1.4.6 Evaluate options for service providers to develop contingency plans to avoid 'black out' in the future.
- PS.1.5 Ensure that all gated communities provide access to police and other emergency vehicles, through the development review process.**

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- PS.1.6** Periodically evaluate population growth, development characteristics, level of service and number and type of calls within the City to ensure that a high level of service is maintained.
- PS.1.7** Consider benefits and burdens of entering into additional mutual aid agreements with other jurisdictions.
- A.** Potential cooperating agencies and jurisdictions include, but are not limited to, United States Forest Service, Bureau of Land Management, Clark County, NV, Lincoln County, NV, and Mohave County, AZ.
- PS.1.8** Stay informed of possible authorized funding sources to finance necessary improvements to, or expansion of public safety facilities when needed.

Law Enforcement

Goal: Provide quality police protection to residents, businesses and visitors of the City of Mesquite, while safeguarding property.

Policy/Actions:

- PS.2.1** Maintain adequate resources to enable the Police Department to meet response-time standards, keep pace with growth, and provide high levels of service.
- PS.2.1.1 Equip police vehicles with computers and other equipment to allow vehicles to become mobile offices for our police force.
- PS.2.1.2 Research and develop a plan to integrate data and voice communication capabilities in public safety vehicles.
- PS.2.2** Maintain a well-trained, well equipped force prepared to meet changing needs and conditions.
- PS.2.2.1 Continually update and revise public safety techniques.
- PS.2.2.2 Provide for effective training and evaluation of personnel.
- PS.2.2.3 Stay informed of new tools and equipment and evaluate them for effectiveness.
- PS.2.3** Set a standard of zero tolerance for illegal drug activity in the community.
- PS.2.3.1 Explore all relevant measures to address use of deterrents and community action plans for dealing with drug use in the community.
- PS.2.3.2 Reach out to regional partners for cooperative action plans to reduce illegal drug use.
- PS.2.3.3 Research possible programs to address drug use, mental health, homelessness and similar programs that may be available regionally, as a State program or national program.

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PS.2.3.4 Investigate possibility of County and/or State facilities being located near Mesquite to handle problem issues of drug use, homelessness, mental health, domestic violence, etc.

PS.2.4 Periodically evaluate incidences of crime, characteristics of growth and levels of service to determine if amendments are needed to the Public Safety Chapter of the Public Services and Facilities Element.

PS.2.5 Maintain a primary Police Department Facility centralized within the City, creating smaller substations at each end of the City if needed to adapt to future growth.

PS.2.5.1 Locate substations based on policing needs, access, geographic location, zoning, and where possible, central to the command area.

PS.2.5.2 Locate stations in commercial or light industrial areas where possible.

PS.2.5.3 Locate stations adjacent to collector or arterial streets.

PS.2.5.4 Locate stations adjacent to parks for training purposes, where possible.

PS.2.5.5 Avoid locating stations next to natural or man made barriers; such as freeways, extreme topography and railroad tracks; rather these barriers are better suited as command area boundaries.

PS.2.5.6 Consider and mitigate noise, light and police activity impacts on neighboring uses through site design.

PS.2.6 Work with other Federal, State and regional departments, as well as, faith based and not-for-profit organizations, to find funding and solutions to common issues, including homelessness, mental health, drug and alcohol treatment programs and similar issues that face every community.

PS.2.7 Strive to maintain a ratio of at least one sworn police officer per one thousand (1000) residents.

PS.2.8 Increase patrols to park areas, because illegal drug activity often favors late hours and concealed locations. Appropriate lighting with motion sensors may also deter undesirable use of park areas.

Fire Protection

Goal: Provide quality fire protection and emergency services to residents, businesses and visitors to the City of Mesquite.

Policy/Actions:

PS.3.1 Set a baseline standard of four to eight minutes response time to a fire or other emergency.

PS.3.1.1 Response times over 6 minutes may consider other fire protection measures.

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- PS.3.1.2 Response times over 8 minutes shall require other fire protection measures (sprinklers, non-flammable building materials, etc.) be imposed by the Fire Department, as necessary.
- PS.3.2 Maintain a well-trained and well-equipped fire department by continually updating and revising public safety techniques.**
- PS.3.3 Provide for effective training and evaluation of personnel.**
- PS.3.4 Stay apprised of nuclear waste issues associated with Yucca Mountain as they evolve, including being prepared for possible transportation of hazardous materials along Interstate 15. Maintain special equipment for possible spills and keep such equipment in a ready condition at all times.**
- PS.3.5 Provide safe fire-fighting facilities of adequate size for the purpose, and in the best locations to meet standards for response time.**
- PS.3.5.1 Training areas to be located at the best site to allow for training with the least impact to surrounding uses.
- PS.3.5.2 Locate stations along improved major or minor arterials, taking into consideration: street patterns: traffic volumes: topography: access (corner lots or drive through capability): not closer than 200 feet from a signalized intersection to avoid blocking; and response time.
- PS.3.6 Strive to maintain a ratio of at least one firefighter per one thousand (1000) residents.**
- PS.3.7 Maintain and expand water facilities as needed to ensure adequate fire flow to the structures.**
- PS.3.8 Require that all new buildings and development in the City adhere to fire safety codes and be placed only where there is adequate response time, fire flow and/or other measures to be provided to meet the International Fire Code Standards.**
- PS.3.8.1 Ensure that new projects have a well developed roadway system with appropriate width and surfaces on all public or private roads or shared driveways.
- PS.3.8.2 Require fire turn-arounds on any fire access exceeding a length of one hundred fifty (150) feet or more.
- PS.3.8.3 Ensure that at least two access points are provided to any development of more than twenty-four (24) units.
- PS.3.9 Strive to attain and maintain the best ISO fire protection rating possible, as the community grows.**

Municipal and Justice Court

Goal: Support justice and municipal court services at or above current levels by updating facilities and employees, in response to growth within the City of Mesquite and surrounding areas.

Policy/Actions:

PS.4.1 Locate courts and other public buildings in areas where alternative modes of transportation are available (trails, bus stops, etc.)

PS.4.2 Design courts and other public buildings to foster civic pride and a sense of community by incorporating public art, historic monuments and other civic amenities.

PS.4.3 Build and equip court buildings to increase the life cycle and reduce overall maintenance costs, while providing resources for up-to-date technology.

PS.4.3.1 Apply appropriate energy conservation and generation methods in new or remodeled courts and other public buildings.

PS.4.4 Maintain a well-trained and well-equipped courthouse by continually updating and revising techniques that help the court run efficiently.

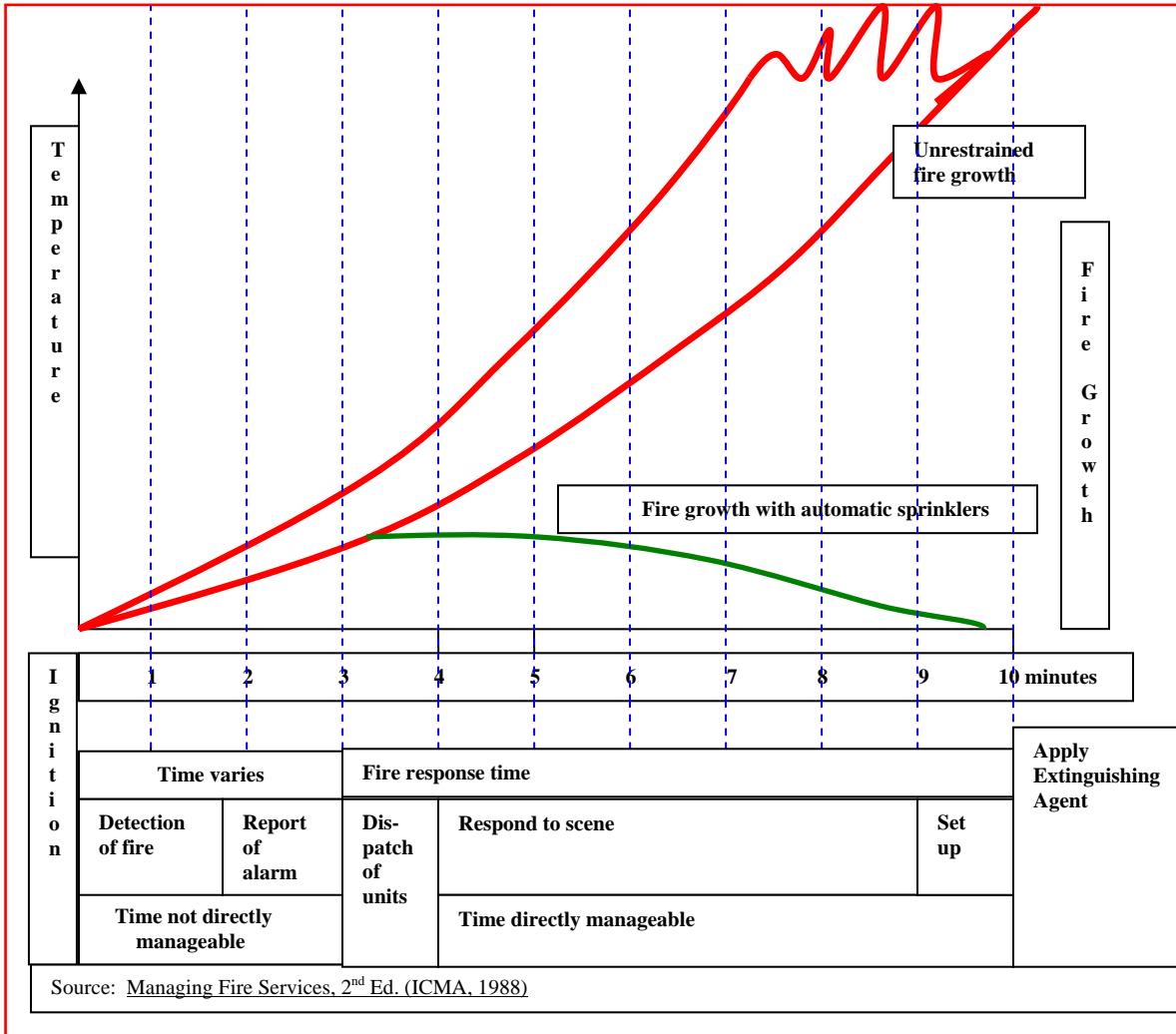
PS.4.5 Provide for effective training and evaluation of court personnel.

PS.4.6 Seek regional cooperative agreements for all court related issues.

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Figure 1-3 Fire Growth versus Reflex Time



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CHAPTER 2 – SOLID WASTE AND RECYCLING

Introduction

Adequate solid waste management is a critical issue for small communities all across the United States. Waste management is a scientific, sophisticated, resource intensive and an on-going process. Innovated methods and efforts to recycle new materials are consistently being analyzed to improve current programs. However, the impact and effect of improperly managed solid waste is far more expensive to the community-at-large and can be extremely dangerous.

The City of Mesquite Master Plan will help guide decisions and address new challenges that stem from a) changing demographics; b) growth in population, employment and waste generation; c) limited capacity to process waste; and d) increases in land filling.



The State of Nevada established a recycling goal in 1991, with Assembly Bill No. 320. The law set the stage for Nevada's entrance into the world of recycling. State law sets a recycling goal of 25 percent within each municipality that has a recycling program. Since Nevada began tracking recycling, the statewide rate has steadily increased to over 21 percent. However, Clark County remains well below the state goal, and many of the constraints to recycle are due to the County's location, as well as, our community's.

Furthermore, new products with components that might be toxic or difficult to recycle are frequently and consistently introduced to the marketplace. In a system driven by the market and location constraints, Mesquite is challenged with fostering generator responsibility, product stewardship, and sound solid waste management and recycling. To address these challenges, the community will need unity, commitment to the environment and innovation towards the realistic goals and policies set forth.

As of September 30, 2008, approximately 2 percent (623 tons) of materials brought to the Mesquite Landfill were recycled. Another 128 tons of materials were collected at the large drop-off recycling bins, including cardboard, newspapers, plastic jugs and aluminum cans. Additionally, several of the large commercial stores like Smith's and Walmart process their own cardboard materials for recycling.

The City of Mesquite Master Plan reflects a systematic effort to move the regional solid waste management system toward a vision of sustainability. To achieve a sustainable environment, the region must manage its waste in a manner that will not compromise future generations' ability to meet their needs.

Public/Private Partnership

Municipal waste is transported to the City of Mesquite Municipal Landfill, which is owned by the City, operated by Virgin Valley Disposal, Inc. (VVD), and located in Lincoln County. VVD provides environmentally safe management of solid waste and carries out the City's recycling program. In addition to landfill management, VVD operates the refuse hauling for the Virgin Valley area, which includes Mesquite, Bunkerville, and parts of Arizona. Non-residents pay a premium to use the landfill.

The existing landfill is projected to last until the year 2023, based on a 10-12 percent annual population growth rate, if the compaction ratios and regulations on daily coverage do not increase. The debt service on the existing landfill is paid through the monthly garbage service fee. The fee includes the cost of the landfill, operator, recycling, and insurance to cover ultimate closure responsibilities. Discussion about a possible regional landfill with Mohave County will likely continue over the next 15 years.

VVD provides commercial and residential bins for solid waste and recycling. Unlike Clark County, the City of Mesquite has automated 90 gallon containers and once a week pickup of solid waste. Resident pay a monthly charge for solid waste pickup, however, recycling services are free. The program supplies individual recycling bins for residential, in addition to the larger drop-off bins located throughout the community. In 2008, approximately 200 homes participated in curbside recycling, with about one-half of participants placing their bins out for pickup twice a month. Many residents alternatively use the larger, recycling drop-off containers located at area grocery stores.

Because recycling depends on the commodities market conditions, VVD must transport materials to Los Angeles, CA or Salt Lake City, UT. If a facility becomes available in Las Vegas, or if "single stream" recycling is instituted, then opportunities for recycled materials would greatly improve. In the meantime, the community will continue the slow process of building participation and support for waste reduction and recycling.

VVD has been critical in the progression of the community's recycling programs and solid waste management. Further fostering the relationships between the City and VVD will help increase the health, safety, and welfare of the community. In order to reach state goals, this partnership will be assisted by the progression towards innovative ways to further manage solid waste and recycling.

Recycling Services

Through the City's partnership with VVD, several services have been established to further the goals and policies of the community. These programs are aimed to provide convenient recycling opportunities for citizens. The following are the current services that are available in Mesquite:

- Residential curbside recycling for newspaper and aluminum/steel cans.
- Drop-off recycling for newspapers, cardboard, plastics, and aluminum/steel cans. Currently, there are three large bins located throughout the City.
- Landfill recycling is extensive and includes several items that may be recycled. In addition to the standard items that can be recycled, the landfill also accepts household hazardous waste, steel, oil, antifreeze and batteries.

Solid Waste and Recycling Goals, Policies and Actions

The following goals emphasize the desired results that the community wants to achieve over the long term. The policy and action statements identify specific activities and standards to achieve the goals for Solid Waste and Recycling.

Goal: Reduce the generation of solid waste and recycle those materials that are used, in order to extend the lifespan of the Municipal Landfill.

Policy/Actions:

SW.1.1 Provide solid waste disposal service and facilities, which are efficient and environmentally sound; provide opportunities for recover and reuse of waste resources; as well as, address the long range needs of the City.

SW.1.2 Manage and operate the solid waste sanitary landfill disposal facility in conformance with County, State and Federal regulations.

SW.1.2.1 Prepare a solid waste plan which addresses operational requirements and procedures, range of services to citizens and other community users and limitations and restrictions on landfill materials.

SW.1.3 Monitor programs in the City, which manage industrial waste and any hazardous waste storage, collection, transportation and disposal practices to ensure public health, safety and welfare.

SW.1.3.1 Coordinate with the County and State agencies regarding activities and procedures of local and area businesses to identify any concerns regarding industrial waste or hazardous waste, which needs to be more closely monitored. Protect the landfill operation and sewer treatment plant from waste products, which cannot be properly treated.

SW.1.3.2 Educate the public about protecting desert environments and the consequences of illegal dumping.

SW.1.4 Continue in the development of a community wide program to reduce the volume of solid waste through recycling.

SW.1.4.1 Enhance public awareness about the importance of recycling and other options for waste treatment including waste-to-energy programs and composting.

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CHAPTER 3 – WASTEWATER

Introduction

Wastewater is an essential function of the City. The management of wastewater treatment is critical to protect the health, safety and welfare of the community, as well as, its natural resources. Sewer services provide notable conveniences associated with modern technology. Consequently, we often dismiss the hazardous conditions that may occur if wastewater is improperly managed.



Mesquite has experienced rapid growth and expansion of the City's boundaries over the last ten (10) years. In 2000, the U.S. Census Bureau reported a population of 9,389 people in Mesquite. The 2008 estimate has grown to 19,754 residents. (Please refer to the Population Element for more details.)

As a result, the existing wastewater system has limited capacity for present and anticipated future demands and is under-capacity for further growth. In response, the City

is being proactive by updating the Facility Planning Study (FPS) and is progressing towards expansion of the current facility.

The ability to manage growth depends on the City's ability to direct growth patterns to match both community vision and appropriate locations. Sewer service providers respond to community vision and goals by placing of existing and planned infrastructure in concert with anticipated needs. Master Plan land use decisions directly influence when and where future wastewater services are located.

At the project level, wastewater service is generally a prerequisite for most forms of development proposed in the community. Therefore, it is essential that utility improvements are coordinated with proposed projects.

The increasing scarcity of water in Southern Nevada, along with rapid population increases, further emphasizes the need for appropriate water management practices. Often, water resource management is given priority before wastewater collection. However, wastewater collection deserves a greater emphasis, due to the important opportunity to reuse or recycle grey water.

Greater efficiencies to minimize waste in water collection and wastewater are becoming increasingly significant, given the depletion of water resources. Reuse systems provide a method to limit water waste and create an opportunity for sustainability in Mesquite. Additionally, the reuse system reduces the impact of sewage on the community's natural resources and the public's health by avoiding effluent discharge into the Virgin River.

The City of Mesquite's Master Plan will help guide decisions and address new challenges that stem from:

- a) changing demographics;
- b) growth in population and increased waste generation;
- c) limited capacity to process waste;
- d) natural resource management; and
- e) increased demand on current facilities.

The following sections address the City's wastewater system, which consists of collection, treatment and a reuse water system.

Wastewater Treatment

The community's wastewater system begins when used water enters the drain system of a building. At a certain point, the drains collect and enter into the sewer system. The sewer system is generally gravity fed and collects into a series of sewer pipes, which transport the wastewater to the treatment facility. The wastewater is treated using various natural and chemical methods and filters to meet state and federal standards. Once treated, the effluent waters are earmarked as "reuse" grey waters and sold for various purposes.

The City of Mesquite was incorporated in 1984, at which time the wastewater treatment consisted of an aerated lagoon, evaporation pond, and effluent disposal on neighboring farm land; Clark County Sanitation District (CCSD) owned and operated this facility. In 1989, the City assumed ownership and operation of the wastewater treatment plant (WWTP), and subsequently upgraded the treatment process to include constructed wetlands and rapid infiltration basins. The upgrades were completed in 1991.

Due to growth, a Facility Planning Study (FPS) was prepared in 1994. The results of the study recommended construction of a mechanical WWTP, which was completed in 1996. The mechanical WWTP consisted of an oxidation ditch process, with an aerated lagoon and the constructed wetlands remaining as a back up. The City also began supplying treated effluent (grey) water to the Oasis Resort for irrigation of their golf course, which allowed the rapid infiltration basin to be subsequently decommissioned. Effluent filters were added in 2002 to ensure zero-buffer, high quality, reuse water for increased distribution to other customers.

With population exceeding the projected rates, the City completed a new FPS in 2006, in order to address many of the impacts associated with growth. In June of 2006, the City had about 12,500 Equivalent Residential Units (ERU). The Public Works Department tracks population growth through ERUs, which is based on the plumbing fixture count for a particular building. The 2006 FPS identified the best options to address the increase in demand on existing wastewater facilities. The Study used the build out number of 36,100 ERUs as the design criteria, which represents an average wastewater flow of 7.2 million gallons per day (mgd). The build out estimate of ERU approximates the mid-range projection of population in 2015. The recommendation was to expand the current facilities to meet the demand. The expansion is anticipated to be complete by the end of 2009.

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Wastewater facilities have seen an increase in capacity usage due to population growth. The existing WWTP is currently operating at approximately 60 percent capacity. When the WWTP reaches 85 percent of its capacity, the City will be required to give the Nevada Division of Environmental Protection (NDEP) a compliance schedule for additional treatment capacity. The City has addressed added capacity with the 2006 FPS recommended expansion, which meets the NDEP's requirements. The latest FPS recommends upgrading the capacity to 5.2 mgd.

The current facility consists of several elements to ensure that the wastewater complies with state and federal regulations. Those elements include headworks, an oxidation ditch, secondary clarifiers, a RAS/WAS pump station, effluent filters, disinfection, effluent pumping, solids dewatering, aerated lagoon and wetlands. Additionally, there is a Westside lift station that conveys all wastewater from the Westside interceptor to the WWTP. Once the wastewater is processed, the discharge consists of solid waste and treated water. The solid waste is transported to the City of Mesquite landfill and the treated reuse water is sold for various purposes.

Reuse System

Treated wastewaters that are reintroduced into the system are considered reuse or effluent waters. Effluent waters which have been treated to the state and federal standards may be sold and reused. The City currently sells, under contract, reuse water to the following golf courses: Oasis, Falcon Ridge, and is under contract with Wolf Creek.

The City's reuse system consists of pipelines, a pump station and storage ponds. Originally, the system consisted of a 12-inch pipeline that conveyed the reuse water to the Oasis Ponds, for use on the Oasis golf course.

In 2004, Phase 1 of the reuse system improvements project was completed and consisted of the Pulsipher Wash Booster Pump Station and various pipelines on the west side of the City. These improvements provided reuse water to the Falcon Ridge Golf Course. Phase 2 consisted of a reuse storage pond and associated detention basin for two washes, Pulsipher and Abbott.

By reusing or recycling the effluent waters, the community utilizes nearly all of the wastewater that it produces. Recycling wastewater offers a method of processing that creates no discharge or impact on the Virgin River. Fortunately, with the many golf courses in Mesquite, we handle considerable demands for reuse and foster a unique opportunity for the City to develop the reuse system. In addition, the efficient usage of water is critical in a desert environment, and demonstrates our conscious stewardship of a valuable, depleting resource.

Wastewater Goals, Policies and Actions

The following goals emphasize the desired results that the community wants to achieve over the long term. The policy and action statements identify specific activities and standards to achieve the goals for Wastewater.

Goal: Provide quality wastewater services that promote the health, safety and welfare of the community as well as the efficient use of resources.

Policy/Actions:

WW.1.1 Promote a safe and effective wastewater treatment system.

WW.1.2 Facilitate orderly community development which can be efficiently and economically served by public agencies responsible for community infrastructure.

WW.1.2.1 Direct new development to land areas, which utilize existing or planned infrastructure and available utility service capacity.

WW.1.2.2 Locate future services in direct response to the Master Plan land use decisions. Prevent changes to the adopted land use pattern or timing of development that are based solely on the provision of wastewater treatment services.

WW.1.2.3 Attribute sewer costs to be paid for by new development. Cost of service shall include the cost of extending service lines or additional facilities to the site.

WW.1.3 Provide for the continuous safe and healthy disposal of wastewater.

WW.1.4 Upgrade public services and utilities in areas which are not adequately served.

WW.1.5 Focus development to areas that are currently served by existing infrastructure, facilities or systems, which can be logically extended by the developer.

WW.1.6 Do not permit development or development densities, which strains the efficient and economical operations of the City's wastewater services.

WW.1.7 Evaluate the value of development and user fees to upgrade and expand the Wastewater Treatment Plant (WWTP) in accordance to the latest Facility Planning Study (FPS).

WW.1.7.1 Expand and upgrade the capacity of the WWTP to 5.2 MGD.

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- WW.1.7.2 Extend interceptors into growth areas and construct a new lift station and force main as required.
- WW.1.7.3 Parallel/upgrade the existing interceptors when the WWTP capacity is reached.
- WW.1.7.4 Plan to construct the new Westside lift station when existing lift station capacity is reached.
- WW.1.7.5 Plan to construct the Western area infrastructure when development occurs.

WW.1.8 Secure an appropriate site for the future western area WWTP site.

WW.1.9 Continue to operate facilities that minimize the impacts on the environment.

- WW.1.9.1 Avoid discharge of effluent water that compromises the ecosystem of the Virgin River.
- WW.1.9.2 Ensure that discharge and disposal of effluent and sludge from sewage treatment facilities do not violate applicable state and federal discharge and water quality standards.
- WW.1.9.3 Support efforts to reuse sludge in the most environmentally advantageous way.

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