



Town of Edgewood

Agenda

Workshop

Tuesday, February 25, 2025 @ 5:00 PM

Town Hall of Edgewood Commission Chambers - 171A State
Rd. 344

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TOWN OF EDGEWOOD ROAD DEPARTMENT STANDARDS

A POLICY REGARDING THE TOWN OF EDGEWOOD ROAD STANDARDS

The Town of Edgewood adopts the following as its policy regarding road standards within the Town limits. The policy is adopted as recommended standards for construction and maintenance of roads accepted for public use and benefit (Accepted Town Roads). The Governing Body, the Town Manager and the Road Department Superintendent may alter and vary these standards and adjust these as guidelines based upon unique needs as determined by the Town Manager and the Road Department Superintendent.

A separate Road Standard has been developed for the acceptance of newly built subdivision roads and driveway access that connect to Town Accepted Roads. That standard is incorporated into this comprehensive policy standard.

STANDARDS FOR EDGEWOOD BUILT AND MAINTAINED ROAD TYPES

There are two basic road types that are constructed and maintained by the Town of Edgewood Road Department. For arterial or feeder type roads the Town will construct and maintain both gravel surfaced roads and chip seal surfaced roads. Arterial and feeder roads are those which carry traffic from subdivision roads to main traffic carriers such as NMDOT maintained roads and those roads that have been asphalt surfaced by private asphalt or DOT contracts.

Arterial and feeders can be traditional Section Line roads or other roads designated as such by the consensus of the Road Department Superintendent, the Community Development Director and the Town Manager. The Road Superintendent will determine a schedule for the Department to build, improve and maintain roads for the Town. Acceptance of existing roads within the Town but not maintained by the Town shall only be by Resolution of the Governing Body with consultation of the Road Superintendent as to the subject road meeting acceptable standards. Road acceptance shall also be subject to prioritization regarding emerging development needs through consultation with the Director of Community Development. The Town Manager will make a final determination for a request be made to the Governing Body for Resolution of Acceptance.

GRAVEL ROADS (See Sec. 1)

Gravel roads are referred to as low-type surfaces because they usually serve low traffic volumes. This surface type provides the lowest level of service. The basic structure of gravel roads consists of a gravel layer of adequate thickness and quality overlying the subgrade. The thickness of the gravel layer generally depends on traffic volume, quality of gravel available, and the existing soil or subgrade. Structurally, gravel-surfaced roads function as flexible pavements. Structural capacity is achieved by spreading the load over the weaker underlying soil (the subgrade). The basic principle in the thickness design of gravel roads is to provide an adequate thickness based on traffic volume and the strength of the subgrade such that the stress reaching the subgrade does not exceed the in-place strength of the subgrade. For most conditions, a minimum of 100 to 150 mm (4 to 6 in) of gravel is required.

CHIP SEAL PAVEMENTS ROADS (See Sec.2)

A chip sealed road is considered an intermediate-type road. A chip seal road consists of a surface treatment placed on a granular base. The surface treatment consists of a uniform application of asphalt cement to a road surface, followed immediately by a layer of aggregate chips. The surface treatment may be as thin as 6 mm (0.25 in) or as thick as 25 mm (1 in), depending on the size of the aggregate chips and the number of surface treatment applications. On lightly traveled roads, chip seal provides a relatively long-term, inexpensive pavement that does not dust, corrugate (washboard), or lose surface materials from the abrasive action of vehicle tires. However, on roads carrying heavier volumes of traffic (especially trucks), the chip seal pavement provides only a comparatively short service life.

GRAVEL ROAD DESIGN AND REPAIR (Sec. 1)

Section 1.1. Gravel Road Repair Options:

Gravel surfacing is common on low-volume rural roads. If properly constructed and maintained, a gravel-surfaced road provides a low-cost structure that can more than adequately support low-volume traffic conditions. However, proper maintenance is the key to the performance of this roadway surface type. Typically, in the maintenance and repair of a gravel-surfaced road, the following seven distresses/conditions must be addressed:

- *Improper cross section.*

A properly crowned gravel pavement should have 100 to 150 mm (4.0 to 6.0 in) of crown, or slope, from its center to the edge.

- ***Inadequate roadside drainage.***
- ***Corrugations.***
- ***Dust.***
- ***Potholes.***
- ***Ruts.***
- ***Loose aggregate.***

Each of these seven distresses has three severity levels—low, medium, and high. The types of repairs and maintenance that are recommended for a gravel-surfaced road are related to the types and severities of distresses evident in the gravel surface

Blading of the gravel surface is periodically necessary to restore proper pavement crown and remove minor corrugations, potholes, and ruts. When blading a gravel road (especially in the spring or when adequate moisture is present), the top 50 to 100 mm (2.0 to 4.0 in) of gravel should be scarified and reshaped to provide the necessary crown and to eliminate the surface irregularities. When dry conditions exist, only light blading should be done, and care should be taken not to disturb any crust that exists.

Section 1.2. Regraveling

Over time, the gravel layer thickness becomes significantly reduced due to dusting and the pushing of loose gravel to the shoulders and ditches. In these instances, it is necessary to add new gravel to the roadway surface. Regraveling thicknesses are typically in the range of 75 to 150 mm (3 to 6 in).

Section 1.3. Dust Control

Rolling and compacting of a new gravel surface will help to maintain a tight and impervious surface that has few dusting problems. When dusting does occur, it can be minimized through the application of water to the surface. The water will only provide a short-term solution and is seldom feasible except in special situations on short sections of road, whereas the stabilizing agent provides a more long-term solution.

1. The dust control application should be uniformly applied in liquid form by mechanical equipment. The rate of application should be determined on a case by case basis by examination of the condition of road surface.
2. The road surface should be tightly compacted. Additional water may be necessary in order to adequately compact the material.

Section 1.4. Cleaning Ditches

Roadside ditches play a substantial role in providing adequate drainage for a gravel road. It is important that the roadside ditches be properly shaped and sloped and remain free of vegetation and debris. The ditch bottom should always be below the subgrade elevation, and the longitudinal grade of the ditch should be 1 percent or more, if possible, to promote good drainage. Ditches must periodically be cleaned to restore drainage. Erosion of ditches can also be a problem. To prevent erosion of ditches, one of the following techniques can be used:

- Building ditch checks (dams) that reduce the velocity of the flow in the ditch. Letting grass grow in the bottom of the ditch.
- Widening the ditch to shallow the flow and reduce the velocity of the water flow.

Unlike paved roads, gravel-surfaced roads require continual maintenance and repair efforts. On paved roads, maintenance activities typically occur on an annual or biannual basis. On gravel-surfaced roads, maintenance activities are typically performed weekly, every few weeks, or every few months.

CHIP SEAL DESIGN AND REPAIR (Sec 2)

Section 2.1 Chip Seal Pavement Repair Options:

This section identifies the techniques that are typically used to repair chip seal pavements in each of the seven pavement condition categories listed below.

Condition Rating Category Value Range:

Excellent 100 to 86 Very Good 85 to 71

Good 70 to 56

Fair 55 to 41

Poor 40 to 26

Very Poor 25 to 11

Failed 10 to 0

The intent of this section is to identify the different chip seal pavement repair techniques and briefly discuss when application of each of the repair techniques is appropriate. Discussion of specific details of each of the identified repair techniques is provided later in this section. The identified repair techniques primarily address pavement-related deterioration and deficiencies. The techniques do not specifically address geometric related deficiencies, although in some instances both concerns will be addressed (i.e., correction of AC rutting and insufficient pavement cross slope through partial depth replacement of the AC layer).

As the condition of a flexible pavement changes, so does the pavement's repair needs. For flexible pavements in excellent condition, minimal amounts of crack sealing are all that is typically needed. However, for significantly deteriorated flexible pavements, much more expensive repairs, such as full-depth patching, AC overlays, or complete reconstruction, may be necessary. An illustration of the relationship between flexible pavement condition and the corresponding repair method(s) is provided in Figure 5.1. As seen in this figure, a delay in repairing a pavement can result in significantly greater repair requirements. If not properly maintained, a pavement can deteriorate to a condition where low-cost maintenance activities are no longer effective.

Section 2.2. Chip Seal Pavements in Excellent Condition (Rating Value of 86 to 100)

Flexible pavements in excellent condition typically consist of newly-constructed or well-maintained pavements that are in sound structural condition. Typically, the only distresses (if any) in a flexible pavement in excellent condition are minor hairline cracks and minor depressions. Repairs to flexible pavements in excellent condition typically consist of maintenance activities, such as crack sealing. When sealing cracks in a flexible pavement, it is recommended that all visible cracks be routed and sealed. Leaving cracks unsealed, especially as they become wider, can lead to water infiltration and accelerated pavement deterioration.

Section 2.3. Chip Seal Pavements in Very Good Condition (Rating Value of 71 to 85)

The surface of a flexible pavement with a condition rating of 71 to 85 may be partially oxidized or weathered. Also, low- to medium-severity cracking may be present. However, the cracks are generally very tight. Crack sealing is also the primary form of maintenance performed on flexible pavements in very good condition. As previously noted, it is recommended that all visible cracks be routed and sealed when performing crack-sealing operations. In addition to crack sealing,

application of a surface treatment may be appropriate if the pavement surface is substantially weathered or oxidized. Also, full-depth patching should be performed in alligator-cracked and potholed areas.

Section 2.4. Chip Seal Pavements in Good Condition (Rating Value of 56 to 70)

Flexible pavements in good condition typically exhibit noticeable amounts of surface oxidation and raveling. Transverse and longitudinal cracks are typically between 6 and 13 mm (0.25 and 0.5 in) wide. Alligator cracking may begin to be present in the wheelpaths, and rutting of the wheelpaths is becoming more pronounced. Maintenance and minor rehabilitation activities are typically required on flexible pavements in good condition. Crack sealing should still be performed, and alligator-cracked and potholed areas should be patched full-depth. If surface oxidation or raveling is significant, a surface treatment may be appropriate. If rutting is a problem, placement of a thin (38 to 50 mm [1.5 to 2.0 in]), nonstructural AC overlay is recommended.

Section 2.5. Chip Seal Pavements in Fair Condition (Rating Value of 41 to 55)

Pavement deterioration is becoming more advanced in flexible pavements in fair condition. Block cracking is common, and weathering of the AC surface is quite noticeable. The cracks are generally greater than 13 mm (0.5 in) wide, and deterioration of the cracks is prevalent. Rutting in the wheelpaths is more pronounced and may be over 13 mm (0.5 in) deep. Areas of medium- to high-severity alligator cracking may also be present in the wheelpaths. For flexible pavements in fair condition, minor to major rehabilitation is typically required. The appropriate form of repair is highly dependent on the types of distresses present. Scenarios of different pavement conditions and suggested repairs are discussed below. Scenario 1: If the pavement distresses are not predominantly load related (e.g., minimal amounts of alligator cracking and rutting) and primarily consist of longitudinal, transverse, and block cracking, an appropriate form of repair includes sealing cracks, full-depth patching of any alligator-cracked and potholed areas, and placement of a thin (38 to 50 mm [1.5 to 2.0 in]) AC overlay. Partial-depth removal of the AC layer may be necessary to accommodate grade constraints, such as overpass clearance requirements, that cannot be overlaid. Scenario 2: If only minor amounts of alligator cracking are evident and the AC surface is either significantly oxidized or rutted, repair should include the partial-depth removal (milling) and replacement of the AC surface. Scenario 3: If alligator cracking is evident over much of the pavement, especially the wheelpaths, complete removal and replacement of the AC layer is suggested. If the alligator cracking occurred over a typical pavement service life (20 years or more)

and similar traffic conditions are expected, placement of a similar thickness of AC is most likely sufficient. However, if the alligator cracking occurred over a shorter time period or substantially higher truck volumes are anticipated, a greater thickness of AC is needed. If the base thickness is inadequate, pulverizing the in-place AC and combining it with the upper portion of the underlying base course before placing a new AC wearing course should be considered.

Section 2.6. Chip Seal Pavements in Poor Condition (Rating Value of 26 to 40)

Flexible pavements with this condition rating are badly deteriorated. Severe alligator cracking is common, with pieces of AC missing and potholes present. Rutting is also common on flexible pavements in this condition, and the pavement's rideability is typically poor. Chip seal pavements in this condition generally require major rehabilitation. The repair techniques discussed in Scenario 3 are typically appropriate. However, if significant quantities of the underlying base and subgrade require stabilization prior to placement of the new AC layer(s), it may be more appropriate to perform complete reconstruction. The actual percentage of base course/subgrade stabilization at which total reconstruction becomes more cost-effective will vary from county to county, depending on actual construction costs. 5.1.6. Flexible Pavements in Very Poor and Failed Condition (Rating Value of 0 to 25) Flexible pavements in either very poor or failed condition have reached a condition level in which traffic operation is difficult. Potholes and alligator cracking are extensive, and rut depths may exceed 20 mm (0.75 in). Complete reconstruction is the only appropriate means of pavement repair.

Section 2.7. Chip Seal Pavement Repair Techniques

Crack Sealing: The purpose of sealing cracks in a flexible pavement is to minimize the amount of water entering the pavement system through the pavement surface and to minimize the amount of deterioration (spalling, additional cracking) along the edges of cracks. **Procedures:** There are many methods of sealing (or filling) cracks in a flexible pavement. One of the easiest and cheapest methods is to simply blow debris out of the cracks with an air compressor and fill the cracks with a suitable hot-pour asphalt sealant. Unfortunately, use of this method typically results in poor crack sealant performance. More elaborate methods of crack sealing can include crack routing, backer rod placement, use of high-quality sealant materials, and placement of a sealant overband. These advanced methods obviously cost more initially, but the increased sealant performance and life generally offset the increase in initial cost. During summer months, the sun-heated sealant will be picked up by pedestrians and turning vehicles. Therefore, the use of the standard reservoir-and-

flush configuration is recommended. The results of a recent national study on flexible pavement joint sealants indicated that both methods D and E exhibited very good performance characteristics. Therefore unless the sealant is only needed to perform for 1 year or less (e.g., an overlay is to be placed over the pavement in the very near future), use of the standard reservoir-and-flush configuration is recommended.

1. Cracks should be routed with a star bit router or random crack saw. The routed channel should be 20 mm (0.75 in) wide and 20 mm (0.75 in) deep. Cracks greater than 20 mm (0.75 in) wide during the summer months will not require routing but should be thoroughly cleaned to a depth equal to the crack width.
2. An inert compressible material (e.g., backer rod) should be inserted along the bottom of cracks deeper than 20 mm (3/4 in). The material should be positioned such that the sealant depth will be equal to the crack width.
3. The channel shall be thoroughly cleaned of all dust, dirt, and loose materials with oil-free compressed air immediately before sealant application.
4. The channel shall be overfilled with sealant and shall be squeegeed with a U-shaped device that treats the roadway surface 25 to 75 mm (1 to 3 in) on each side of the channel.
5. In areas of high pedestrian traffic or turning vehicles, the channel shall be filled with sealant so that the sealant is flush with the pavement surface.

For low volume areas, a less elaborate means of sealing cracks is recommended. Crack routing is generally not effective on these pavements; the routing operation typically chips the surface treatment. Therefore, on blotter pavements, either method A or method C is recommended, and method C is preferred. For both of these methods, it is imperative that the crack be thoroughly cleaned with oil-free compressed air. Materials: For sealing cracks in flexible (blotter and AC-surfaced) pavements, the SDDOT requires the use of a rubberized asphalt sealant (hot-pour) meeting the requirements of the American Society for Testing and Materials (ASTM) Test Designation D 3405. Several manufacturers produce sealants that meet these requirements.

GENERAL HARD SURFACE REPAIRS (Sec. 3)

The intent of this section is to identify pavement repair techniques for both chipseal and asphalt pavement type roads maintained by the Town and to briefly discuss when application of each of the

repair techniques is appropriate. The identified repair techniques primarily address pavement-related deterioration and deficiencies. The techniques do not specifically address geometric related deficiencies, although in some instances both concerns will be addressed (i.e., correction of AC rutting and insufficient pavement cross slope through partial depth replacement of the AC layer).

Section 3.1. Pothole Patching

Potholes create a significant hazard to the traveling public. Extensive vehicle damage and personal injury can result when a vehicle hits a pothole. Therefore, patching of potholes, regardless of the overall pavement condition, is necessary. Procedures: To restore smooth rideability, potholes should be permanently patched under procedures outlined in this specification are summarized below.

1. Remove all loose and unstable material from the pothole (normally not more than 305 mm [12 in] deep).
2. Make sure the hole and surrounding area are dry.
3. Provide vertical faces along the sides of the hole.
4. Apply a very light tack coat of asphalt to all exposed surfaces in the hole.
5. Place the bituminous premix in lifts. The uncompacted thickness of each lift should not exceed 65 mm (2.5 in).
6. Compact each lift by hand, truck wheels, or mechanical compactors prior to placement of additional lifts.
7. Construct the top of the patch to an elevation slightly higher (not more than 6 mm [0.25 in]) than the surrounding surface. This will allow for minor settlement of the patch under traffic. Materials: Pothole patching can be done with a standard cold-mix material or with a high-quality proprietary material. The standard cold-mix material will typically provide a relatively short (less than 1 year) service life. The higher quality material may provide up to 3 years of service life, depending on the care taken during installation. As expected, the higher quality material is more expensive.

Section 3.2. Procedures: To perform patching of alligator cracked areas

The following basic procedures should be followed:

1. Remove the existing AC (or surface treatment) layers. Cold milling is an effective method of removing these layers.
2. Remove the underlying base/subbase materials to a depth equal to that of the previously removed AC layer or until the subgrade is reached, whichever is the lesser. The purpose of this is to provide a new AC layer that is thicker than the existing alligator-cracked area. The selection of an AC patch thickness that is twice the existing AC thickness is arbitrary and can be modified based on local experience.
3. Provide vertical faces along the perimeter of the removal area.
4. Apply a light tack coat of asphalt cement on the exposed surface of the patch area.
5. Reconstruct the patch area with plant-mixed asphalt concrete.

Section 3.3 Surface Treatments

Surface treatments are typically constructed by applying a layer of asphalt cement that is covered with a layer of aggregate. Depending on the size of aggregate, surface treatments can vary in thickness from 6 to 20 mm (0.25 to 0.75 in). The thicker surface treatments generally consist of multiple (double or triple) applications of asphalt and aggregate. Surface treatments are also a commonly used pavement rehabilitation technique. Surface treatments provide increased skid resistance, reduce the infiltration of water through the pavement surface, minimize raveling of the existing surface, and minimize the oxidation of the underlying asphalt materials.

1. Seal coating with either asphalt cutbacks or emulsified asphalts should not be performed when the air temperature is below 10°C (50°F). However, when possible, a minimum air temperature of 16°C (60°F) is recommended.
2. Clean the existing surface of all foreign material.
3. If the existing surface is gravel (such as in blotter pavement construction), apply an asphalt prime coat to the gravel surface.
4. Apply a uniform application of asphalt. Typically the asphalt should be spread at a rate of 1.1 to 2.2 liter/m² (0.25 to 0.50 gallons per yd²).
5. Apply a uniform application 11 to 25 kg/m² (20 to 45 lb per yd²) of cover aggregate immediately after application of the asphalt.

6. Roll the sealed area immediately with a rubber tire roller. If a roller is not available, the wheels of a loaded truck are acceptable. Three complete coverages should be made. The roller speed should not exceed 8 kph (5 mph).

7. Newly sealed areas should be broomed lightly the following morning to remove loose aggregate. A second brooming should be performed within 2 to 4 days of the first.

Additional notes: Cutback asphalts are asphalt cements that have been cut back (diluted) with a liquid distillate (gasoline, kerosene, or diesel). As the distillate evaporates, the asphalt becomes more viscous (stiffer). The use of cutback asphalts has been restricted due to environmental concerns. Asphalt emulsions are mixtures in which small globules of asphalt cement are dispersed in water by means of an emulsifier (soap-like material). An emulsion is brown in color when first applied, and it is critical that the aggregate is placed while the emulsion is still brown. Shortly after placement, the water evaporates and the emulsion "sets" or "breaks," turns black, and leaves a continuous film of asphalt on the aggregate. When the emulsion breaks, it is too late to apply the aggregate. When using emulsified asphalts, the compatibility of the aggregate and the asphalt must be verified. Otherwise, asphalt stripping may occur. In general, a well-designed surface treatment will have approximately 50 to 70 percent of the aggregate embedded in the asphalt, with 30 to 50 percent of the aggregate exposed above the asphalt layer. Typically, one-sized aggregate chips are best for surface treatment work. However, one-sized aggregate may not be available in all areas. If not, care should be taken to ensure that the aggregate does not contain a significant amount of fines because the fines reduce the effective amount of asphalt to such a low amount that the asphalt is not capable of bonding to the aggregates. An excess of fines will also soak up the asphalt material, reducing the bonding and waterproofing capability of the treatment.

CONSTRUCTION INSPECTION (Sec.4)

The application of a surface treatment should begin only after the materials and equipment have been thoroughly inspected. The work should also be closely monitored to ensure quality. Key points of inspection include the following.

1. Surface inspection.
2. Calibration of equipment. · Asphalt distributor. · Aggregate spreader.
3. Control and determination of quantities of asphalt and aggregate applied.

4. Timeliness of the construction sequence. · Application of asphalt. · Application of aggregate. · Initiation and completion of rolling. · Sweeping after completion.

5. Continued quality control of the materials: AC overlays may be constructed over existing surface treatments or existing AC pavements. AC overlays may be necessary to correct structural deficiencies (e.g., insufficient pavement thickness) or to improve a pavement's functional characteristics (e.g., skid resistance, rideability, cross slope). Prior to placing an AC overlay, alligator-cracked areas should be patched and pavement cracks should be routed and sealed. Immediately prior to placing the overlay, the existing pavement surface should be swept clean of foreign and loose materials, and an asphalt tack coat should be applied to the pavement surface. The tack coat will promote bonding between the overlay and the existing pavement.

Section 4.1. Thickness requirements

Most AC overlays constructed on Edgewood's existing AC-surfaced rural roads are functional overlays that are approximately 38 to 50 mm (1.5 to 2.0 in) thick. The 38 to 50 mm (1.5 to 2.0 in) thickness is generally the minimum thickness of AC that can be properly placed. AC thicknesses should always be at least twice the diameter of the maximum aggregate size in the AC mixture, and in most AC mixtures, a 20- to 25-mm (0.75- to 1.0-in) diameter maximum aggregate size is used. There are instances when more than a minimum-thickness functional overlay is required on an existing AC-surfaced road. Also, an overlay thickness greater than 20 to 25 mm (0.75 to 1.0 in) is necessary on an existing blotter road in order to achieve good pavement performance. In these situations, the required overlay thickness is dependent on the condition and structural capacity of the existing pavement, as well as the forecasted level of traffic. A simple method of determining the required AC overlay thickness is through the use of the following equation:

$ACOL = 2.5 SN - 2.5 Cd [0.40 HAC + 0.14 HAGG]$ (Eq. 5.1) where ACOL = Required AC overlay thickness, in. SN = Required pavement structural number obtained from Table 5.1 in section 5.2.7 of this document. Please refer to Table 5.1 for discussion of the assumptions used in calculating the required SN. Cd = Existing pavement condition index (0.90 for pavement in overall good condition, 0.80 for pavement in overall fair condition, and 0.70 for pavement in poor condition). HAC = Existing AC thickness, in. HAGG = Existing aggregate base thickness, in. This equation is a simplified application of the AASHTO pavement design procedures.

AC mix design: Quality pavements begin with quality mix design. Several elements should be considered when designing an asphalt concrete mix. These include aggregates, asphalt cement, and various properties of the asphalt concrete mixture. Generally, aggregates should be cubical in shape, rather than flat, thin, or elongated. Angular-shaped particles provide greater interlock and internal friction, resulting in greater stability. Rounded particles, such as natural gravels and sand, provide less stable mixtures. Project specifications should indicate the required percentage of fractured faces for both fine and coarse aggregates. Aggregates not having a sufficient amount of fractured faces tend to have low stability and are prone to excessive rutting.

Aggregate gradation is a primary consideration in all asphalt concrete mix design. Coarse aggregates, fine aggregates, and mineral filler should be blended to achieve a proper gradation. Aggregate gradations should be dense-graded, yet still contain sufficient void space to permit enough asphalt cement for durability, while still leaving some air space to avoid bleeding and/or rutting. Use of excessive fines should be avoided. These excess fines can result in mixes which are too densely graded and do not allow sufficient air void space. Mixtures high in fines may also be more sensitive to slight changes in asphalt content. The proper grade of asphalt cement must be selected to ensure adequate performance. This selection is based largely upon geographical location and the type of mixture being designed. In colder climates, such as in South Dakota, lower viscosity asphalts (such as an AC-10 or AC-5) should be considered to avoid low-temperature cracking. Optimum asphalt content is determined through laboratory testing using either the Marshall criteria or other design methods (e.g., Hveem and SHRP). Optimum asphalt content is generally determined by finding the asphalt content which corresponds to the median air void content (typically 4 percent) of the specifications. Other mix design parameters such as stability, flow, and voids in mineral aggregate (VMA) are then checked against the specifications and the mix is either accepted or redesigned if necessary.

Air void content is one of the more critical parameters in mix design. The air void content in the compacted dense-graded mixture is usually suggested to be between 3 and 5 percent. If the void content is too low, the result is reduced intergranular contact and lower shear resistance, which can lead to rutting or bleeding problems. Air void contents which are too high result in a mix which is more permeable to air and water than is desirable, allowing for premature oxidation or stripping of the asphalt cement. It is essential that proper void content be achieved in the field through compactive effort only and not through increased asphalt cement content. Construction

inspection: In asphalt concrete overlay construction there are several key areas of concern, including surface preparation (cleanliness and tack coating), AC mixture control, AC mixture temperature control, placement, compaction, jointing, and protection. Many of these items require laboratory or field testing, whereas others only require visual inspection. Prior to placing an AC overlay, alligator-cracked areas should be patched and pavement cracks should be routed and sealed. Immediately prior to placing the overlay, the existing pavement surface should be swept clean of foreign and loose materials, and an asphalt tack coat should be applied to the pavement surface.

STANDARDS FOR NEW PRIVATE DEVELOPED ROADS (Sec.5)

Section 5.1. Compliance required.

A. All road design and construction taking place on or intersecting with Town of Edgewood or local access roads shall be in compliance with the design standards set forth in this chapter. All standards set forth in this chapter apply to new county roads, local access roads, private roads and driveways unless otherwise specified.

B. New roads and improvements to existing roads may be inspected by the Town of Edgewood Road Supervisor or the Town's designated engineer for compliance with the standards set forth in this chapter.

C. All engineering and survey stamps required shall be by professionals licensed in the state of New Mexico for the engineering and/or survey discipline required.

Section 5.2. Minimum standards established.

The design standards contained within this chapter are the minimum standards governing the design of roads and other transportation improvements and facilities.

Section 5.3. Implementation of requirements.

It is the duty of the Road Supervisor to implement the provisions and requirements of this chapter in such a way as to carry out its intent and purpose.

Section 5.4. Additional design requirements.

The Road Supervisor may impose additional design requirements as are reasonably necessary to protect the interests of the public. The Town reserves the right to set lesser standards for work done on local access roads; provided, that it is determined to be in the public interest to do so.

Reconstruction to full Town road standards will be required prior to consideration of acceptance of any road into the Town road system

Section 5.5. Approval of variations.

A. The Road Supervisor, after consultation with the Planning and Zoning Manager, may approve variations in the improvement standards of this chapter or allow incremental improvements when circumstances warrant, such as when a road will provide access only for undeveloped parcels, or when the surrounding road system does not comply with the standards. A variation will only be approved if:

1. There is no adverse impact to the public in allowing the variations;
2. The variation promotes the intent and purposes of the standards and is in compliance with all applicable requirements of the **Town of Edgewood Zoning Ordinance (2022-07)** and the Town of Edgewood **Subdivision Ordinance (2019-04)**.
3. There are practical difficulties that will create an unreasonable construction expense. Self-imposed difficulties will not be considered; and
4. The variation will not result in the sacrifice of a significant public benefit.

B. The decision by the Town Road Supervisor to grant or deny a variation of the road standards may be appealed to the Town Manager. A written appeal must be received by the Manager's office within ten (10) days of the date the public works director issues a decision on the proposed variation.

Section 5.6. New Roads.

A. The location, width and grade of roads shall be considered in their relation to existing and planned roads, topographical conditions, public convenience, safety and the proposed use of land to be served by the roads. The road system shall assure an adequate traffic circulation system for all modes of transportation, including pedestrians, bicycles and automobiles, with intersection angles, grades, tangents, and curves appropriate for the traffic to be carried, considering the terrain.

B. Road development and access onto existing roads shall be in accordance with any adopted transportation system plan.

C. Adoption of a road into the Town road system shall be at the discretion of the Town Commission. To be considered for adoption into the Town road system, a road or system of roads

must be contiguous with the existing Town road system through connection with either a Town, county or state road and comply to the satisfaction of the Town of Edgewood Road Supervisor, in all respects, to the design standards set forth in this chapter and the construction standards set forth herein.

D. Roads not accepted into the Town road system shall be either public local access roads, or private roads.

Section 5.7. Existing roads.

Whenever existing roads, adjacent to or within a tract, are of inadequate width to accommodate the increase in traffic expected from any proposed development, additional rights-of-way to meet current standards may be required. Improvements to adjacent roads and intersections may be required if road capacity, traffic flow, public safety, or the road surface will be directly affected by traffic that will be generated by the proposed development. Any requirement for road improvements or dedication of additional right-of-way will be based on a direct nexus between the level of road impacts that will be caused by the development and the level of road improvements that are required.

Section 5.8. Continuation roads.

A new road which will constitute the continuation of an existing road shall be aligned so that the centerlines of the new and existing roads coincide. Where a straight-line continuation is not possible, the centerline shall be continued by a curve.

Section 5.9. Limiting access to arterials and collectors.

When an application is submitted to develop or divide a parcel that abuts or contains an existing or proposed collector or arterial road, the Town may limit access to the arterial or collector by requiring the design of that access to be approved by the Road Department manager. To include turnouts, culverts and other appropriate measures.

Section 5.10. Minimum right-of-way and roadway width.

The road right-of-way and roadway surfacing width shall be in conformance with Table A, Minimum Road Design Standards, or as otherwise specified in this chapter. Additional right-of-way for construction of drainage easements may be required if necessary to provide for water drainage flow and to contain the limits of cuts, fills and structural improvements.

Section 5.11. Road design.

A. Roads shall be designed to the design standards set forth in Table A, Minimum Road Design Standards, and this chapter. Base rock and pavement dimensions set forth in Table A may be

increased by the Road Supervisor in consultation with the Planning and Zoning Manager if it is deemed to be necessitated by anticipated traffic volumes or geotechnical considerations traffic loads consistent with the ultimate development of the road system.

B. The design of bridges included in the alignment of a road shall be prepared by a registered professional structural engineer and shall at a minimum include a traveled way six feet wider than the road served by the bridge, support a HS20 wheel loading and conform in all other respects to the design standards and specifications for new bridges consistent with current accepted engineering design standards. The Road Supervisor may impose additional criteria if necessary to accommodate emergency vehicle access, future capacity or other design considerations.

C. Cuts or fills in excess of four feet and steeper than two to one slope shall require either a geotechnical report by a registered professional engineer indicating adequate slope stability for the material involved or a retaining structure design prepared by a registered professional engineer to current standards for the materials and methods proposed.

D. All designs prepared in relation to the requirements of this section are subject to review and approval of the Road Supervisor.

TOWN ROAD DEVELOPMENT REQUIREMENTS (Sec. 6)

The intent of this section is to identify the requirements of privately developed roadways that are to be developed with the intent of having the potential for Town Road Department maintenance. Standards for prior existing roads that wish to seek Town Road Department maintenance these standards are guidelines with any final determination made based upon recommendation by the Road Superintendent and the Development Director to the Town Manager. These determinations will be made on a case by case basis.

Construction standards for roads that the Town of Edgewood Commission will agreed to accept into the Town road system will be based on the functional classification of the road. New Town roads shall comply with the construction standards set forth in Table A, Minimum Road Design Standards and this Section 9.0, unless the developer submits a design report prepared by a registered engineer proposing alternative specifications that the engineer certifies are equivalent or superior to these standards, and the Road Supervisor and the Planning and Zoning Manager concurs.

B. Minimum tangent and minimum curve radius shall be in accordance with generally accepted design standards and approved by the Road Supervisor.

C. Additional, higher standards may be required by the Road Supervisor when necessary to address heavy traffic demands, geotechnical considerations, environmental requirements or other factors.

Section 6.1. Local access road development requirements.

A local access road is a public road that is not a Town road, county road, state highway or federal road. New local access roads shall be dedicated to the public but shall be constructed and maintained by private parties. Development of a new local access road, including surveying, recording of dedication documents, construction, placement of signs, and ongoing maintenance are the responsibility of the developer or abutting property owners. Town funds may be expended for repair of existing local access roads only in limited emergency circumstances. The Town and its officers and employees shall not be liable for failure to improve or repair a local access road.

A. Construction standards for local access roads are the same as the standards for county roads in Section 7.0 and Table A, Minimum Road Design Standards.

B. The subject property owner/developer shall provide documentation and shall certify that the road was constructed in compliance with the standards in this Section 7.0 and the road improvement plans approved by the Road Supervisor.

Section 6.2. Private Road development requirements.

No Town funds will be expended for development, construction or maintenance of a private road, nor will the Town or any of its officers or employees be liable for failure to improve or repair a private road.

A. Private roads shall be constructed to meet the standards for county roads in Section 7.0 of this Standard and Table A, Minimum Road Design Standards.

B. For residential subdivision developments of ten or fewer lots, the subject property owner/developer shall provide documentation and shall certify that the road was constructed in compliance with the standards specified in this Chapter 7.0 and the road improvement plans approved by the Road Supervisor.

C. For residential subdivision developments of ten lots or greater, a New Mexico registered professional engineer shall provide documentation and shall certify that the road was constructed

in compliance with the standards specified in this Road Standards and the road improvement plan approved by the Town Road Supervisor.

C. Private roads may be gated, provided the gate is a minimum of twenty (20) feet wide and is constructed in a manner that will allow manual operation by one person. Gates shall not be locked unless equipped with a Knox box purchased from the fire district with keys provided to all emergency service providers.

Section 6.3. Road improvement plans.

A. Copies of the improvement plans for new or reconstructed roads (non-engineered) shall be submitted to the Road Department for review. Construction of the road shall not commence until the plans have been approved by the Superintendent.

B. A complete final set of plans and drawings, computer file or other media acceptable to the Road Superintendent shall be approved by the Superintendent prior to the start of construction or improvement to any road. The improvement plans shall become the property of the Town and will remain at the Planning and Zoning and Road Departments.

1. Sheet one shall be a cover sheet and shall include:
 - a. Project title;
 - b. Location map;
 - c. Vicinity map;
 - d. Legend;
 - e. Plan sets including five or more sheets shall include an index on the cover sheet.
2. All plan views and maps shall include a clearly marked north arrow.
3. Scales shall be clearly indicated in the title block of each sheet.
4. Plan views shall show:
 - a. Dimensioning necessary to survey and relocate the roadway;
 - b. Dimensioned right-of-way lines as shown on the final plat;

- c. Existing easement and recording references;
 - d. Type, location and size of all existing and proposed drainage and irrigation structures; and
 - e. Location and type of all existing and proposed signs and barricades.
 - f. Type, location, size, flow and finished grade elevations of all existing and proposed drainage, irrigation structures and utilities within the right-of-way.
5. Structural section sheets shall include but not be limited to:
- a. Width, depth and type of base layer(s);
 - b. Width, depth and type of paving;
 - c. Side slopes;
 - d. Ditch section;
 - e. Crown slope; and
 - f. Utilities.
10. Structural and detail plans of all structures, including, but not limited to, bridges, drainage structures, irrigation structures and sewer lines, stamped by a registered engineer.
11. Any other information required by the Road Department Director, Planning and Zoning Manager, Town engineer, or hearings body.

INTERSECTIONS (Sec. 7)

All intersections shall be planned for through traffic on the road with the greatest projected average daily traffic (ADT). The side road shall be at right angles (ninety (90) degrees) to the main road unless physical constraints of the site or topography require a lesser angle. In no case shall a new road enter an intersection at an angle of less than seventy-five (75) degrees

Section 7.1. Minimum Intersection Spacing

New roads shall be in accordance with the access spacing distances specified in Table A, Minimum Road Design Standards. Distances shall be measured between intersection centerlines

of the roads. Access to state roads and highways shall be at current DOT standards and are subject to review and approval by NMDOT.

Roads located on opposite sides of a through street shall either have their centerlines directly opposite each other or shall meet the minimum access spacing standards specified in Table A.

DRAINAGE (Sec.8)

A. Minimum Requirements. Drainage facilities shall be designed and constructed to receive and transport at least a fifty (50) year storm frequency for all surface drainage water coming to and passing through the development. The public works director may require additional capacity if failure of the drainage structure would adversely impact highways, railroads, utilities, or emergency services or facilities. The system shall be designed for maximum allowable development of the drainage area served by the drainage facility.

B. Road culverts shall be corrugated metal pipe with a minimum design life of fifty (50) years. All cross culverts shall be eighteen (18) inches in diameter or larger. Where unusual site conditions warrant and a fifty (50) year storm would not cause backflooding, a twelve (12) inch diameter culvert may be approved in advance at the discretion of the Road Supervisor. Culverts shall be placed in natural drainage areas and shall provide positive drainage. Culverts installed more than ten (10) feet below road grade shall be six inches larger in diameter than otherwise required in this section.

C. Driveway culverts, where required, shall be twelve (12) inches in diameter or larger and shall be sized such that the culvert will not impede the flow of a fifty (50) year storm.

D. The grade line of ditches shall be constructed such that ditches and culverts shall share common flow lines.

E. A minimum of one foot of cover shall be required for all culverts.

F. Culverts over sixty (60) feet in length and/or having over four feet of cover shall be considered storm sewers and shall be designed and installed in accordance with DOT storm sewer standards.

G. Drainage Plans. A complete set of drainage plans, stamped by a licensed engineer, including hydraulic and hydrologic calculations, shall be incorporated in all road improvement plans.

H. Culverts shall be installed in accordance with standard specifications.

I. Bridges will be designed by a registered professional structural engineer in accordance with current AASHTO and DOT standards and shall include a stamped set of plans and specifications. All bridges shall be designed to receive and transport a minimum one hundred (100) year storm frequency of all drainage water coming to the structure at full development of the drainage.

DRIVEWAYS (Sec. 9)

A. Permit Required. Access or change in type of access onto a county or local access road shall require a permit from the community development department. Access roads shall conform to this code and current Fire Code. Access shall be denied at locations that do not meet minimum sight distance and spacing standards. Proof of legal access, provided by the owner/developer, shall be required for all parcels not fronting directly on a Town or local access road.

B. Access Restrictions and Limitations. Driveway access onto arterials and collectors shall not be permitted within one hundred fifty (150) feet of an intersection, or the maximum distance obtainable on the parcel, whichever is less. Driveway access onto minor collectors or local roads shall not be permitted within one hundred (100) feet of an intersection, or the maximum distance obtainable on the parcel, whichever is less.

C. Driveways shall be spaced at least seventy-five (75) feet apart, measured from the centerline of the driveway, except at the bulb end of a cul-de-sac or when an existing lot width is less than seventy-five (75) feet. Driveway spacing shall be in accordance with applicable city standards when the lot is within an urban growth boundary. Loop driveways shall not be permitted on arterials or major collectors. Loop driveways may be permitted on minor collectors or local roads if the interval between the two access points of the loop driveway is at least seventy-five (75) feet, and both access points are at least seventy-five (75) feet from the driveways on adjacent parcels.

D. When a parcel abuts more than one road, access shall be obtained from the road with the lower functional classification unless unfeasible because of topography or other physical feature.

E. Commercial and Industrial Access. Requirements for commercial and industrial access will be determined by the public works director. Safety improvements, including but not limited to left turn lanes, acceleration lanes, and traffic separation may be required.

F. Safety improvements, including but not limited to the removal of obstructions or the sloping of cut-banks within the public right-of-way of the parcel served, may be required if deemed necessary by the Road Supervisor. The Supervisor may require that any such improvements within the public right-of-way be completed by the Town Road Department or a licensed contractor. All such work

shall be at the sole expense of the landowner. The owner shall be required to post a bond for the cost of such work prior to the beginning of construction.

G. Sight Distance. Sight distance shall meet current AASHTO standards.

H. Access Width. The minimum surface width for a private residential driveway is fourteen (14) feet. The minimum width for commercial driveway will be determined by the Santa Fe County Fire Department.

2. Access roads and driveways serving more than one residence shall have a surface width of at least twenty (20) feet.
3. Commercial or industrial buildings that will have any portion of an exterior wall more than one hundred fifty (150) feet from an existing road shall have an emergency vehicle access drive with a surface width of at least twenty (20) feet.
4. A minimum clear height of at least fourteen and one-half (14-1/2) feet shall be maintained for the entire width of the driveway.
5. Access shall be designed and constructed to maintain a minimum seventy-five thousand (75,000) pound load carrying capacity. If not designed by an engineer, driveways shall be constructed of a minimum of five compacted inches of crushed rock meeting NMDOT material standards. The road shall be compacted until a loaded ten (10) cubic yard dump truck ceases to deflect the road.
6. Maximum finished grade shall be no greater than ten (10) percent unless approved by the fire chief. Grade shall not exceed four percent in turnarounds. Any portion of the access with a grade greater than eight percent shall be surfaced with one-and-one-half-inch class C asphalt mix, 0-11 oil mat, or four-inch fiber mesh reinforced Portland cement concrete.

TABLE A

	Residential Driveway	Commercial Driveway	Subdivision Ten Lots or Less	Subdivision Over Ten Lots	Minor Collector Road	Major Collector Road	Arterial
Typical ADT	N/A	N/A	10 -120	6 x No. of lots	600 - 1200	800 - 2500	2500 – or more
Min. Width*	14 ft	28 ft	20 ft	24 ft	50 ft	60 ft	72 ft
Lane Width*	14 ft	14 ft	10 ft	12 ft	25 ft	30 ft	36 ft
Shoulder*	N/A	4 ft	4 ft	6 ft	8 ft	8 ft	8 ft
Min. Access Spacing*	100 ft	300 ft	100 ft	100 ft	300 ft	500 ft	1000 ft
Surface Type	Gravel / CS / AC	Gravel / CS / AC	Gravel / CS / AC	Gravel / CS / AC	Gravel /CS / AC	CS / AC	CS / AC
Base Depth	6"	6 "	6 "	TBD	TBD	TBD	TBD
Typical Grade	2% - 3 %	2% - 3 %	2% - 3 %	2% - 3 %	2% - 6 %	2% - 6 %	2% - 6 %
Max Grade	8 %	8 %	8 %	8 %	8 %	8 %	10 %
Organize Ditch	3:1 or Flatter	3:1 or Flatter	3:1 or Flatter	3:1 or Flatter	TBD	TBD	TBD
Crown from Center	2% - 3 %	2% - 3 %	2% - 3 %	2% - 3 %	2% - 3 %	2% - 3 %	TBD