

Article 13/ Appendices

Sec. 13.1/ Appendices

The Appendices are an administrative document, provided and intended as a guide for the Administrator and the public in applying the provisions of the Code. The Administrator may modify the provisions of this article from time to time, without notice or public hearing, as necessary to implement the purposes of this UDC.

Sec. 13.2/ Submission Requirements

Submission requirements for the common land use applications described in Article 8, Administration and Procedures are described below.

13.2.1 Development Permits

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include a fully dimensioned plot plan illustrating:

- A. Lot boundaries;
- B. Proposed structure locations;
- C. Utility lines;
- D. Sidewalks;
- E. Drainage features;
- F. Retaining walls; and
- G. Other site improvements.

13.2.2 Building Permits

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include:

- A. Applications for building permits shall be accompanied by plans in duplicate, drawn to scale, showing the actual dimensions and shape of the lot to be built upon; the exact sizes and locations of buildings already existing on the lot, if any; and the location and dimensions of the proposed building or alteration.
- B. Such applications shall include such other information as lawfully may be required by the building official, including existing or proposed building or alteration; existing or proposed uses of the building and land; the number of families, housekeeping units, or rental units the building is designed to accommodate; conditions existing on the lot; and such other matters as may be necessary to determine conformance with, and provide for the enforcement of, this UDC.

13.2.3 Certificates of Occupancy

In addition to the minimum submission requirements of Sec. 8.1.3, when a structure or use is ready for occupancy a written or verbal request for a Certificate of Occupancy shall be made to the building official.

13.2.4 Sign Permits

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include information regarding location, materials, size, color, and illumination.

13.2.5 Site Plan Review

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall be prepared to scale showing all the existing and proposed uses, lot dimensions for a specified property, and more specifically:

- A. Existing and proposed structures in relation to the exterior property lines and proposed streets;

13.2.6 Text Amendment

- B. Setbacks, including corner setbacks and intersection visibility triangles;
- C. Curb lines and sidewalks;
- D. Floodplains, drainageways, and any proposed detention/ retention locations;
- E. Fences and walls;
- F. Ingress and egress points;
- G. Internal circulation plan;
- H. Landscaping and screening;
- I. Loading and accessibility spaces;
- J. Off-street parking layout;
- K. Refuse locations;
- L. Septic locations, if applicable;
- M. Signs, locations and design;
- N. Utility lines and fire hydrants;
- O. Topographic contours and bank stabilization plans;
- P. Locational map relative to off-site streets and properties;
- Q. Site information shall include:
 - 1. Gross area of the site;
 - 2. Percent of area devoted to streets;
 - 3. Percent of area devoted to open space and common open space;
 - 4. Percent of area devoted to each land use type proposed; and
 - 5. Calculations of gross and net densities, including estimated total floor area for any nonresidential uses; and
- R. Any additional information requested on a Community Development Department checklist or that may be necessary as requested by the Director to define clearly the intended use of the property.
- S. Plans for developments that are subject to the requirements of Sec. 5.10, Residential Protection Standards, shall include location and shielding characteristics of each lighting fixture, both proposed and any already existing on the site

13.2.6 Text Amendment

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include the exact language proposed for addition and/or deletion and the rationale for the proposed changes with particular attention to Sec. 8.6.4, Issues for Consideration.

13.2.7 Zoning Map Amendment (Rezoning)

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include the rationale for the proposed changes with particular attention to Sec. 8.7.4, Issues for Consideration.

13.2.8 Summary Plat Review

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include those required by Sec. 8.8.9E.1, Final Plat Submittal. The signatures of all owners of land within the boundary of the Summary Subdivision plat shall be required on the application.



13.2.9 Minor Subdivision Plat Review

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include those required by Sec. 8.8.9E.1, Final Plat Submittal. The signatures of all owners of land within the boundary of the Summary Subdivision plat shall be required on the application.

13.2.10 Vacation Plat Review

Applications for Vacation Plat Review shall include those required by Sec. 8.8.9E.1, Final Plat Submittal. The signatures of all owners of land within the boundary of the Summary Subdivision plat shall be required on the application.

13.2.11 Sketch Plan Review

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall be accompanied by or show the following information:

- A. A conceptual drawing of the lot and street layout drawn at a scale of not less than 1 inch = 200 feet and including the following:
- B. Proposed number of lots and the approximate area of the individual lots;
- C. Topographic contours at 2-foot intervals and all easements or right-of-way necessary for drainage within or without the boundaries of the subdivision;
- D. Significant natural features of the site including streams, lakes, natural drainage lines, floodplains, slopes in excess of 30 percent, vegetation type, and other similar features;
- E. Man-made features such as existing buildings, irrigation ditches, utility lines and easements, bridges, culverts, drainage systems, mines or mine dumps;
- F. General land use divisions into residential types, commercial, industrial, community facilities, and open space including proposed boundaries of public use or common areas; parking area, total number of dwelling units and total square footage of non-residential space;
- G. Type of water supply and sewage treatment system proposed;
- H. Acreage of the entire tract and the area to the nearest one-half acres and percent of total area to be devoted to open space; and
- I. The name and location of a portion of adjoining subdivisions shall be drawn to the same scale and shown in dotted lines adjacent to the tract proposed for subdivisions in sufficient detail to show the actual existing streets and alleys and other features that may influence the layout and development of the proposed subdivisions. Where adjacent land is not subdivided, the name of the owner of the adjacent tract shall be shown

13.2.12 Preliminary Subdivision Plat Review

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall be accompanied by or show the following information:

- A. **Boundary Lines and Bearings**
Boundary lines, bearings, and distances sufficient to locate the exact area proposed for subdivision. At least one subdivision corner shall be referenced to a survey (abstract) corner. The area, in acres, of the subdivision shall also be shown.
- B. **Adjacent Subdivisions**
The name and location of a portion of adjoining subdivisions shall be drawn to the same scale and shown in dotted lines adjacent to the tract proposed for subdivisions in sufficient detail to show actually the existing streets and alleys and other features that may influence the layout and development of the proposed subdivisions. Where adjacent land is not subdivided, the name of the owner of the adjacent tract shall be shown.
- C. **Intersecting Streets**
The angle of intersection of the centerline of all intersecting streets shall be illustrated.
- D. **Proposed Streets, Alleys and Easements**

The names, location and widths of all streets, alleys and easements proposed for the subdivision, and all known rights-of-way and/or easements within or affecting the area to be subdivided.

E. Proposed Blocks, Lots and Parks

The subdivision shall show all proposed streets and alleys, easements, blocks, lots, parks, etc., with principal dimensions.

F. Contours

Topographic contours at 2-foot intervals and all easements or right-of-way necessary for drainage within or without the boundaries of the subdivision.

G. Subdivision Title and Planner

The title under which the proposed subdivision is to be recorded, the name of the owner, and the name of the engineer or land planner who prepared the plat.

H. Dedicated Parks, Playgrounds and Other Public Uses

Sites, if any, to be reserved or dedicated for parks, playgrounds or other public uses.

I. Scale, North Point

Scale, north point, date and other pertinent data. The scale of the Preliminary Plan may be at one-inch equals 200 feet.

J. Name, Address and Telephone Number

Property owner's name, address, and telephone number.

K. Proposed Layout of Utilities

A proposed preliminary layout of sanitary sewer and waterlines to serve the subdivision.

L. Drainage Report

A general drainage report or drainage statement shall accompany the Preliminary Plan. This study or report shall show the acreage draining into the subdivision, points of runoff through and away from the subdivision.

M. Protective Covenants

Draft of any protective covenants where the subdivider proposes to regulate land use or development standards in the subdivision.

N. Proposed Land Uses

A designation of the proposed uses of land within the subdivision and any zoning amendments proposed to be requested.

O. Preliminary Master Plan

If the proposed subdivision is a portion of a tract that is later to be subdivided in its entirety, then a tentative master plan of the entire subdivision shall be submitted with the Preliminary Plan of the portion first to be subdivided. The master subdivision plan shall conform in all respects to the requirements of the Preliminary Plan; except, it may be on a scale of not more than one inch to 100 feet, or other staff-approved scale.

P. Site Plan Requirement (Optional)

1. A site plan, in accordance with the requirements of Sec. 8.5, may be required with submission of a plat application. Where a site plan is required, no final plat shall be submitted prior to approval of such plan.
2. Where a site plan has been approved in accordance with Sec. 8.5, all final plat applications, and subsequent plats shall be consistent with the approved site plan

13.2.13 Final Subdivision Plat Review

In addition to the minimum submission requirements of Sec. 8.1.3, such plats shall show or be accompanied by the following:

A. Control Points; Acres



The primary control points, or descriptions and “ties” to such control points, to which all dimensions, angles, bearings, and similar data on the plat shall be referred shall be placed on the Final Plat. The area of the subdivision, in acres, shall be shown.

B. Boundary Lines and Bearings

Tract boundary line sufficient to locate the exact area proposed for subdivision, right-of-way lines of streets, easements and other rights-of-way, and property lines of residential lots and other sites; with accurate dimensions, bearings or deflection angles, and radii, arcs and central angles of all curves shall be placed on the final plat.

C. Streets

Name and right-of-way width of each street or other right-of-way shall be placed on the final plat.

D. Easements

Location and dimensions of all easements shall be placed on the final plat.

E. Lot and Block Numbers

Number to identify each lot or site and each block, and the dimensions of lots and blocks, shall be placed on the final plat.

F. Purpose of Sites

The purpose for which sites, other than residential lots, are dedicated or reserved shall be indicated on the final plat.

G. Building Lines

Minimum building setback lines when required or approved by the Planning Commission shall be placed on the final plat.

H. Monuments

Location and description of monuments shall be placed on the final plat. Monuments shall include centerline monuments at all curve points and intersections.

I. Adjacent Land

References to recorded subdivision plats or adjoining platted land by record name shall be placed on the Final Plat.

J. Surveyors Certificate and Legal Description

A legal description and surveyor’s certificate shall be placed on the final plat:

K. Approval certification

Certification of approval by the Planning Commission and City Council, as appropriate, shall be placed on the final plat.

L. Title; Scale

A title, scale, and north point shall be placed on the final plat.

M. Street Intersections

The location of the point of intersection and points of tangency of street intersections, and the bearing and distance of each street right-of-way centerline shall be placed on the final plat.

N. Plat Identification

A positive reference and identification of the plat and date of plat shall be placed on the final plat.

O. Dedication Certificate

13.2.14 Special Use Permit

1. The property owner's certificate or deed of dedication shall be placed on the final plat. The dedication deed or certificate of dedication shall be executed by all persons, firms or corporations owning an interest in the property subdivided and platted, and shall be acknowledged in the manner prescribed by the laws for the State of New Mexico for conveyances of real property. In the case of surface lien holders, they may execute a subordination agreement subordinating their liens to all public streets, alleys, parks, school sites and any other public areas shown on the plat of such subdivision as being set aside for public uses and purposes. The dedication deed or certificate of dedication shall, in addition to the above requirements, contain the following:
 2. An accurate description of the tract of land subdivided.
 3. Statement and express representation that the parties joining in such dedication are the sole owners of such tract of land.
 4. An express dedication without reservation to the public for public use; the streets, trails, rights-of-way, school site and any other public areas shown on the attached plat.
 5. Positive reference and identification of the plat of such subdivision, date of plat and surveyor or engineer responsible for the survey.
 6. **Construction plans and cost estimate**

Three sets of plans for required improvements and a set of reproducible transparent sheets, 24" x 36" in size along with all data and calculations related to utilities, drainage or other construction in the subdivision and a cost estimate shall be submitted with the Final Plat. The construction plans shall conform to all requirements of the current Construction Standards. The cost estimate shall bare the signature and seal of the design engineer. Such plans shall also show all existing or proposed surface and subsurface improvements and obstruction.
 7. **Financial Assurances**

Financial assurances for all required improvements in accordance with the requirements of Sec. 6.8.2, Financial Assurances.

13.2.14 Special Use Permit

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include:

- A. Street address and legal description of the property affected;
- B. A site plan drawn to a scale deemed necessary by the Zoning Administrator in accordance with the requirements of 13.2.5, Site Plan Review.
- C. Any and all information, operating data and expert evaluation necessary to clearly explain the location, function and characteristics of any building or use proposed.

13.2.15 Floodplain Development Permit

Application for a Floodplain Development Permit shall be made on forms furnished by the Director and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevation of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities; and the location of the foregoing. Additionally, the following information is required:

- A. Elevation, in relation to mean sea level, of the lowest floor, including basement, of all new and substantially improved structures.
- B. Elevation, in relation to mean sea level, to which any nonresidential structure shall be flood-proofed.
- C. A certificate from a registered professional engineer or surveyor that the nonresidential flood-proofed structure meets the floodproofing criteria of Sec. 5.6.7B.
- D. A description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.
- E. Provide and continue to maintain a record of all information pertaining to this section.



13.2.16 Temporary Use Permits

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include sufficient information to demonstrate compliance with all conditions for the proposed Temporary Use as set forth in Sec. 2.6.

13.2.17 Variances

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include sufficient information to demonstrate compliance with all criteria for the proposed variance as set forth in Sec. 8.12.4, Variance Criteria.

13.2.18 Administrative Adjustments

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include sufficient information to demonstrate consistency with Sec. 8.13.1, Purposes, and compliance with the criteria as set forth in Sec. 8.13.4, Administrative Adjustment Criteria.

13.2.19 Written Interpretations

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall clearly identify the text to be interpreted, the applicant's view of said text, and the circumstances and the subject property that prompt the request.

13.2.20 Appeals of Administrative Decisions

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include the basis or rationale for such appeal.

13.2.21 Appeals of ARB Decisions

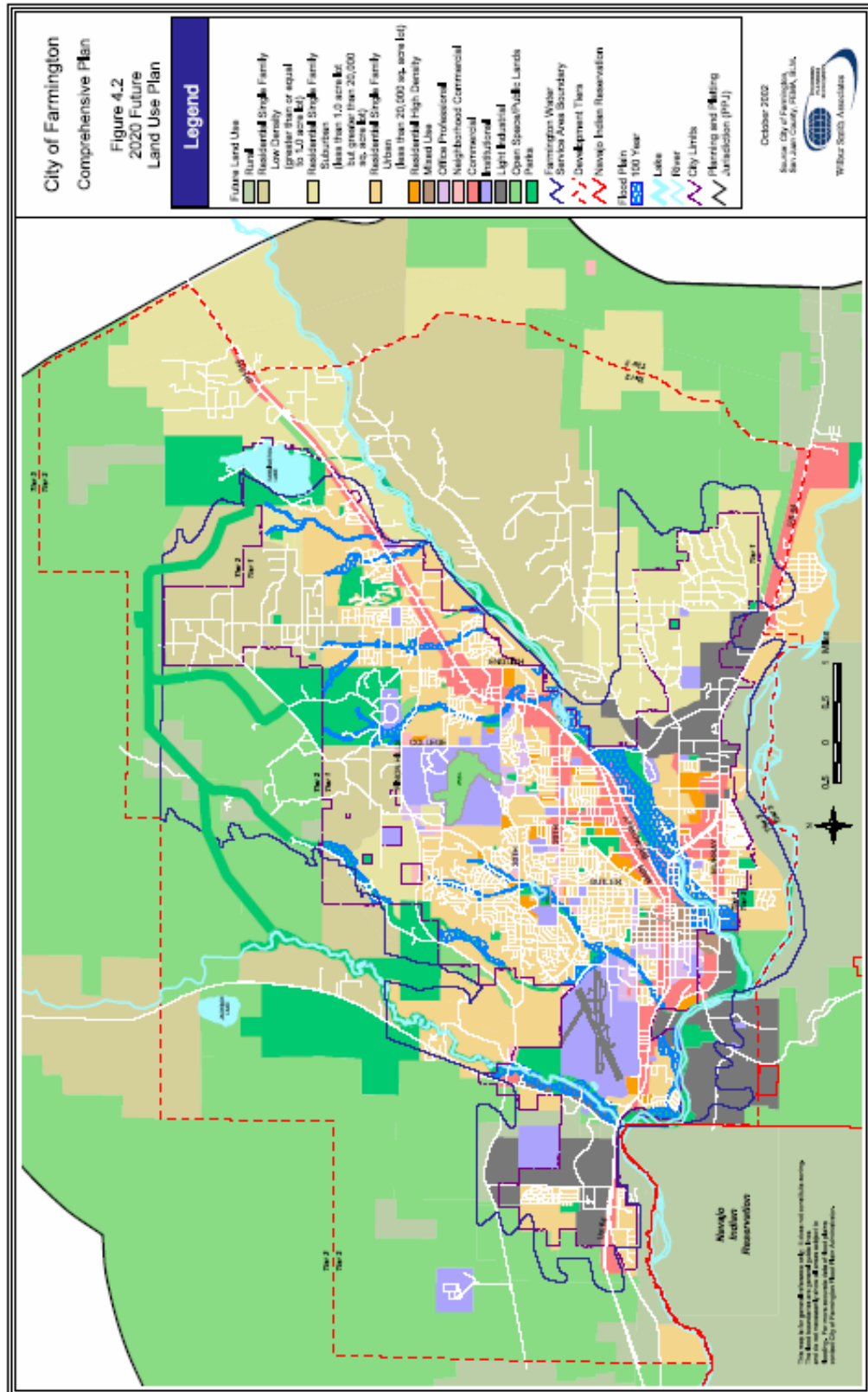
In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include the basis or rationale for such appeal.

13.2.22 Appeals of Council Decisions

In addition to the minimum submission requirements of Sec. 8.1.3, such applications shall include the basis or rationale for such appeal.

Sec. 13.3/ Comprehensive Plan -- Future Land Use Plan

The Future Land Use Plan at right is taken from the Comprehensive Plan. For more information (and a larger image), see Chapter 4, Land Use, in the Plan.



Sec. 13.4/ Traffic Impact Analysis Report

TRAFFIC IMPACT ANALYSIS (TIA) CITY OF FARMINGTON PROPOSED REQUIREMENTS (Jan.2006)

13.4.1 Traffic Impact Analysis (TIA):

Traffic impacts study (TIA) that determines the potential traffic impacts of a proposed traffic generator. A complete analysis will include an estimation of future traffic with and without the proposed generator, analysis of the traffic impacts, and recommended roadway improvements that may be necessary to accommodate the expected traffic.

A. Purpose

This standard provides uniform guidelines for conducting traffic impact analyses for proposed development with access to an arterial or a collector street.

B. Applicability

The Community Development Director or designee shall determine applicability based on the following factors and considerations:

1.A Traffic Impact Analysis (TIA) shall be prepared for proposed developments, or additions to existing developments, that generate more than 100 vehicle trips during the morning or afternoon peak hour period. The City shall make the final determination regarding TIA requirements and applicable category, and the impact analysis shall be in a format as described in the Appendix. The criteria for each TIA category are as follows:

a. Category 1

- (1) Developments that generate between 100 to 500 trips, during the morning or afternoon peak hour; or
- (2) Existing traffic situations or concerns in the local area such as, but not limited to, an offset intersection or a high number of traffic accidents; or
- (3) Sensitivity of the adjacent neighborhoods or other areas where the public may perceive an adverse impact; or
- (4) Proximity of site driveways to other driveways or intersection; or
- (5) Specific problems or concerns that may be aggravated by the proposed development.

b. Category 2

Developments that generate 501 to 1,000 total trips during the morning or afternoon peak hour.

c. Category 3

Developments that generate more than 1,000 trips during the morning or afternoon peak hour.

2.In addition to the above requirement thresholds, the Community Development Department may require a TIA when changes in land use, traffic, and roadways occur, such as:

- a. Proposed property rezoning; or

- b. When the original TIA is more than 3 years old; or
- c. Where the projected traffic volumes increase by more than 10 percent.

13.4.2 Engineering Qualifications

The TIA shall be prepared under the direction of a Professional Engineer (Civil) licensed to practice in the State of New Mexico with specific experience in traffic engineering and the preparation of TIA reports.

A. TIA Process

1. Initial Evaluation

Prior to beginning the TIA, the applicant shall contact the Traffic Engineering Division to discuss the scope of work, methodology, and level of detail required for the specific project. Following the initial meeting, the applicant shall provide an estimate of the number of vehicular trips generated by the proposed development. The estimate must be prepared using a City-approved methodology and shall be submitted to the City for review and approval. The developer may request that the City assist in estimating the number of trips.

2. Draft Outline

Following the initial evaluation, the City shall make a final determination regarding the need for a TIA and identify the applicable category. If a TIA is required, the applicant shall prepare a draft table of contents and project outline for submittal to the City. The outline will identify the proposed area of influence for the study, all intersection and roadways to be analyzed, and level of detail and methodology for gathering traffic volume information and preparation of level of service analyses. The draft shall also include a proposed trip distribution for site traffic. Following City review and approval the final TIA may be prepared.

3. Scope of Work

The TIA Scope of Work agreement between engineer and developer shall conform to the pre-approved draft table of contents and outline. The findings, conclusions and recommendations contained within the TIA document shall be prepared in accordance with appropriate professional Civil Engineering practices. (See Appendix for Traffic Impact Analysis format.)

B. Analytical Methodology

The procedures outlined in this policy provide the minimum requirements for a TIA, although the City reserves the right to require additional information. The TIA approach and methods shall be guided by the following criteria:

1. Study Area and Timeframe

The minimum study area and timeframe for projected analysis shall be determined by project type and size, in accordance with the criteria previously outlined. The study area or projected timeframe may be amended by the City as necessary.

a. Category 1

The minimum study area shall include all site access drives and adjacent signalized intersection and/or major unsignalized street intersection. The study's projected timeframe shall be one year from receipt of Certificate of Occupancy.



b. **Category 2**

The minimum study area shall include all site access drives and all signalized intersection and/or major unsignalized street intersection within 1/2 mile of the development. The study's projected timeframe shall include the 1st year following receipt of Certificate of Occupancy and the 5 succeeding years.

c. **Category 3**

The minimum study area shall include all site access drives and all signalized intersection and/or major unsignalized street intersection within 1/2 mile of the development. The study's projected timeframe shall include the opening year of the development, 5 years after opening and 10 years after opening.

2. Peak Hour Analysis

Both the morning (7AM to 9AM) and evening (4 PM to 6 PM) weekday peak hours shall be analyzed, unless the proposed project is expected to generate no trips, or a very low number of trips, during either peak hours. When a project's traffic generation patterns differ significantly from established patterns or when the peak traffic hours occur during a different time, all additional peak hours shall be analyzed.

3. Seasonal Adjustments

When directed by City, in cases where seasonal traffic data is available, the traffic volumes for the analysis hours shall be adjusted for the peak season.

4. Data Collection Requirements

All data shall be collected in accordance with procedures outlined in the latest edition of the Institute of Transportation Engineers (ITE) Manual of Traffic Engineering Studies, or as otherwise directed by City. At a minimum, the following data shall be collected:

a. **Turning Movement Counts**

Manual turning movement counts shall be obtained for all existing cross-street intersection to be analyzed during the morning and afternoon peak periods. Turning movement counts may be required during other periods as directed by the City.

b. **Daily Traffic Volumes**

The current and projected daily traffic volumes shall be presented in the report. If available, daily count data from the City may be extrapolated a maximum of 3 years with the concurrence of the City. Where daily count data is not available, mechanical counts will be required at locations agreed upon by the City.

c. **Collision Data**

Collision data shall be obtained for the most current 3-year period available.

2. Roadway and Intersection

Geometrics Roadway geometric information shall be obtained. This includes, but is not limited to, roadway width, number of lanes, turning lanes, vertical grade, location of nearby driveways, and lane configuration at intersection.

3. Traffic Control Devices

The location and type of traffic controls shall be identified.

C. Trip Generation

1. The latest edition of the ITE Trip Generation Manual shall be used to identify trip generation rates. In cases where Trip Generation does not include trip rates for a specific land use category, includes only limited data; or, where local trip rates have been shown to differ from the ITE rates, other rates may be used with the approval of the City.
2. A trip generation table shall be prepared showing proposed land use, trip rates, and vehicle trips for daily and peak hour periods and appropriate traffic volume adjustments, if applicable. Site traffic generation shall be shown for daily, morning and evening peak hour periods. Adjustments made for “passer-by” and “mixed-use” traffic volumes shall follow the methodology outlined in the latest edition of the ITE Trip Generation Handbook. The “passer-by” traffic volume discount for commercial centers shall not exceed 25 percent unless approved by the City.

D. Trip Distribution and Assignment

1. Projected trip volume shall be distributed and added to the projected non-site traffic on the roadways and intersection(s) in the study area. The specific assumptions and data sources used in deriving trip distribution and assignment shall be documented in the report.
2. Future traffic volumes shall be estimated using information from transportation models, or applying an annual growth rate to the base-line traffic volumes. The future traffic volumes shall correlate to the project’s specific timeframe. If the annual growth rate method is used, the City must give prior approval to the percentage used.
3. In addition, any nearby proposed or approved development projects shall be taken into consideration when forecasting future traffic volumes. The increase in traffic from proposed and approved developments, the application of an annual growth rate, or a combination of an annual growth rate and proposed and approved developments, shall be used to forecast the future traffic volumes.
4. The site-generated traffic shall be assigned to the street network in the study area based on the approved trip distribution percentages. The site traffic shall be combined with the forecast traffic volumes to show the total traffic conditions estimated at development completion. The total daily and peak period turning movement volumes for each traffic study intersection is required. In addition, the base-line volume with site-generated traffic added to the street network must also be shown. This amount will represent site-specific traffic impacts on existing conditions

E. Internal Circulation

1. Parking lot/on-site traffic circulation shall be in conformance with standards of practice as set forth by "Transportation and Land Development" (ITE, current edition).

13.4.3 Project Analyses

A. Capacity Analysis

1. Level of service (LOS) shall be computed for signalized and unsignalized intersection in accordance with procedures contained in the latest edition of the Highway Capacity Manual.



2. The intersection LOS shall be calculated for each of the following conditions (if applicable):
 - a. Existing peak hour traffic volumes (“figure” required);
 - b. Existing peak hour traffic volumes including site-generated traffic (“figure” required);
 - c. Future traffic volumes not including site traffic (“figure” required);
 - d. Future traffic volumes including site traffic (“figure” required); and
 - e. LOS results for each traffic volume scenario (“table” required).
3. The LOS table shall include LOS results for all peak periods analyzed. The table shall show LOS conditions with corresponding vehicle delays for signalized intersection, and LOS conditions for the critical movements at unsignalized intersection. For signalized intersection, the LOS conditions and average vehicle delay shall be provided for each approach and the intersection as a whole.
4. Unless otherwise directed by the City, the capacity analysis for existing signalized intersection shall be conducted using the Highway Capacity Manual Planning Method for each study horizon year.

B. Operational Analysis Method

When directed by City, the capacity analysis shall be conducted using the Operational Analysis Method. If an operational capacity analysis method is used for existing signalized intersection, it shall include existing phasing, timing, splits, and cycle lengths as observed and measured during the peak traffic periods. For unsignalized intersection, the Highway Capacity Manual methodology shall be used.

C. Phased Projects

Where new development is to be completed in phases, the TIA shall, if directed by City, include an LOS analysis for each separate development phase in addition to the TIA for the overall project timeframe. The incremental increases in site traffic from each phase shall be included in the LOS analysis for each preceding year of development completion. A “figure” will be required for each horizon year of phased development.

D. Traffic Signal Analysis

Traffic signal needs studies (warrant analysis) shall be conducted for all proposed signals for the base year. If the warrants are not met for the base year, they shall be evaluated for each year in the 5-year horizon. Traffic signal needs studies shall be conducted by a method pre-approved by the City.

E. Collision Analysis

An analysis of 3-year collision data shall be conducted to determine if the level of safety will deteriorate due to the addition of site traffic.

F. Vehicle Speed Parameters

Vehicle speed is used to estimate safe stopping and cross corner sight distances. The posted speed limit is representative of the 85th percentile speed and may be used to calculate safe stopping and cross corner sight distances, unless directed otherwise by the City.

G. Pedestrian and Biking Analysis

The pedestrian and bike facilities, or lack thereof, within the study area shall be analyzed, with and without the proposed development, to identify any projected impacts on their use and safety. Pedestrian and bike use and safety within the study area shall not be unreasonably reduced, with the overall objective being to enhance rather than reduce biking and walking activities.

H. Roadway Improvement Analysis

The roadways and intersections within the study area shall be analyzed, with and without the proposed development, to identify any projected impacts on both level of service and safety. Where the highway will operate at Level of Service "C" or better without the development, the traffic impact of the development on the roadways and intersection within the study area shall be mitigated to Level of Service "C". Mitigation to Level of Service "D" may be acceptable with City approval. Particular attention shall be directed to potential need for separate right turn or left turn lanes. A section of the TIA shall provide discussion regarding this requirement.

I. On-Site Circulation Analysis

The TIA shall include an analysis of the adequacy of the on-site circulation plan.

13.4.4 Report Format

Specific requirements for TIA formats are as follows. Deviations from format requirements must receive prior approval of the City.

A. Introduction and summary

1. Purpose of report and study objectives
2. Executive summary
 - a. Site Location and Study Area
 - b. Development Description
 - c. Principal Findings
 - d. Conclusions
 - e. Recommendations

B. Proposed development

1. Site Location (vicinity map)
2. Land Use and Intensity
3. Proposed Development Details
4. Site Plan (readable version must be provided)
5. Access Geometrics
6. Development Phasing and Timing

C. Study area conditions

1. **Study Area**
 - a. Area of Significant Traffic Impact
 - b. Influence Area



2. Land Use
 3. Existing Land Use
 4. Anticipated Future Development
 5. Site Accessibility
 6. Existing and Future Area Roadway System
- D. Analysis of existing conditions**
1. Physical Characteristics
 2. Roadway Characteristics
 3. Traffic Control Devices
 4. Pedestrian/Bicycle Facilities
 5. Traffic Volumes
 - a. Peak Periods (2 hour minimum, and others as required)
 - b. Daily,
 - c. Morning, and
 - d. Afternoon
 - e. Level of Service Morning Peak Hour, Afternoon Peak Hour (and others as required)
 - f. Safety
 - g. Data Sources
- E. Projected traffic**
1. Site traffic forecasts (each horizon year) Trip Generation Mode Split Pass-by Traffic (if applicable) Trip Distribution Trip Assignment
 2. Non-Site Traffic Forecasting (each horizon year)
 3. Projections of Non-site Traffic (Methodology for the projections shall receive prior City approval.)
 4. Total Traffic (each horizon year)
- F. Traffic and improvement analysis**
1. Site Access
 2. Level of Service Analysis Without Project (for each horizon year including any programmed improvements) With Project (for each horizon year, including any programmed improvements)
 3. Roadway Improvements Programmed to Accommodate Non-site Traffic Additional Alternative Improvements to Accommodate Site Traffic
 4. Traffic Safety Sight Distance Acceleration/Deceleration Lanes, Left-Turn Lanes Adequacy of Location and Design of Driveway Access Pedestrian Considerations Speed Considerations Traffic Control Needs Traffic Signal Needs (base plus each year in 5-year horizon)
- G. Conclusions**
- H. Recommendations Site Access Roadway Improvements Phasing Other**
- I. Appendices Traffic Volume Counts Capacity Analyses Worksheets Traffic Signal Needs Studies Collision Data and Summaries**
- J. Figures and tables**

13.5.1 Landscape Guidelines for Farmington

K. Site Location Site Plan Existing Transportation Existing Peak Hour Turning Volumes Collision Diagram(s) Estimated Site Traffic Generation Directional Distribution of Site Traffic Site Traffic Non-Site Traffic Total Future Traffic Projected Levels of Service Recommended Improvements (For Sec.1, many of the items may be documented within the text. For other categories, the items shall be included in figures and/or tables.)

Sec. 13.5/ Landscape Guidelines for Farmington

13.5.1 Landscape Guidelines for Farmington

The natural landscape of Farmington is a high desert environment. There are two dominant native plant communities in Farmington, Piñon Juniper Woodland and Riparian Corridors. The Piñon Juniper Woodland occurs in the higher elevations, towards the northern part of town, and the Riparian Corridor occurs along the river corridor of the valley floor.

The limited amount of annual rainfall (8" – 10") received in Farmington means that most plants require some level of supplemental water. Landscapers are encouraged to use plants that are adapted to our environment (indigenous or native to similar climates of the world) and require low amounts of water. Given the characteristics of Farmington's natural environment, xeriscaping, or the use of water-efficient landscaping, is the most appropriate form of landscape design in a low-precipitation, high desert environment.

A xeriscape is not a "zero-scape." Xeriscaping emphasizes the use of plants adapted to dry conditions and is neither a barren nor a maintenance free landscape. Plants utilized in xeriscaping tend to be xeric, meaning that they require little supplemental water. (Xeros is Greek for dry.)

Xeriscaping utilizes several design principles to ensure that the created landscapes are suitable for the local climate and are water efficient. The principles applied in xeriscaping are good horticultural practices for our desert environment. The seven xeriscape principles are:

1. Planning and design
2. Efficient irrigation systems
3. Use of mulch
4. Soil preparation
5. Appropriate turf
6. Water-efficient plant material
7. Appropriate maintenance

13.5.2 1. Planning and Design

A good xeriscape landscape begins with good design and initial planning. Before you put the shovel to the ground, it is important to have a landscape plan. When creating a landscape plan, consider the physical characteristics of the site

1. What kind of soil is found on site? Is it rocky, sandy, or made up of clays?
2. What is the topography and how does the area drain? Is it flat or sloped? Are there natural drainages?
3. Is there any existing vegetation or is it a vacant lot?
4. What functions is the landscaping to serve? Will it be used as a play area, provide shade, or screen views?



Once the site and function of the landscaping is considered, select the right plant for the right place. When choosing plants, consider:

1. Sun versus shade requirements
2. Height and spread of plant materials at maturity
3. The plant's function in the landscape, i.e. will it screen views or shade areas.

Also consider whether the desired plant has strong allergens or is an invasive species. Plants that have strong allergens should be used with caution. Several species of juniper are considered highly allergenic. **It is against the Farmington City Code (FCC) to plant the cotton bearing Cottonwood (FCC §12-6-3).** Seedless varieties are acceptable to plant. Russian olive and Salt Cedar are invasive species that have overpopulated areas along Farmington's river corridor. Invasive species out-compete native plant species, alter habitat, and affect ecosystem functions. Therefore, invasive species, such as Russian Olive and Salt Cedar, are discouraged as landscape plants.

Plants with thorns or stickers, such as pyracantha, are effective barrier plants but should not be used in areas of high traffic

Do not plant trees under power lines, where branches will conflict with the lines.
Before you dig, verify all underground utility locations.

Group plants with similar water needs by dividing the landscape ***into zones of low, medium and high water uses*** (water zoning).

A. High Water Use Zone

1. Typically these plants are the most colorful and have the greatest visual impact.
2. Limit plantings to areas near the building by the entry or around a patio.
3. Work's well on the northern and eastern sides of buildings where soils are moister or at runoff points, such as down spouts.

B. Medium Water Use Zone

1. The transition zone or moderate water use areas should be planted farther away from the house or building.
2. Require less frequent watering, i.e. once a week or less, and usually less maintenance.

C. Low Water Use Zone

1. Typically located the farthest away from the building.
2. Use plants that may require little or no supplemental water.
3. Select natives and other plants requiring little or no water for the low water use zones.

To help save on water costs, water can be harvested from roof down spouts into barrels and/or directed through swales or drainage areas within the landscape.

13.5.3 2. Irrigation

13.5.3 2. Irrigation

Proper and efficient irrigation saves water. Irrigation is required, even for drought tolerant plants, during the establishment period and periods of severe drought. Points to remember when designing an irrigation system are:

1. Separate water use zones for high, moderate and low water use plants.
2. Design irrigation systems with separate valves for each water zone.
3. Choose the appropriate type of sprinkler heads. Use spray heads for turf and bubblers, drip emitters, or micro-spray heads in shrub beds depending on the density of planting.
4. Irrigation systems may be manual or automatic. An automatic irrigation system saves time and provides better control of watering times.

Maintaining the irrigation system is also important. Repair all breaks in lines and clogged heads. Re-program the irrigation controller as the seasons change. Adjust spray heads to avoid over-spraying onto walks and walls. Do not allow irrigation water to run off the landscaped area. (For more detailed information on how to set up an irrigation system, please see the Irrigation Guidelines section of the Appendix.)

13.5.4 3. Mulching

Mulch is a protective layer applied over soils and may be composed of organic or inorganic material. Mulch provides a cover over the soil, reduces evaporation, helps maintain constant soil temperatures, controls erosion, and limits weeds which compete for water and nutrients.

A. **Organic mulches** include bark, wood chips, cotton burr hulls, other nut shell byproducts, compost, grass clippings, and even newspaper. Organic mulches provide more than just the benefits mentioned above. They also improve soil conditions as they decompose, help keep soil structure loose, improve water infiltration, retain water, and allow for better root growth.

B. **Inorganic mulches** include rock cobble, gravel, or crusher fines and synthetics such as rubber pellets. Rock mulches radiate heat and are better suited for truly xeric plants. Placing rock mulches work best in locations removed from a building. Ultimately, plants in rock mulches will shade the ground and cool the environment.

When using mulches:

1. Apply a 3" to 4" thick layer of mulch to effectively reduce weeds and retain moisture.
2. Avoid the use of organic mulch on slopes or high wind areas, as they will wash or blow away.
3. Do not apply organic mulches in direct contact with plants. Leave at least 2" of unmulched area around the plant stem to prevent disease and pests.

Plastic weed barriers can be used in a limited fashion where the soil must be kept dry, such as at the foundation of a house. However, landscape fabric is preferred, as it is permeable and allows air and water to pass to the plant roots.

13.5.5 4. Soil Preparation

A critical aspect of any gardening function is soil preparation. ***It is important to test the soil first to determine what plants are adaptable to your yard and what amendments are required to improve the soil.*** Farmington soils are virtually devoid of organic matter and are typically fast-draining, sandy soils.

The size of the planting hole and the backfill used is an important part in amending soils. ***All planting holes should be at least twice the width of the container; however three times the width is preferred.*** Digging wide planting holes loosens the soil, which allows air, water, and nutrients to reach the roots.



The **backfill around the plant should be amended with composted materials such as peat moss, composted wood shavings or yard waste.** Adding compost improves the moisture holding capacity in sandy soils and improves the porosity in clay soils. Over time, the compost breaks down and forms humus that improves the structure of the soil. Be sure to thoroughly mix the native soil and compost before adding to the planting hole. **The amended soil mixture should include no more than 50% compost.** Plants requiring high to moderate water will require the most compost materials. Native plants require less composted material in the backfill (15-30% by volume).

Turf areas should be rototilled to a depth of 4-6" and amended with 2 cubic yards of compost per 1000 square feet. Limit rototilling to areas being planted as disturbed areas make it easier for weed seeds to germinate.

13.5.6 5. Appropriate Use of Turf

While it requires more water and maintenance, turf has a place in xeriscape. Turf provides a playing surface for kids and pets, is an important cooling element, and reduces erosion and sun glare. However, turf should only be planted in an appropriate amount to meet specific needs. If turf is not serving a functional purpose, there are other low spreading ground covers can be used to provide a carpet of green that require less water and maintenance.

Proper selection turf used is important. If you need a turf for heavy use and a long growing season, a fescue or fescue-bluegrass mix is preferred. If it is a lighter use turf (mostly in the summer months) a warm season grass such as buffalograss, blue grama, or Bermuda grass is suggested.

13.5.7 6. Low Water Use Plants

The principal concept behind xeriscaping is the use of low water use plants. **There is a misconception that drought tolerant plants are unattractive. The truth is that there are many attractive plants with a variety of flower and foliage colors, fruit, fall color, fragrance, with different sizes, shapes and uses.** Low water use plants are becoming more available in nurseries. **A list of perennials, vines, shrubs, and trees are included in these guidelines.** Please visit your local nursery for other drought tolerant plants that are suitable for the Farmington area.

13.5.8 7. Maintenance

Maintenance in the garden is just good horticultural practice, with design dictating the level of maintenance. Although most xeriscapes require less maintenance, a xeriscape garden can be as labor intensive as you want it to be. The design dictates the level of maintenance. There is no such thing as a maintenance free garden. Plants will always require water and fertilizer, pest and weed control, and pruning or deadheading.

13.5.8 7. Maintenance

Scientific Name	Common Name	Approx. Height	Approx. Spread	Deciduous/Evergreens	Light Exposure	Water Use	Comments
DESERT ACCENTS							
<i>Dasylirion wheeleri</i>	Blue Sotol/Desert Spoon	5'	5'	Evergreen	Sun/Shade	Low+	Spiked Leaves - Use with Caution
<i>Hesperaloe parviflora</i>	Red/Yellow-flowering Yucca	3'	4'	Evergreen	Sun/Shade	Low+	Spiked Leaves - Use with Caution
<i>Nolina microcarpa</i>	Beargrass	5'	6'	Evergreen	Sun/Shade	Low+	Spiked Leaves - Use with Caution
<i>Nolina texana</i>	Beargrass	4'	5'	Evergreen	Sun/Shade	Low+	Spiked Leaves - Use with Caution
<i>Yucca baccata</i>	Datil/Banana Yucca	4'	5'	Evergreen	Full Sun	Low	Spiked Leaves - Use with Caution
<i>Yucca elata</i>	Soaptree Yucca	20'	5'	Evergreen	Full Sun	Low	Spiked Leaves - Use with Caution
<i>Yucca glauca</i>	Soapweed	3'	3'	Evergreen	Full Sun	Low	Spiked Leaves - Use with Caution
FLOWERING PLANTS							
<i>Achillea millefolium</i>	Yarrow	2'	2'	Evergreen	Sun/Shade	Medium	
<i>Agastache rupestris</i>	Sunset Hyssop	2'	2'	Deciduous	Full Sun	Medium	
<i>Artemisia frigida</i>	Fringed Sage	18"	18"	Deciduous	Full Sun	Low	
<i>Centranthus ruber</i>	Red Valerian	3'	3'	Deciduous	Sun/Shade	Medium	
<i>Ceratostigma plumbaginoides</i>	Dwarf Plumbago	1'	2'	Deciduous	Shade/Sun	Medium	
<i>Coreopsis lanceolata</i>	Coreopsis	3'	2'	Deciduous	Full Sun	Medium	
<i>Delosperma cooperi</i>	Purple Iceplant	6"	2'	Deciduous	Full Sun	Low+	
<i>Delosperma nubigenum</i>	Yellow Iceplant	3"	2'	Evergreen	Full Sun	Low+	
<i>Echinacea purpurea</i>	Purple Coneflower	3'	2'	Deciduous	Full Sun	Medium	
<i>Eriogonum umbellatum</i>	Sulphur Flower	1'	18"	Evergreen	Full Sun	Low	
<i>Erysimum linifolium</i>	Wallflower Bowles' Mauve	2'	3'	Evergreen	Full Sun	Medium	
<i>Gaillardia x grandiflora</i>	Gaillardia	3'	3'	Deciduous	Full Sun	Medium	
<i>Gaura lindheimeri</i>	Gaura	4'	4'	Deciduous	Full Sun	Medium	
<i>Kniphofia uvaria</i>	Red Hot Poker	5'	3'	Deciduous	Full Sun	Low+	
<i>Linum perenne</i>	Blue Flax	18"	18"	Evergreen	Full Sun	Medium	
<i>Mirabilis multiflora</i>	Giant Four O'Clock	2'	5'	Deciduous	Full Sun	Low+	
<i>Nepeta mussini syn faassenii</i>	Catmint	8"	2'	Deciduous	Sun/Shade	Medium	
<i>Oenothera berlandieri</i>	Mexican Evening Primrose	1'	5'	Semi-Ever	Full Sun	Low+	
<i>Oenothera missouriensis</i>	Yellow Evening Primrose	1'	1'	Evergreen	Full Sun	Medium	
<i>Penstemon barbatus</i>	Scarlet Bugler Penstemon	3'	3'	Deciduous	Full Sun	Medium	
<i>Penstemon cardinalis</i>	Cardinal Penstemon	30"	30"	Evergreen	Full Sun	Low+	
<i>Penstemon pinifolius</i>	Pineleaf Penstemon	1'	20"	Evergreen	Full Sun	Low+	
<i>Penstemon strictus</i>	Rocky Mtn Penstemon	2'	2'	Evergreen	Full Sun	Medium	
<i>Perovskia atriplicifolia</i>	Russian Sage	5'	5'	Deciduous	Full Sun	Medium	
<i>Phlox subulata</i>	Creeping Phlox	6"	6"	Deciduous	Full Sun	Medium	
<i>Salvia officinalis</i>	Garden Sage	2'	2'	Evergreen	Full Sun	Medium	
<i>Sedum telephium</i>	Autumn Joy Sedum	2'	2'	Evergreen	Sun/Shade	Low+	
<i>Stachys byzantina</i>	Woolly Lamb's Ear	1'	18"	Deciduous	Sun/Shade	Medium	
<i>Zauschneria californica</i>	Hummingbird Plant	2'	3'	Deciduous	Full Sun	Medium	
GRASSES, ORNAMENTAL							
<i>Cortaderia selloana</i>	Pampas Grass	12'	9'	Deciduous	Full Sun	Medium+	



Caryopteris x clandonensis	Blue Mist Spirea	3'	3'	Deciduous	Full Sun	Medium	
Cercocarpus montanus	True Mountain Mahogany	10'	6'	Deciduous	Full Sun	Low	
Cotoneaster apiculatus	Cranberry Cotoneaster	4'	8'	Deciduous	Sun/Shade	Medium	
Cotoneaster horizontalis	Rock Cotoneaster	2'	9'	Deciduous	Full Sun	Medium	
Dalea formosa	Feather Dalea	3'	3'	Deciduous	Full Sun	Low	
Hibiscus syriacus	Rose of Sharon	10'	10'	Deciduous	Full Sun	Medium	
Lagerstroemia indica x fauriei	Crape Myrtle, "Pecos, Zuni"	15'	15'	Deciduous	Full Sun	Medium+	
Potentilla fruticosa	Shrubby Cinquefoil	3'	3'	Deciduous	Sun/Shade	Medium+	
Rhus trilobata	Three-leaf Sumac	6'	6'	Deciduous	Full Sun	Low+	
Salvia greggii	Autumn or Cherry Sage	2'	3'	Deciduous	Sun/Shade	Medium	
Yringa vulgaris	Common Lilac	15'	15'	Deciduous	Full Sun	Medium+	
SHRUBS, EVERGREEN							
Arctostaphylos pungens	Pointleaf Manzanita	3'	6'	Evergreen	Sun/Shade	Medium	
Artemisia tridentata	Big Sage	4'	4'	Evergreen	Sun/Shade	Low+	
Atriplex canescens	Fourwing Saltbush	6'	8'	Evergreen	Full Sun	Low	
Cercocarpus ledifolius	Curl-leaf Mtn. Mahogany	15'	15'	Evergreen	Full Sun	Low+	
Cowania mexicana	Cliffrose	8'	6'	Evergreen	Full Sun	Low	
Scientific Name	Common Name	Approx. Height	Approx. Spread	Deciduous/Evergreens	Light Exposure	Water Use	Comments
Ephedra spp.	Mormon Tea	3'	4'	Evergreen	Full Sun	Low	High Allergic Potential
Fallugia paradoxa	Apache Plume	6'	7'	Evergreen	Full Sun	Low	
Genista hispanica	Spanish Broom	4'	4'	Evergreen	Full Sun	Medium	
Juniperus sabina	Juniper, shrub varieties	varies	varies	Evergreen	Full Sun	Low+	
Lavandula angustifolia	English Lavender	3'	3'	Evergreen	Sun/Shade	Medium	
Mahonia aquifolium 'Compacta'	Compact Oregon Grape	2'	3'	Evergreen	Shade/Sun	Medium	Thorny - Use with Caution
Pyracantha coccinea	Firethorn	10'	10'	Evergreen	Sun/Shade	Medium	
Rosmarinus officinalis	Upright Rosemary	6'	6'	Evergreen	Sun/Shade	Low+	
TREES, DECIDUOUS							
Celtis occidentalis	Common Hackberry	40'	40'	Deciduous	Full Sun	Medium	
Cercis occidentalis	Western Redbud	20'	20'	Deciduous	Full Sun	Medium	
Crataegus crus-galli Inermis	Thornless Cockspur Hawthorn	20'	25'	Deciduous	Full Sun	Medium	
Forestiera neomexicana	New Mexico Olive	15'	15'	Deciduous	Sun/Shade	Medium	
Gleditsia triacanthos	Honey Locust	80'	80'	Deciduous	Full Sun	Medium+	
Koelreuteria paniculata	Golden Rain Tree	25'	25'	Deciduous	Full Sun	Medium	
Prunus virginiana	Chokecherry	20'	20'	Deciduous	Full Sun	Medium	
Pyrus calleryana	Ornamental Pear	25'	15'	Deciduous	Full Sun	Medium+	
Quercus gambelii	Gambel Oak	25'	25'	Deciduous	Sun/Shade	Medium	
Quercus shumardii	Shumard Oak	60'	60'	Deciduous	Sun/Shade	Medium	
Robinia pseudoacacia	Black Locust	60'	50'	Deciduous	Full Sun	Medium	
Vitex agnus-castus	Chaste Tree	20'	20'	Deciduous	Full Sun	Medium	
TREES, EVERGREEN							
Cedrus atlantica	Atlas Cedar	75'	50'	Evergreen	Full Sun	Medium+	

13.5.8 7. Maintenance

Scientific Name	Common Name	Approx. Height	Approx. Spread	Deciduous/Evergreens	Light Exposure	Water Use	Comments	
Ephedra spp.	Mormon Tea	3'	4'	Evergreen	Full Sun	Low	High Allergic Potential	
Fallugia paradoxa	Apache Plume	6'	7'	Evergreen	Full Sun	Low		
Genista hispanica	Spanish Broom	4'	4'	Evergreen	Full Sun	Medium		
Juniperus sabina	Juniper, shrub varieties	varies	varies	Evergreen	Full Sun	Low+		
Lavandula angustifolia	English Lavender	3'	3'	Evergreen	Sun/Shade	Medium		
Mahonia aquifolium 'Compact'	Compact Oregon Grape	2'	3'	Evergreen	Shade/Sun	Medium		
Pyracantha coccinea	Firethorn	10'	10'	Evergreen	Sun/Shade	Medium		
Rosmarinus officinalis	Upright Rosemary	6'	6'	Evergreen	Sun/Shade	Low+		
TREES, DECIDUOUS								
Celtis occidentalis	Common Hackberry	40'	40'	Deciduous	Full Sun	Medium	High Allergic Potential	
Cercis occidentalis	Western Redbud	20'	20'	Deciduous	Full Sun	Medium		
Crataegus crus-galli Inermis	Thornless Cockspur Hawthorn	20'	25'	Deciduous	Full Sun	Medium		
Forestiera neomexicana	New Mexico Olive	15'	15'	Deciduous	Sun/Shade	Medium		
Gleditsia triacanthos	Honey Locust	80'	80'	Deciduous	Full Sun	Medium+		
Koelreuteria paniculata	Golden Rain Tree	25'	25'	Deciduous	Full Sun	Medium		
Prunus virginiana	Chokecherry	20'	20'	Deciduous	Full Sun	Medium		
Pyrus calleryana	Ornamental Pear	25'	15'	Deciduous	Full Sun	Medium+		
Quercus gambelii	Gambel Oak	25'	25'	Deciduous	Sun/Shade	Medium		
Quercus shumardii	Shumard Oak	60'	60'	Deciduous	Sun/Shade	Medium		
Robinia pseudoacacia	Black Locust	60'	50'	Deciduous	Full Sun	Medium		
Vitex agnus-castus	Chaste Tree	20'	20'	Deciduous	Full Sun	Medium		
TREES, EVERGREEN								
Cedrus atlantica	Atlas Cedar	75'	50'	Evergreen	Full Sun	Medium+		High Allergic Potential
Cercocarpus ledifolius	Curl-leaf Mtn. Mahogany	12'	6'	Evergreen	Full Sun	Low+		
Juniperus monosperma	Oneseed Juniper	15'	15'	Evergreen	Full Sun	Low+		
Picea pungens	Blue Spruce	50'	20'	Evergreen	Full Sun	Medium+		
Pinus edulis	Pinon Pine	30'	20'	Evergreen	Full Sun	Medium		
Pinus nigra	Austrian Pine	35'	25'	Evergreen	Full Sun	Medium		
Pinus sylvestris	Scotch Pine	45'	25'	Evergreen	Full Sun	Medium		
VINES								
Campsis radicans	Trumpet Vine	climbing	40'	Deciduous	Full Sun	Medium		
Euonymus fortunei colorata	Purpleleaf Wintercreeper	climbing	6'	Evergreen	Shade/Sun	Medium+		
Lonicera japonica Halliana	Hall's Honeysuckle	climbing	12'	Evergreen	Sun/Shade	Medium		
Lonicera sempervirens	Coral Honeysuckle	climbing	8'	Evergreen	Sun/Shade	Medium		
Parthenocissus quinquefolia	Virginia Creeper	climbing	40'	Deciduous	Full Sun	Medium		
Parthenocissus tricuspidata	Boston Ivy	climbing	40'	Deciduous	Sun/Shade	Medium		
Polygonum aubertii	Silver Lacevine	climbing	40'	Deciduous	Full Sun	Low+		
Wisteria spp.	Wisteria	climbing	20'	Deciduous	Sun/Shade	Medium		



Sec. 13.6/ Irrigation Guidelines for the City of Farmington

Due to the limited annual rainfall received by the City of Farmington, supplemental irrigation is required to maintain plants in a healthy condition. A properly designed automatic irrigation system provides efficient application of water to the landscape. Below are suggested irrigation guidelines. These guidelines should not supersede a consultation with a qualified landscaping professional in designing an irrigation system.

13.6.1 Irrigation System Design Basics

Irrigation systems are designed with hydraulics in mind. Hydraulic principles such as gallons per minute, pounds per square inch, friction loss, velocity, and proper coverage all factor into the design of an irrigation system. These principles will be explained, as the components of an irrigation system are discussed.

13.6.2 Water Meters

Most property owners will have a single water meter to service their building and site. Irrigation lines that tie into the water service downstream of the water meter may require tying into a copper line, which **requires a licensed plumber to sweat weld a copper tee and an adapter for the irrigation line.** For large scale landscape projects, a separate “irrigation only” water meter may be installed to prevent a monthly sewer assessment fee. If the property has the right to use water from an irrigation ditch, installation of a water meter is not required.

If an existing water meter is in place, the volume of water, or gallons per minute (GPM), is determined by the size of the existing water meter. If a new meter is being installed, the designer determines the meter size, based on an acceptable **loss of pressure** through the meter. Generally, 4-8 pounds of pressure or pounds per square inch (PSI) may be allowed for meter loss. **Pressure loss above this amount will either place undo stress on the meter or loose too much pressure for the system to operate correctly.**

Loss of pressure occurs whenever water moves through a pipe or when water moves uphill against the force of gravity. If the total pressure in a piping system exceeds the available static water pressure the water will not flow.

To help determine the amount of pressure loss expected given a particular meter size and GPM refer to the table on the following page.

Water Meter Size (Inches)	Gallons Per Minute (GPM)	Pressure Lost (PSI)
5/8	20	10
5/8	10	2.5
1	50	10
1	20	1.6
1	10	.4

Source: American Water Works Association

Pressure is lost as water flows through components of an irrigation system. The amount of water that can flow through an irrigation component is determined by the size of the component and its acceptable pressure loss. It is critical that a proper level of pressure is maintained to operate an irrigation system effectively.

A. Main Lines

The main line is the supply line from the point of connection to the control valves. This portion of the line is under pressure at all times, with the exception of the winter months when the system should be shut off and drained. The main line is placed in the ground with a minimum of 18 inches of cover. Piping used for main lines should be a rigid, thick walled material, such as PVC (poly vinyl chloride) Schedule 40 or PVC Class 315. Main lines are sized based on acceptable **friction loss**, as recommended by the manufacturer. **Pressure loss above the acceptable amount will either place undo stress on the main line or loose too much pressure for the system to operate correctly.**

Friction loss is based on the velocity of the water running through the main line. Velocity is calculated in feet per second (FPS). Typically, the velocity in a line should not exceed 5 FPS. Irrigation manufacturers provide friction loss charts to help you determine the proper size of line. Main lines may be upsized to reduce the amount of pressure loss, if low pressure is a concern.

Friction loss is the loss of pressure caused by turbulence created in the water while traveling through a pipe.

B. Backflow Devices

Once an irrigation connection has been made, a backflow device must be installed per Unified Plumbing Code standards. Contact the City’s Plumbing Inspector to discuss the proper **backflow device** to be installed for your landscape. Backflow devices are sized based on an acceptable pressure loss, per the manufacturer’s literature.

Backflow is a reverse flow condition, created by a drop in pressure in a distribution line, which causes water to flow backwards into the distribution source.

Smaller irrigation systems may use an **atmospheric vacuum breaker** (one per valve), placed 6” above the highest head. For larger irrigation systems, a single backflow device may be installed, such as a **pressure vacuum breaker**, a **double check valve** or a **reduced pressure device**. A pressure vacuum device is installed 6” above the highest head. A double check valve or reduced pressure device may be placed at any location on site, irrespective of elevation. **The Unified Plumbing Code requires a licensed contractor to install backflow devices.**

A **backflow device** prevents contaminated water from being back-siphoned into a water supply should reverse flow occur. **Atmospheric vacuum breakers, pressure vacuum breakers, double check valves, and reduced pressure devices** are types of backflow devices.

C. Control Valves

Control valves turn on and off the water to individual circuits of sprinklers or drip emitters. Ideally, the control valves are wired to an irrigation controller, or timer, making the system automatic.

Control valves are sized based on the amount of acceptable friction loss. Typically, a control valve is sized one size smaller than the size of the largest lateral line downstream of the valve. Too little water running through an oversized valve may result in the control valve not opening properly. **Pressure loss above the acceptable amount will either place undo stress on the control valve or loose too much pressure for the system to operate correctly.**

Separate control valves should be used for turf versus shrub beds. Different types of turf **heads**, i.e. spray versus rotors or impacts, should be placed on separate valves, due to their differing rates of water application. Ideally, shaded areas, i.e. areas with north or east facing exposures, should be on separate control valves, because of the limited amount of sun they receive. Drip irrigation lines should also operate on their own special valves which come equipped with a pressure regulator and a filter.

The term **head** is short for sprinkler heads. Spray heads, rotor heads, impact heads are types of



D. Irrigation Controllers

An automatic irrigation system provides a great amount of flexibility in programming your system and reduces the time spent to maintain landscaping. Irrigation controllers automatically turn on and off your control valves as you have programmed them and will operate irrigation systems at any time of the day or night. Some controllers even offer multiple start times, which can be important in keeping a newly seeded lawn moist or keeping your landscape alive during a hot summer day. While most controllers require an electrical source, there are battery operated and solar powered controllers for remote locations where electricity is not readily available.

E. Lateral Lines

Lateral lines occur downstream of the control valves. The lateral lines are placed in the ground with a minimum of 12 inches of cover and usually are made of a rigid material, such as PVC Class 200 or greater. The sizing of lateral lines is also based upon acceptable friction loss. Pressure loss above the acceptable amount will either place undo stress on the lateral lines or loose too much pressure for the system to operate correctly.

F. Poly Pipe

Poly pipe is black, flexible tubing that comes in various sizes. Poly pipe may be used as lateral lines where flexibility is needed. Poly pipe may also be used as a *swing joint* at the base of a turf head. Again, friction loss needs to be taken into account when choosing the correct size of poly pipe to use.

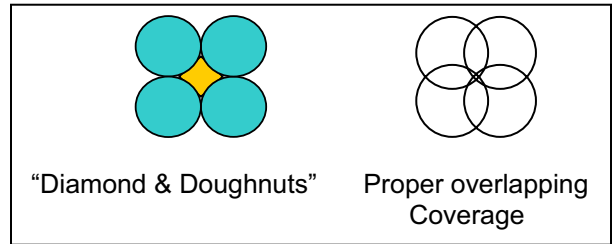
A **swing joint** is a flexible swivel joint that allows for the installation of heads in difficult locations away from the line.

G. Turf Heads

Turf heads come in a variety of configurations, with varying radii, patterns, PSI and GPM ratings. All turf heads should be *pop-ups*. Spray heads have the shortest spray radius and rotor heads, which are gear driven, and impact heads have larger spray radii. Turf heads with longer spray radii require greater water pressure and gallonage delivery.

Pop-ups are sprinkler heads that retract below ground level when not in operation.

Turf heads must be placed to provide *head to head* coverage, meaning the radius of one head must reach the base of the adjacent head. Improper coverage will result in dry spots with “diamond and doughnuts” or over watering to compensate for the lack of coverage. Refer to the manufacturer’s product literature for the proper radius, gallons per minute and pressure performances.



H. Shrub Heads

Shrub heads also come in a variety of configurations, similar to the turf heads. Shrub beds with dense planting are best suited for spray, rotor or impact type heads. Shrub heads should also be laid out in a head to head coverage pattern. For lower density plantings, *bubblers* or drip irrigation may be installed. There are adjustable bubblers that can be fine tuned to a slow drip, as a quasi-drip system, without the need for filters, pressure regulators, and purge valve. Drip irrigation will be discussed in a separate section.

Shrub heads that occur along walkways or any area where people might walk should be pop-up type heads. This may require a 12” high pop to clear the adjacent shrubbery.

Bubblers are a type of shrub head.

I. Drain Valves

Drain valves are installed to allow for the draining of an irrigation system and can be manual valves or automatic. Drain valves need to be installed at low points within the main line and lateral lines. If automatic drain valves are installed, they will open every time pressure in the line drops and drain

the system after each irrigation cycle. If you don't effectively drain your system for the winter, you may be looking a serious repair bill.

Drain valves should not be installed upstream of a backflow device because the opening of the valve may allow for potential contaminants to enter the water supply.

J. Drip Irrigation

Drip irrigation provides a slow, even application of water that penetrates deep into the soil and promotes drought tolerance in plants. Drip irrigation systems operate at a rate of gallons per hour (GPH) versus the gallons per minute rate used with standard irrigation systems. Due to the differing rate of application, it is possible that your drip irrigation system will run for hours, not minutes. Drip irrigations systems also operate at lower pressures than standard irrigation. All other components of a drip system are similar to those used in a standard system. While drip irrigation systems require a higher level of maintenance, they are highly efficient in delivering water to plants and help lower water costs.

K. Drip Control Valves

Like standard irrigation systems, a control valve is needed for drip systems. However, because of the small openings in the tubing and emitters, a drip system must have a *filter* and a *pressure regulator*, as well as a purge valve at the ends of the lines. Most drip irrigation manufacturers make a combination control valve, pressure regulator, and filter, to meet the needs of your drip system.

Filters and **pressure regulators** are critical to the proper functioning of a drip irrigation system.

L. Drip Lines

Downstream of the drip control valve are the drip lines. The drip line is typically a ½ inch diameter black, flexible pipe that can be routed along the ground or buried. Use a UV resistant drip line if you place the drip line above ground.

Drip lines with emitter devices preset at even intervals are also available. This type of drip system requires rows of lines to provide uniform coverage in a shrub bed.

M. Drip Emitters

Drip emitters control the flow of water being delivered to the soil. Emitters come in a variety of shapes and sizes with single or multiple outlets and also vary in gallonage rates. A single outlet emitter typically is inserted into the ½ inch drip line with a barbed fitting. It may also be placed on a shrub riser with an adapter. A multi-outlet emitter (6-8 outlets) usually is placed on a shrub riser with a tee or an ell on the drip line.

Micro-spray" heads for drip systems have relatively short radii and low gallonage rates. Often they are used similarly to standard spray heads.

N. Drip Tubing

Drip tubing is typically a ¼ inch diameter black, flexible tube that is run on the ground, from the emitter to the plant. Ideally, the end of the tubing is secured with a stake and closed with a bug cap.

O. Purge Valves

Even with a filter at the control valve, sediments have a way of clogging the drip system. Purge valves are ball valves placed at the ends of a drip lines to allow for periodic flushing. In order to maintain proper functioning of a drip system, it is advised that drip lines are purged several times a year.



Sec. 13.7 / Retaining Walls and Slopes

13.7.1 Guideline introduction

The City of Farmington will review retaining wall design for conformance with generally accepted design and construction standards. The City of Farmington assumes no responsibility or liability for the design, construction or long term integrity of the wall. Review and approval of plans by the City is required in order to obtain a building permit.

13.7.2 Definitions:

The following definitions are used in this handout:

A. **Retaining Wall:**

A landscaping technique intended to change the contour or grading of the lot.

B. **Exposed height:**

The exposed height is measured from grade level to the top of the wall at a given location.

C. **Problem soils:**

A soil type which may have a high water table, expansive clays, low weight bearing capacities, frost heave potential or other behavioral problems.

13.7.3 Overview of General Requirements

Construction of any retaining wall with exposed height greater than 1'-6" (18 inches) requires a building permit. Retaining walls with exposed heights of 36" (thirty-six inches) or greater, or with a surcharge or a problem soil must be an engineered wall.

13.7.4 Zoning Requirements:

In addition to the structural review performed by Building Inspection, the Development Services Department will review proposed retaining walls to ensure they meet all required setbacks and height restrictions regulated by the City of Farmington. Approval of setbacks and height requirements are completed prior to applying for a Building Permit.

The Community Development Department is located at 805 Municipal Drive, Farmington, NM, 87401 Please contact the Planning Division at (505) 599-1301 for further information.

13.7.5 Building Permit Application and Approval Requirements:

- A. A complete site plan, drawn to scale, showing:
 - 1. Property boundaries
 - 2. Location of existing structures
 - 3. Location and dimensions of proposed retaining wall
 - 4. Indicate wall elevations and exposed height
- B. Approval signatures from the Planning Division
- C. Payment of required permit fees
- D. Approval by the Building Inspection Department
- E. Obtain building permit or permits.

13.7.6 Retaining Wall Design Guidelines

The following guidelines are designed to assist in building structurally sound retaining walls and shorten the process to obtaining permits:

A Site specific conditions to consider include, but are not limited to:

A. Site specific conditions to consider include, but are not limited to:

1. Existing soil conditions at the wall location.
2. Topography
3. Surface grade
4. External pressures and surcharges

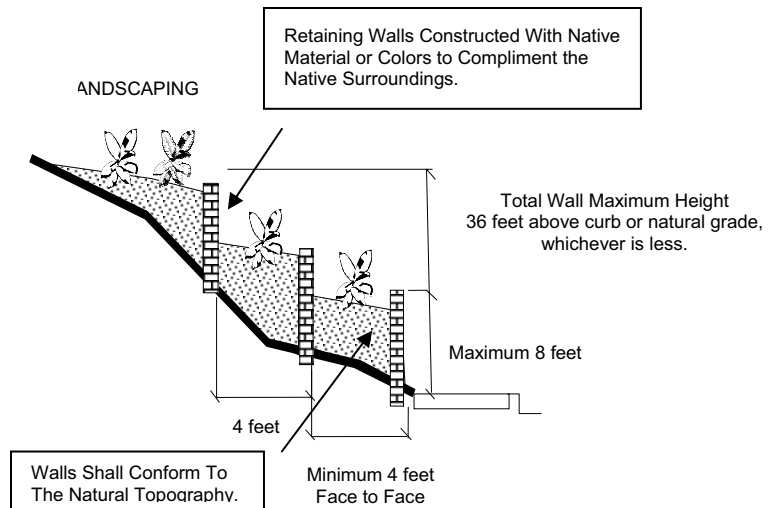
B. The City of Farmington recommends that retaining walls incorporate the following design principles:

1. For each 8 feet of vertical height, a 4-foot horizontal offset should be provided.

2. Walls should conform to the topography of the site.
3. Walls with a change in alignment should incorporate the use of graduating steps rather than sharp corners to the greatest practical extent.

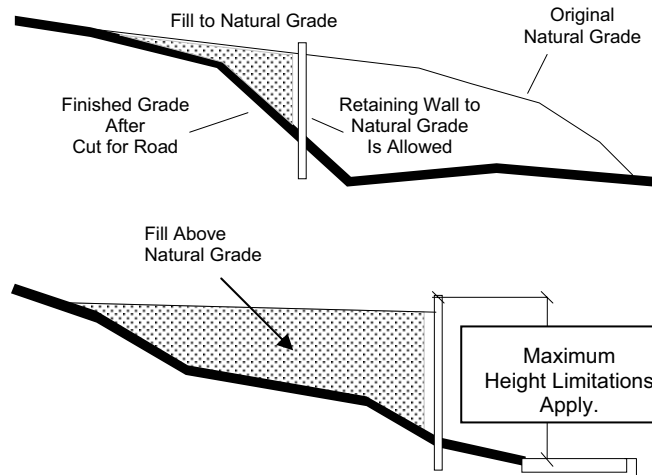
C. Additionally, as stated in Section 5.4.7A, materials utilized in the construction of retaining walls;

“Walls visible from public rights-of-way, within the frontyard setback(s), shall either incorporate the use of native materials or complement the native surroundings.”



13.7.7 Slopes

When constructing a retaining wall along a slope, the following should be considered:



When the original natural grade has been cut for a road, a retaining wall may be built which restores natural grade; even if it exceeds the maximum height limit **Driveway and corner view triangles must still be met.**

A retaining wall with backfill which raises the grade above natural grade is limited to the maximum height limitations.

13.7.8 Public Utility Requirements

Call **One Call** at **1-800-321-2537** before excavating to ensure that the location of construction does not interfere with underground utility lines. One Call is a free service that marks the path of underground utilities on the property for those who are planning to excavate. Utility companies support One Call to



prevent damage to their buried lines. If One Call is not contacted and damage occurs, you will be liable for all repair costs.