



# TOWN OF FRISCO

## MINIMUM STREET DESIGN AND ACCESS CRITERIA

**April 2011**

**TOWN OF FRISCO  
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## I. GENERAL

### A. Introduction

The purpose of this document is to specify established standard principles and practices to be used in the design and construction of streets in order to provide for uniformity of streets within the Town of Frisco and to ensure the safety of the general public. Designs of streets for construction within the Town of Frisco limits shall be approved by the Town prior to such construction. The design factors, formulas, and tables are intended to serve as guidelines for street design. Ultimate responsibility for actual design, however, remains with the design engineer. Sound engineering judgment must always be applied. All streets shall be designed by a Colorado Registered Professional Engineer.

Unless modified herein, all designs shall comply with the CDOT (Colorado Department of Transportation) *Design Guide*, latest edition. Other manuals recommended for reference include *A Policy on Geometric Design of Highways and Streets* and *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT<400)* both published by AASHTO (American Association of State Highway and Transportation Officials). Deviation from the requirements of these criteria must be approved by the Town Manager or his designee.

### B. Street Classifications

The following classifications shall be utilized in determining the criteria under which a street is to be designed.

1. *Local Streets* -Provide primary access to abutting properties.
  - a. Commercial (example -Ten Mile Drive)
  - b. Residential (example -Lagoon Drive)
2. *Collector Streets* -Carry traffic from local streets to Major Arterial Streets, Highways and principle generators within the community, such as neighborhood shopping centers, schools and recreation areas (example - 8th Avenue).
3. *Major Arterial Streets* -Designed for the movement of through traffic and heavy local traffic. Arterials generally connect major traffic generators. In some instances, parking is not allowed on arterials, such as state highways (example-Summit Boulevard).

### C. Soils and Materials Testing

All soils and material testing shall be done by a soil/material-testing firm under the supervision of a Colorado Registered Professional Engineer.

Improvements made within Town ROW, soils testing and identification of the existing conditions shall be submitted to the Town with recommendations for structural section. Structural sections shall be designed in accordance to Section II, H.

Improvements within Town ROW shall be supervised by a soil/material-testing firm. The testing firm will be required to provide sub-grade and road base for compaction

test, materials testing of asphalt, road base, and concrete, and density tests of asphalt. All tests shall meet CDOT requirements. The Town shall be notified of any failed tests or unsuitable soils on site. Reports shall be provided to the Town.

If unsuitable soils are encountered, a modified design shall be submitted by the soils-testing firm to the Town for approval.

The Town may not accept projects or may require a longer warranty period if there are test failures or testing has not been completed according to the requirements of this section or recommendations by the soils-testing firm.

#### **D. Design Speed**

The choice of design speed is influenced principally by the character of terrain, type of roadway and traffic volume. A roadway in level or gently rolling terrain justifies a higher design speed than a roadway through steeper mountainous terrain.

Design speeds to be utilized for street design in the Town of Frisco are listed in Table 3.

#### **E. Right-of- Way**

The width of rights-of-way (ROW) required depends on the proposed or future street classification, topography in the area, and other physical controls. Minimum ROW widths to be dedicated for street construction in the Town of Frisco are listed in Table 2.

Additional ROW width may be required to facilitate future widening and other improvements as traffic and development warrants or where it is necessary to meet side slope requirements.

#### **F. Patching**

Patching of Town streets shall require an Excavation Permit and shall follow the requirements detailed in the Excavation Ordinance of the Town Code.

## **II. BASIC DESIGN PARAMETERS**

Roadways shall be designed using the standards in the *CDOT Design Guide* unless otherwise modified herein. Items not covered in either source shall use *A Policy on Geometric Design of Highways and Streets*.

#### **A. Sight Distance**

A primary consideration in the design of a street is to provide adequate sight distance for safe and efficient operation. There are two types of sight distance to be considered; that required for visibility at an intersection and that required for stopping. AASHTO standards shall be met for these types of sight distances.

## **B. Horizontal Alignment**

1. *Standard for Curvature* -Table 3 gives minimum centerline radii for curves. The table is based on design speed only. Increased radii may be required if minimum sight distances are not satisfied.
2. *Superelevation*- Refer to the CDOT Design Guide, latest edition. For low speed Local Streets superelevation is generally not used. Consult with the Town if superelevation is not used.
3. *Small Deflection Angles* -For small deflection angles, curves should be of sufficient length to avoid the appearance of an angle in the road.
4. *Reversing Curves* -True reversing curves are not be used in the Town of Frisco except as noted herein. In cases where curves in opposite directions must be used, a tangent between shall be used. A minimum 50-foot tangent shall be used if at all possible between reverse curves to facilitate steering and control. Lesser tangent lengths may be considered with deflection angle curves less than 10 degrees.
5. *Broken Back Curves* -Broken back curves consisting of two curves in the same direction joined by a tangent less than 50 feet shall not be used in the Town of Frisco, except on local streets with prior approval from the Town Manager or his designee.
6. *Coordination with Vertical Alignment* – To avoid the possibility of introducing serious traffic hazards, coordination is required between horizontal and vertical alignment. Particular care must be exercised to maintain proper sight distances at all times.
7. *Pavement Transition* - A pavement transition is the area of variable pavement width encountered when changing from one roadway width, or section, to another. All pavement transitions shall be based on the following formula:

$$L = WS^2 / 60$$

Where: L = length of transition or taper (in feet)

S = posted speed limit (in mph)

W = offset in feet

## **C. Vertical Alignment**

1. *Grade Line* - The grade line is a reference line by which the elevation of the pavement and other features of the roadway are established. The grade line shall coincide with the street centerline for all streets.
2. *Grade* – The minimum and maximum grades as measured at centerline shall be 0.5% and 5%, respectively.

Excessive changes in grade which create a roller coaster effect shall not be permitted. Connections with existing streets shall be smooth transitions and

existing grades shall be shown in the design for at least 150 feet on all sides of a connection.

3. *Vertical Curves* -Properly designed vertical curves should provide adequate sight distance, safety, comfortable driving, good drainage, and pleasing appearance. Vertical curves in the Town of Frisco shall be parabolic curves.

### **III. CROSS SECTION ELEMENTS**

#### **A. Concrete Pans, Curbs and Gutters (Concrete Drainage)**

##### *1. General*

Minimum grade in all concrete drainage systems shall be 0.5% measured along the flow line.

Concrete drainage systems shall be used when justified by sound engineering reasons based on the following:

- a. Where required for proper drainage.
- b. Where needed for channelization, pavement edge delineation, control of access, pedestrian safety, or other means of improving traffic flow and safety.

##### *2. Types*

For specifications on types of concrete drainage systems available refer to CDOT *Standard Plans – M & S Standards*, latest edition. Refer to these types as specified in that publication on any plans submitted to the Town.

##### *3. Cross Pans*

- a. Cross pans for drainage, located at stop intersections, shall be a minimum of 12 feet wide, six inch thick concrete with four inch road base.
- b. Cross-pans are not allowed on Collector streets unless specifically approved by the Town Manager or his designee.
- c. Cross-pans are not allowed on Major Arterial streets.
- d. Cross-pan approaches shall be designed using the appropriate design speeds as given in these specifications.
- e. Crown transitions where approaching a cross pan or an intersecting street shall be at maximum of one percent change every 25 feet.

##### *4. Location*

Where concrete drainage systems are used, street width requirements shall be measured from lip of concrete to lip of concrete. The Town Manager or his

designee shall be consulted on the type of concrete drainage to be used at any location in Town.

5. *Concrete Class and Additives* – Concrete used for concrete drainage and sidewalks shall meet the following minimum requirements.
  - a. *Mix Design* - A mix design shall be submitted to the Town for all concrete to be used within Town ROW.
  - b. *Strength* – Minimum 4000 psi
  - c. *Fibers* - "Fiber Mesh" fibers or approved substitute shall be added to the concrete for strength, at the rate of 1.5 pounds of fiber per cubic yard of concrete.

**B. Travel Lane Standards**

1. *Cross Slope*

- a. Cross slope on all streets shall be a minimum of 2.0 percent measured from street centerline to edge of asphalt or concrete. In areas of minimum centerline grade, 3.0 percent shall be considered.
- b. Temporary unpaved streets shall be crowned to 3.0 percent.
- c. When existing streets are overlaid, the maximum cross slope shall not exceed 4.0 percent measured as above.

2. *Width*

Street and alley asphalt widths depend on the total number of traveled lanes and their street classification. Minimums are listed in Table 2.

**C. Shoulder Standards**

1. *Width* – The width of improved shoulder will vary with use and location. The improved shoulder shall consist of 6 inches of compacted road base at grade with the improved roadway surface. If parking is to be allowed by the Town, eight (8) foot shoulders shall be used. If parking is not allowed, one (1) foot shoulders shall be used and the roadway shall be signed designating no parking. The decision to allow or not allow parking shall be made by the Town.
2. *Side Ditches* -Side ditches shall be used in all cut sections. All roadside swales shall be sized to handle the historical 100-year storm flows tributary to the street, unless alternate routes for the major runoff are provided. Culvert sizes shall be designed to carry the 100-year historical flows. The slope from the edge of the shoulder to the bottom of the side ditch shall not exceed 3:1.
3. *Side Slopes* -Side slopes shall not exceed 2:1, unless otherwise approved by the Town Manager or his designee. Where slopes equal to or greater than 2:1 are used, special provisions for erosion control and revegetation shall be made. Any

proposal to deviate from a maximum 2:1 slope shall be accompanied by a soils study dealing with the slope treatment being proposed

#### **D. Minimum Culvert Diameters**

1. *Size*- All culverts installed shall be sized to handle the 100 year (historical) storm flows. The minimum allowable culvert size shall be 12 inches. All culverts shall be installed with flared end sections.
2. *Cover* - Minimum cover over all culverts shall be 12 inches from top of pipe to finish road grade, unless otherwise approved by the Town Manager or his designee. (Six-inch minimum cover for single family driveways.) Additional cover may be required for larger culverts in accordance with the manufacturer's recommendations. Insulation may be required by the Town in cases where freezing may be a concern.
3. *Type* - For Town drainage systems, high density polyethylene (HDPE) shall be used. For the purposes of driveway crossings, corrugated metal pipe is allowed.

#### **E. Retaining Walls**

Where necessary to meet required side slope grades, walls may be utilized.

1. *Height* - Retaining walls may not exceed 6 feet in height. If a greater height is needed, the wall must be stepped in maximum 6' increments with a minimum 4' shelf.
2. *Location* – Retaining walls may not be located closer than 10 feet from the traveled lanes (maximum separation is desired).
3. *Design* - Retaining wall must be designed by a Colorado Registered Professional Engineer and are subject to Town review and approval.

#### **F. Guardrail**

Guardrail requirements shall be as specified in the State Highway Roadway Design Manual, latest edition. Corten steel shall be used for all guard rail installations.

#### **Signs**

All signs and street markings shall be designed, constructed, and placed in accordance with the *Manual of Uniform Traffic Control Devices*, latest edition, of a material and installation approved by the Town.

#### **G. Pavement Design**

1. *General* - Design of the pavement structure is the determination of the thickness of sub-bases, bases, and surfacing to be placed over sub grade soils. The basic purpose is the selection of the most suitable, available materials and their most advantageous use.

Pavements shall be designed for a 20-year life and designed by a Colorado Registered Professional Engineer.

2. *Type of Surfacing* - Both bituminous pavement and concrete are acceptable surfacing for use on streets in the Town of Frisco. The determination as to which type of surfacing to use is based on several factors including:
  - a. Traffic loading and volume.
  - b. Soils in the area.
  - c. Weather.
  - d. Performance of similar materials in the area.
  - e. Economics or cost comparisons.
3. *Thickness Design* -Thickness design shall be in accordance with the procedures as outlined in the CDOT Design Guide, latest edition. All new streets constructed in the Town of Frisco must be designed per these methods or other methods acceptable to the Town Manager or his designee.
4. *Minimum Base and Asphalt Thickness* –The pavement design shall be used unless the designed thickness is less than the minimum allowable according to the street classification found in Table 2.
5. *Plant Mix Pavement and Base Course* -Plant Mix pavement shall be State Highway Grading C. Final top lift shall be ½ inch minus Superpave. Base shall be State Highway Class 6. Sub-base shall be State Highway Class 5.
6. *Portland Cement Concrete Pavement* –Concrete shall conform to State Highway requirements for Class "P". "Fiber Mesh" fibers or approved substitute shall be added to the concrete, for strength, at the rate of 1.5 pounds of fiber per cubic yard of concrete.

#### **IV. OTHER ELEMENTS OF DESIGN**

##### **A. Intersection**

1. *Minimum angle of Intersection* - Intersections shall approximate right angles as closely as possible. The minimum angle allowed for any type of intersection shall be 70 degrees.
2. *Radius* - All intersections shall have a paved radius on all four corners with minimum radius as shown in Table 1.
3. *Cross Street Standard* - All local streets intersecting a Major Arterial Street shall be constructed to Collector Street standards for a distance of 200 linear feet as measured from the edge of the Arterial right-of-way. This shall include street width (asphalt and base) and right-of-way width.

4. *Grades* - Grades at intersections shall not exceed two percent (2%) at any point for 100 feet from the edge of the intersecting street, nor shall the grade exceed four percent (4%) overall for 200 feet from the same edge. Maximum grades may be increased beyond five percent (5%) for short distances in extreme terrain when approved by the Town Manager or his designee. The through street may be up to a four percent grade through the intersection, although flattening the through street at the intersection is recommended. See figure 9.
5. *Separation* - Intersections shall not occur at less than a 300 linear foot separation wherever possible. In no case shall two intersections be within 200 linear feet (edge to edge of ROW) of each other. Opposing intersections (4 way) are required when intersecting with a major road and certain intersections of two collector streets. T-type intersections have shown to be far safer than cross-type and shall be considered in the design of residential subdivisions.
6. *Intersection at a Curve* - Intersections should not be placed on a curve unless all applicable sight and stopping distances are complied with.
7. *Intersection Sight Distance* - Intersection sight distance is defined by AASHTO as adequate when a driver has an unobstructed view of the entire intersection and sufficient lengths of the intersecting road to avoid collisions. AASHO standards shall be met for the sight triangle. Obstructions of any type installed by private property owners are prohibited within Town ROW per Town Code Section Nos. 127-6 and 127-39.

#### **B. Cul-de-Sacs and Dead Ends**

1. *Cul-de-sacs* - Cul-de-sacs shall be permitted provided that they have a right-of-way diameter of at least 150 feet; and an improved surfaced paved minimum 99 feet outer diameter and maximum 45 feet inner diameter. Maximum length of cul-de-sacs shall be determined by density of the development. In no case shall the maximum length exceed 600 feet.
2. *Dead-end Streets* - Dead-end streets (except for cul-de-sacs) shall be prohibited unless they are designed to connect with future streets on adjacent land that has not been platted. In such case a temporary turnaround of at least 80-foot diameter shall be provided. Use of a temporary hammerhead type turn may be considered in special cases if approved by the Town Manager or his designee.

#### **C. Parking Spaces**

##### *Size of parking stalls:*

- a. *30 degree to 90 degree* – The minimum size for this type of parking shall accommodate an 18.5' by 9' rectangle within the stall.
- b. *Parallel spaces* – Shall be 25' as measured along the street and 8 feet wide.
- c. *Handicap stalls* – Shall be a minimum 8' wide by 18.5' long, with a 5' accessibility lane or 8' accessibility lane for vans. Handicap stalls placed on

an angle shall accommodate an 8' wide by 18.5' long rectangle within the stall and accessibility lane as measured perpendicular to the stall.

#### **D. Driveways (Accesses)**

1. *General* - The term driveway or access are interchangeable terms and refer to the specific locations granted to properties adjacent to Town ROW for the purpose of accessing the property through the Town ROW from Town streets for all purposes including parking areas, dumpster enclosures, garages, etc. Except for the Galena Street alley in the Central Core Area, to accommodate Cabin Housing accesses for all purposes shall conform to the requirements of this section.
2. *Intent of Requirements* - Driveway spacing and widths have been established for aesthetic, maintenance purposes, and safety reasons.

Aesthetically, wide driveways are visually unappealing. If multiple wide driveways were used on the same roadway, the effect would be excessive pavement. For maintenance purposes, sufficient space is needed to accommodate Town snow storage adjacent to the roadway, minimum areas are needed to make them useful.

3. *Requirements* - A combination of these factors and others such as sight distance and safety has governed the following requirements:
  - a. *Proximity to an intersection* –Driveways accessing Town ROW near an intersection of a major arterial (Summit Blvd.) shall be a minimum of 50' and for all other street classifications shall be a minimum of 35' from the intersecting street ROW as measured from the nearest edge of the driveway. When this spacing can not be achieved (for example, due to topography or lot size) effort shall be made to place the entrance as far from the intersecting ROW as possible.
  - b. *Access to Single Family* – Only one access will be allowed to single family residences. More than one access will be considered by variance for corner lots.
  - c. *Parking Access* - Except for the Galena Street alley in the Central Core Area, to accommodate Cabin Housing, parking areas on private property shall be accessed by a driveway through Town ROW from the street. Driveway widths shall be in accordance with (3) of this section.
  - d. *Width of driveways* – Driveway width is measured within Town ROW from the ROW line to the edge of pavement, with an allowable 3' angled or radial taper.

Except for the Galena Street alley in the Central Core Area, to accommodate Cabin Housing, the width of any driveway connecting an off -street parking area with a public street, alley, or highway shall fall within the ranges as shown below, as measured within the Town right- of-way.

Single-Family Homes	9 feet minimum, 16 feet maximum
Duplexes or Multi-Units	9 feet minimum, 16 feet maximum
Commercial and Business	12 feet (one-way), 24 feet (two-way)

Dumpster enclosures shall be accessed through the same driveway allowed for access to the property. Additional width will not be allowed for access to dumpster enclosures adjacent to driveways within Town rights of way.

- e. *Driveway Spacing* - No two driveways connecting to a public or private street, alley or highway shall be within 30 feet of one another measured from edge of driveway to edge of driveway within the Town ROW or private street ROW. When this spacing can not be achieved (for example, due to topography or lot size) effort shall be made to place the driveways as far apart as possible and must be approved by the Town Manager or his designee.

*When a new driveway is requested adjacent to a vacant lot, a 15 foot spacing from that property line may be required. The intent is not to restrict the adjacent property owner on the location of their driveway due to the 30 foot separation required.*

- f. *Angle of Intersection* - All driveways shall intersect the access street at 90 degrees unless otherwise approved by the Town Manager or his designee.
  - g. *Grade* - Driveways may be up to 10% in grade with approval of the Town Manager or his designee. Safety issues for both the driveway uses and the adjacent street users will be considered.
  - h. *Drainage* - Facilities shall be graded for proper drainage so that surface discharge is channeled to a natural or improved drainage way without causing nuisance or damage to other properties or the improvements thereon. Proper drainage shall include the installation of such systems, including culverts and pans if necessary, which will protect all affected public rights-of-way.
  - i. *Access to Major or Arterial Streets* -No driveways will be allowed onto collector or major arterial streets unless no other access to the lot exists. No new subdivisions shall be approved on which driveways must exit onto major arterial or collector streets, unless approved by the Town.
  - j. *Heated driveways are not permitted to be constructed within Town owned rights-of-way.*
4. *Exemption and Conformity* - Driveways which are to be repaved (existing driveways) can be done to the previous width. Existing gravel driveways which are to be paved shall conform to these requirements.

#### **E. Pedestrian/Bicycle Facilities**

When pedestrian or bicycle pathways are required by Community Development, such facilities shall meet the following requirements.

Minimum sidewalk width shall be six feet.

Minimum bike pathway width shall be ten feet wide with one foot compacted road base shoulders 6" thick on each side.

Minimum section for both shall be either four inch concrete with three inch compacted road base on a prepared sub-grade or three inches asphalt with six inches road base on a prepared sub-grade.

Concrete shall comply with requirements in SECTION III, A, 5.

Pedestrian/bicycle pathways shall have handicap ramps in compliance with ADA standards.

Reduced widths for bike paths may be considered where ROW widths are limited.

#### **F. Temporary Unpaved Streets**

Under certain circumstances, the Town Manager or his designee may allow either a delay of final paving of a new street, or a delay in the final lift, until the following construction season to allow sufficient time for roadway stabilization or until a certain percentage of build out occurs. In those cases, all street construction up to and including base work shall be completed. Unpaved streets shall be graded to a three percent crown and then re-graded and compacted as required by these standards prior to paving. Unpaved streets will not be accepted by the Town for maintenance purposes.

#### **G. Half Streets**

Half streets arise in attempting to locate street centerlines on the perimeters of subdivisions for land parcels. Construction of half streets are not allowed in the Town of Frisco.

#### **H. Erosion Control**

1. *Introduction* - Care shall be taken in designing streets to minimize the total area disturbed, as well as to have all disturbed areas replanted per Town Street Design Criteria to prevent future erosion.

An acceptable erosion control plan, in accordance with the *Erosion and Sediment Control During Construction* manual published by Summit Water Quality Committee, must be approved by the Town Manager or his designee and utilized by the Contractor to prevent excessive erosion during and after construction. If, in the opinion of the Town Manager or his designee, adequate measures to control erosion are not being taken, the Contractor may be ordered to stop all work within Town ROW until satisfactory arrangements for control are made.

2. *Reseeding* - All areas disturbed within Town right-of-way during street construction shall be covered with 4 inches of topsoil and reseeded with a native

seed mixture which is certified free of noxious weeds and approved by the Town following completion of the work.

The mix shall be applied to a prepared smooth base area free from foreign matter and excessive amount of rock (three inch diameter or larger). The mix shall be applied at a rate and in a manner as recommended by the seed supplier.

Following seeding, all areas shall be fertilized.

Immediately following seeding and fertilizing, mulch all areas with native hay at a rate of two tons per acre. The hay shall be mechanically crimped into the soil or hand tilled.

3. *Steep Slopes* - Any slopes 2:1 or greater shall receive, in addition to all requirements listed above, an approved soil erosion control blanket, approved by the Town Manager or his designee. Slopes greater than 2:1 require specific engineering design and are subject to approval by the Town.

## **V. OTHER**

No barriers of any sort shall be allowed within the Town ROW (asphalt or shoulders) of any new public street, except curb and gutter, guard rails, street signs or retaining walls as approved by the Town Manager or his designee. Landscaped median features properly designed and approved by the Town Manager or his designee are excepted.

Any new subdivision shall have 3' concrete drain pans for drainage and delineation on both sides of the roadway. If minimum grades can not be achieved, other alternatives will be considered.

Any improvements required on any portion of an existing street which serves as the access for a new development shall be designed and paid for by the developer of that new development. New and existing roadways shall be designed or improved to handle the additional traffic volume generated.

Prior to acceptance of any new street, the sub-divider or developer shall request, in writing, inspection and acceptance by the Town and provide to the Town all soils and material testing results. The Town Manager or his designee shall inspect the street and notify the developer in writing of acceptance or non- acceptance of the street. If not accepted, the notice shall identify reasons for non-acceptance so the developer may correct them and re-apply. Until such time as the streets are accepted, the developer shall be fully responsible for all maintenance, including snow removal, for the street.

Requests for acceptance may only be made between April 15 and November 15.

New streets accepted by the Town shall be warranted for a period of two years from the date of acceptance. The Town shall inspect the streets prior to the end of the warranty period and notify the developer of any deficiencies identified.

Damage to Town property (e.g. pavement, signs, ground cover) as a result of construction activities shall be the responsibility of the developer/owner to repair or replace the damaged Town property at their expense to the satisfaction of the Town.

## **VI. VARIANCES**

### **A. Summary**

These design criteria as presented are intended to aid the design of the Engineer in preparation of plans and specifications for the Town of Frisco, including minimum standards where required. As with any set of design criteria, occasions will arise in which the criteria or minimums are inappropriate. In these cases, a variance to these criteria may be considered by the Town, but should not be assumed.

### **B. Application**

An application for a variance to these criteria shall be filed with the Town Manager or his designee with the appropriate fee as set by Council resolution. The variance application shall be reviewed by the Town Manager or his designee and shall only be approved upon a determination that:

1. Failure to grant the variance would result in practical difficulty for the applicant or would make the project economically unfeasible for the applicant;
2. Granting the variance would facilitate project maintenance; and
3. Granting the variance would not be detrimental to the public health, safety and welfare.

### **C. Appeals**

Appeals of decisions of the Town Manager or his designee as described in this section VI shall be to the Town Council. Appeals of decisions of the Town Manager or his designee shall be filed with the Town Clerk not later than ten (10) calendar days from the date of the decision.

All appeals to the Town Manager or the Town Council shall be considered de novo public hearings. Appeals shall be filed on the designated form with the required information. Hearings on appeals shall be scheduled no sooner than 14 days and no later than 60 days from receipt of the appeal request. An appeal stays all proceedings and authorization in conjunction with the action being appealed, unless in the opinion of the Town Manager a stay would cause imminent peril to life or property. The appellate body may reverse or affirm, wholly or partly, or may modify or condition the order, requirement, decision or determination appealed from and shall make such order, requirement, decision or determination along with findings consistent with subparagraphs 1, 2 and 3 of paragraph B above.

Appeals requiring action by the Town Council shall be noticed to the public at least once during the hearing process in the following manner:

1. Publish in one (1) newspaper of general circulation at least four (4) calendar days prior to the public hearing or meeting.
2. Post in at least on (1) place of public assembly at least seven (7) calendar days prior to the public hearing or meeting.

## **VII. SPECIFICATIONS**

All construction methods and materials shall be in accordance with the *Colorado Division of Highways Standard Specification for Road and Bridge Construction*, latest edition. In addition, testing in accordance with the same specifications shall also be performed.

## **VIII. DETAILED DESIGN REQUIREMENTS**

### **A. Design Drawing Requirements**

All construction plans, pertaining to this Street Design Criteria, designed for construction in the Town of Frisco must meet the following criteria:

1. 24 inch by 36 inch blue line prints.
2. 1 inch = 50 feet horizontal and 1 foot = 5 feet vertical **or**  
1 foot = 20 feet horizontal and 1 inch = 2 vertical.

(Larger scales will be considered.)

Any construction plans, pertaining to this Street Design Criteria, designed for construction in the Town of Frisco shall contain the following information:

1. Scale.
2. North arrow.
3. Plan view of all streets.
4. Grades.
5. Profiles of existing ground and proposed street at centerline (existing ground dashed).
6. Length of vertical curves, BVC's EVC's and PIV's.
7. Culverts including locations, size and slope, and minimum cover.
8. Crosspans including location, size and slope.
9. All other structures.
10. Existing and proposed utility locations and elevations.
11. Existing and proposed signage.
12. Bench Mark, located within 1,000 feet of the street, tied to U.S.G.S. datum, and referenced to the Town GIS datum.

13. Horizontal curve data including radii, delta angles, bearing, distances, centerline stations at 100 foot intervals, and BC and EC stationing.
14. Right-of-way widths.
15. Street cross sections for all typical sections.
16. Street Names, including all intersecting streets.
17. Flow arrows showing direction of drainage.
18. Existing and finished grade contours, 2' spacing (1' spacing may be requested for more detail in flat areas).
19. Complete design drawings for all structures, such as bridges and box culverts.
20. Stamp and signature of the Colorado Registered Professional Engineer under whose direction the plans were prepared.
21. Soils report (where required).

**TABLE 1  
INTERSECTION DESIGN**

<u>Design Topic</u>	<u>Street Type</u>			
	<u>Alley</u>	<u>Local</u>	<u>Collector</u>	<u>Arterial</u>
Minimum Curb or Edge of Asphalt Radius (feet)	25	30	30	40

**TABLE 2**

<u>Street Type</u>	<u>Minimum Dedicated ROW (FT) (see note 1)</u>	<u>Minimum Paved Width (FT)</u>	<u>Minimum Allowable Base And Asphalt (see notes 2,4)</u>
ARTERIAL	100	36 foot paved	4 inch asphalt 5 inch base
COLLECTOR	80	36 foot paved	3 inch asphalt 4 inch base
LOCAL (COMMERCIAL)	60	30 foot paved	4 inch asphalt 5 inch base
LOCAL (RESIDENTIAL)	60	24 foot paved	3 inch asphalt 4 inch base
ALLEYS	40	20 foot paved	3 inch asphalt 4 inch base
CUL-DE-SACS	75 radius	45 foot radius	3 inch asphalt 4 inch base

- NOTES:
1. Required right-of-way may be modified in some cases by the Town Manager or his designee.
  2. Asphalt mat to be placed in two lifts.
  3. Paving fabric may be required, depending on soils testing.

**TABLE 3**

<b><u>STREET TYPE</u></b>	<b><u>DESIGN SPEED (MPH)</u></b> (see note 1)	<b><u>MINIMUM CENTERLINE RADIUS</u></b> <b><u>(FT)</u></b>	<b><u>MINIMUM TANGENT BETWEEN CURVES (FT)</u></b>
LOCAL	25	75	50
COLLECTOR	35	300	150
ARTERIAL	35	300	150

NOTES: Design speed is not necessarily posted speed.