

City of Concord Technical Standards Manual

Article III

~~Driveways~~ Driveways & Street Connections



TABLE OF CONTENTS

Article III

1.0 PURPOSE 1

2.0 APPLICABILITY..... 1

3.0 DRIVEWAY PERMITS..... 2

4.0 DRIVEWAY APPROACH STANDARDS.....3

 4.1 – Widths 3

 4.2 – Location..... 4

 4.3 – Materials 4

5.0 DRIVEWAY SEPARATION.....4

 5.1 – Minimum Driveway Separation 4

 5.2 – Stem Lengths..... 4

 5.3 – Side Clearance 6

 5.4 – Shared Access Points..... 6

 5.5 – Corner Clearance..... 6

 5.6 – Corner Lots 6

6.0 MEDIAN AND ISLAND STANDARDS FOR DRIVEWAYS6

 6.1 – Applicability..... 6

 6.2 – Location..... 6

 6.3 – Size 6

7.0 ALIGNMENT AND GRADES6

 7.1 – Sidewalk Crossings 6

 7.2 – Angle 6

 7.3 – Directional Restrictions 7

 7.4 – Near Traffic and Utility Structures 7

8.0 TURN LANES.....7

9.0 ONE-WAY ACCESS POINT STANDARDS.....8

 9.1 – Signage 8

10.0 ROADSIDE DRAINAGE..... 9

 10.1 – Drainage System 9

 10.2 – Modifications 9

 10.3 – Piping Existing Ditches 9

 10.4 – Pipe Construction Options 10

CONCORD TECHNICAL STANDARDS MANUAL

DRIVEWAYS1.0 To provide maximum safety and protection to the public through the regulation of vehicles entering and exiting public streets, andPurpose

10.5 – Acceptable Piping Materials	10
10.6 – Acceptable Grates and Frames	10
11.0 INSPECTIONS	10
12.0 STREET AND UTILITY REPAIRS.....	10
13.0 USE AND PROTECTION OF PROPERTY	11
13.1 – Rights-of-Way.....	11
13.2 – Raised Curbing	11
13.3 – Parking Areas and Loading Areas.....	11
14.0 PROTECTING THE PUBLIC FROM INJURY.....	12
15.0 PARKING AND LOADING.....	12
15.1 – Parking Aisle and Space Dimensions.....	12
15.2 – Overhang Protection.....	13
15.3 – Striping Required	13

TABLES AND FIGURES

TABLES

4-1 – Minimum and Maximum Access Widths	3
5-1 – Minimum Driveway Separations.....	5
5-2 – Minimum Stem Lengths.....	5
5-3 – Minimum Side Clearance	6
15-1 – Parking Area Dimensional Standards.....	13

FIGURES

2.4-1 – Existing Development Expansion Example	2
------------------------------------------------------	---

APPENDICES

TABLE OF CONTENTS
Article III

H-1 Purpose	
H-2 Applicability	4
H-3 Driveway Permits.....	5

H-4	Driveway Approach Standards	5
	— Widths	
	— Location	
	— Materials	
H-5	Driveway Separation.....	7
	— Minimum Driveway Separation	
	— Non-Residential Stem Lengths	
H-6	Median and Island Standards for Driveways.....	7
	— Applicability	
	— Location	
	— Size	
H-7	Alignment and Grades	8
	— Side Clearance	
	— Corner Clearance	
	— Corner Lots	
	— Sidewalk Crossings	
	— Angle	
	— Directional Restrictions	
	— Near Traffic and Utility Structures	
	— Shared Access Points	
H-8	Turn Lanes	9
H-9	One-Way Access Point Standards	10
	— Signage	
H-10	Roadside Drainage.....	11
	— Drainage System	

CONCORD TECHNICAL STANDARDS MANUAL

DRIVEWAYS1.0 To provide maximum safety and protection to the public through the regulation of vehicles entering and exiting public streets, and Purpose

—	Modifications	
—	Piping Existing Ditches	
—	Pipe Construction Options	
—	Acceptable Piping Materials	
—	Acceptable Grates and Frames	
H-11	Inspections	13
H-12	Street and Utility Repairs	13
H-13	Use and Protection of Property	14
—	Rights-of-Way	
—	Raised Curbing	
—	Parking areas and loading areas	
H-14	Protecting the public from injury	15
H-15	Standard Details	16
—	Single-Family Residential Driveway with Ribbon Pavement	
—	Typical Driveway Approach with Sidewalk Crossing	
—	Concrete Curb and Gutter Driveway Cut	
—	Ditch Piping for Ribbon Pavement Streets	
—	Single-Family Residential Driveway with Ribbon Pavement Street	
—	Typical Driveway with an Island	
—	Non-Residential Driveway Spacing	
H-16	Non-Residential and Multi-Family Development	23
—	Parking Aisle and Space Dimensions	
—	Overhang Protection	

— Striping Required

— Sight Triangles

DRAFT

1.0 Purpose

The safety and efficiency of streets are impacted by the amount and type of interference experienced by the vehicles traveling on it. The purpose of this Article is to minimize interference with traffic flow and accidents and promote the best overall utilization of the street by controlling vehicles entering, leaving, and crossing the street at intersections and driveways. The City recognizes the right of abutting property owners to access their property from the street; however, the rights of other users of the street to travel with relative safety and freedom from interference must also be considered. ~~These standards have been established:~~

The requirements contained within this article will serve as the rules and regulations to permit connections to public streets per Article IV, Section 50-121 of the City Code of Ordinances and have been established:

- 1.1. To provide maximum safety and protection to the public through the regulation of vehicles entering and exiting public streets, and
- 1.2. To provide uniform standards for the design, location, operation, and construction of driveways and street connections throughout the City, and
- 1.3. To provide owners of abutting property with the maximum service feasible, consistent with the safe and efficient use of City streets.

2.0 Applicability

2.1. This article includes the standards for all access points and driveways planned to connect to a ~~publicly maintained~~publicly maintained street within the corporate limits and extraterritorial jurisdiction of the City of Concord. Standard details are provided in the Concord Manual of Standard Details to be used in conjunction with this article. In the event of a conflict between the standard details and the provisions in this Article, the stricter standards will apply. These provisions apply to that portion of the private driveway from the point where it connects to the edge of the public right-of-way.

~~2.2. These provisions apply to that portion of the private driveway from the point where it connects to the edge of the public right-of-way.~~

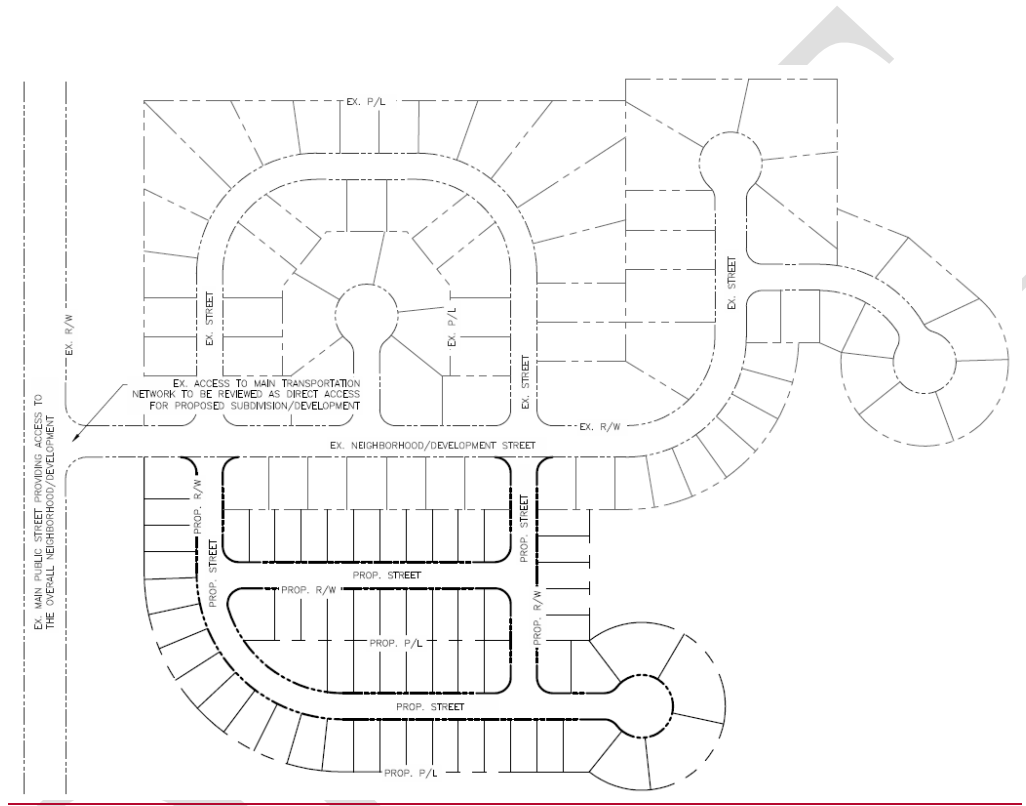
~~2.3.2.2.~~Standards for private driveways on private property are included in Article 10 of the Development Ordinance.

2.3. Existing driveway approaches or street connections may not be relocated, altered, or reconstructed without a permit approving the relocation, alteration, or reconstruction; such driveway approaches are subject to the provisions of this article.

2.4. Where proposed accesses connect to an existing public or private neighborhood/development street network with no more than two (2) non-gated entrances/outlets, the proposed development may be

considered an expansion of the existing neighborhood/development and the existing entrances may be considered direct access entrances serving the proposed development and may be subject to current standards as they would apply to the proposed development. See figure 2.4-1 for an example.

Figure 2.4-1: Existing Development Expansion Example



2.4.

2.5. Changes in property use, property ownership or traffic volumes that will affect existing driveway approaches are subject to the provisions of this article.

- a. Where NCDOT stipulates a new/revised driveway permit is required if access is taken on a state-maintained street.

3.0 Driveway Permits

3.1. A driveway permit must be received prior to the creation of any access point subject to this article.

3.2. A new driveway permit will be required for non-residential change of use development plans if they meet any of the following criteria:

a. A new driveway permit will be required for non-residential change of use development plans if they meet any of the following criteria. Current driveway is in disrepair and does not meet City minimum design

b. When a change of use results in an additional 20 daily trips per day above the existing use.

c. In cases where the existing driveway does not meet ADA accessibility requirements.

d. When there are significant changes to the on-site parking layout and circulation pattern.

3.1.

3.3. If not completed as part of a previous application process, an approved Traffic Impact Analysis (TIA) and subsequent Transportation Mitigation Agreement (TMA) is required prior to the approval of Driveway Permits for all proposed non-residential and mixed-use developments, all multi-family and single-family attached residential developments, and all other residential developments with 6 or more total dwelling units. Refer to the Technical Standards Manual (TSM), Article VIII, Traffic Impact Analysis, for TIA requirements.

3.2.3.4. The application process and requirements for issuance of this permit are provided in Article 6.

3.5. The North Carolina Department of Transportation (NCDOT) is required to review all connections to state system streets, ~~unless~~ ~~This includes both driveway and street connections, with the exception of single family residential drives, which are~~ exempt from state review requirements. The Applicant is responsible for ensuring all NCDOT Driveway Permit materials are submitted to NCDOT as applicable. The City will not accept nor handle money associated with any NCDOT fees.

3.6. All connections to City maintained streets which will potentially add traffic or otherwise impact an existing City to State system connection will be reviewed by NCDOT to determine the potential for, and extent of improvements to State facilities to ensure the overall transportation infrastructure is adequate to serve proposed developments.

3.3.3.7. When determined that improvements are needed on NCDOT maintained streets and a NCDOT driveway permit is not required for the proposed access(s), an encroachment agreement between the Applicant and the NCDOT will be required for any work to be done within NCDOT right-of-way in accordance with NCDOT guidelines.

3.4.3.8. State system streets are those streets within the city for which the state retains the ultimate responsibility. The more restrictive driveway standards (NCDOT or City of Concord) apply.

3.5.3.9. Driveway permits on state system streets, within the municipal limits of Concord, must also be submitted to the City for ~~the~~ initial review.

3.6.3.10. ~~Upon the City's approval, the site plans and NCDOT driveway permit forms will be forwarded to NCDOT for their approval.~~ When a NCDOT Driveway Permit or Encroachment Agreement is required, concurrent review is allowed however, the City cannot approve a development Site Plan until such time as final approval of the NCDOT Driveway Permit Encroachment Agreement application and plans approved by NCDOT are provided.

3.11. The maximum number of driveways allowed for any parcel prior to the subdivision of property is three.

3.7.3.12. Approval of a City Driveway Permit is contingent on the determination by the City and/or NCDOT that the overall existing transportation infrastructure, or planned improvements, is adequate to serve proposed accesses.

4.0 Driveway Approach Standards

4.1 Widths.

- a. All driveway approach widths are measured at the street right-of-way line and the width of any driveway shall not increase within the right-of-way except at properly designated radii and curb returns.
- b. The width from the edge of pavement perpendicularly to the edge of pavement must be greater than the minimum widths and smaller than the maximum widths provided below:

Table 4-1: Minimum and Maximum Access Widths.

Driveway Types	Driveway Width (feet)		Flare/Radius (feet)	
	Minimum	Maximum	Minimum	Maximum
Residential Single Family (Detached)	12	20	1	3
Residential Single Family (Attached)	<u>10</u>	<u>20</u>	<u>1</u>	<u>3</u>
Residential Multi-Family	24	36	5	10
Commercial/Industrial Two-Way	24	36	10	30
Commercial/Industrial One-Way	15	20	10	30
Private Street Entrance	24	48	10*	30*
Street Type Driveway	24	36	10*	30*

* Radius only.

- c. Ramp type driveway approaches may use either a standard drop curb opening or curb radius from the street curb to the inside sidewalk line. If a curb radius is used, the top elevation of the curb radius must be held level with the elevation of the street curb, and the driveway approach must be raised to meet the elevation of the ~~curbline~~ curb line at the inside sidewalk line.

4.2. Location.

- a. The driveway approach must be installed to the right-of-way line, ~~or~~ at least ten feet from the edge of the street and/or back-of-curb, or at least 5' from the edge of sidewalk furthest from the edge of the street. The greatest distance will apply.

- b. No portion of a driveway may be located within a sight triangle.

- 4.2.c. Driveways accessing Major or Minor Thoroughfares, Boulevards, or Major Collectors must provide on-site turnaround to prevent backing into the street from the driveway.

4.3. Materials.

- a. Types.

1. *Portland Cement Concrete.* All driveway approaches must be Portland cement concrete (30600 psi min.) apron sections ("ramp" type), unless specifically listed in the asphaltic concrete section.

2. *Asphaltic Concrete.* Asphalt paving is not allowed on any driveway apron connecting to a public street with granite curbing or concrete curb and gutter. Asphalt may be allowed if the pavement design is approved by the Director of Transportation and only for the following situations:

- (a) Street type driveway entrances, which may be required for public or private developments that have parking spaces for two hundred (200) or more vehicles;
- (b) Driveways connecting to unpaved public streets;
- (c) Driveways connecting to stone surface public streets; or
- (d) Driveways connecting to public streets constructed of asphalt ribbon pavement.

5.0 Driveway Separation

- 5.1 **Minimum Driveway Separation.** Driveways must be spaced as outlined in Table 5-1, ~~provided all other requirements of this article are met. Single family and duplex developments on individual lots of record are exempt from the spacing standards;~~

however, driveways associated with these uses cannot be located within sight triangles and driveways, for corner lots, driveways should be located as far as possible from the intersection.

Table 5-1: Minimum Driveway Separations

Functional Classification	Separation between Driveways ¹	Separation between Driveway and Public Street ²
Major Thoroughfare	400 feet	250 feet
Minor Thoroughfare	400 feet	250 feet
Major Collector	120 feet	120 feet
Minor Collector ³	50 feet	60 feet
Non-Residential & Multi-Family	50 feet	60 feet
Single-Family Detached	30 feet	30 feet
Local Street (Inc. Alleys)	40 feet	60 feet
Non-Residential & Multi-Family	50 feet	60 feet
Single-Family Detached	30 feet	30 feet
Single-Family Attached	15 feet	30 feet

¹ Distance is measured from closest edge to closest edge.

² Distance is measured from closest edge of the driveway the closest parallel edge of the street right-of-way. Minimum stem lengths apply to all entrances to proposed developments from intersecting streets, the greatest distance will apply. Minimum separation between Driveways and Streets should be equal to the number shown in the table, the minimum distance required to ensure no portion of a driveway falls within a sight triangle, or the minimum stem length required along entrances to proposed developments. The greatest distance will apply.

5.2 Stem Lengths. The stem length shall be measured from the parallel edge of right-of-way of the intersecting street to the first point of conflict, such as parking areas or intersections. Where no right-of-way is dedicated along a private street, the stem length shall be measured from the closest edge of the intersecting street. Stem lengths for non-residential and multi-family driveways shall be established by raised curb and gutter or other acceptable physical barrier to prevent vehicles from entering and exiting the driveway within the required length. Minimum stem lengths are listed in Table 5-2.

a. Residential Stem Lengths. Minimum stem lengths for single-family residential developments will be required along all proposed entrances to the proposed development from intersecting streets.

b. Non-Residential Stem Lengths. Minimum stem lengths for non-residential and multi-family uses will be required along all streets. The stem length shall be measured from the perpendicular travel lane to the first point of conflict, such as parking areas or intersections. Minimum stem lengths are listed in Table 5-2.

c. **Gated Driveways.** In order to ensure that no part of any vehicle using a driveway remains in or overhangs the R/W, sidewalk, or street while waiting on the gate to operate, proposed gates for all detached and attached residential driveways shall be located a minimum of 24 feet from the R/W, and proposed gates for all non-residential and multi-family driveways shall be located a minimum distance per the stem lengths shown in Table 5-2, or further if design vehicle is longer than the minimum stem length.

Table 5-2: Minimum Stem Lengths.

Functional Classification	Minimum Stem Length (feet)
Major Thoroughfare	125 feet
Minor Thoroughfare	100 feet
Major Collector	75 feet
Minor Collector	75 feet
Non-Residential & Multi-Family	70 feet
Single-Family Residential	60 feet
Local Street (Inc. Alleys)	50 feet

5.1.5.3. **Side Clearance.** All driveway approaches must have a minimum side clearance from property line as specified in Table 5-3. Additional side clearance may be needed to accommodate required turn lanes, deceleration lanes and/or tapers.

Table 5-3: Minimum Side Clearance.

Land Use	Minimum Side Clearance
Single-Family Residential Uses	5 feet
All Other Uses	10 feet

5.2.5.4. **Shared Access Points.** Landowners of adjacent property, may, by written mutual agreement, construct a joint driveway to service both properties provided that all other requirements of this article are met apart from the side clearance restriction along the property line where the access is located. Minimum separation of shared accesses shall follow Table 5-1 with the exception that the minimum separation for shared access points for Single-Family Attached from adjacent driveways shall be 30 feet. A shared access is treated as a single driveway for the purposes of allowed widths.

5.3.5.5. **Corner Clearance.** All driveway approaches must have a minimum clearance ~~of sixty (60) feet~~ from the edge of parallel public rights-of-way (street intersections) to the nearest edge of the driveway approach as indicated by the minimum separations and/or stem lengths shown in Tables 5-1 and 5-2.

5.4.5.6. **Corner Lots.** Driveways associated with corner lots should be located on the street with

the lower street functional classification (i.e., the lowest traffic volume).

6.0 Median and Island Standards for Driveways

6.1. **Applicability.** Medians and islands may only be allowed in street-type driveways. Medians and islands are not permitted for ramp-type driveways.

6.2. **Location.** Raised medians and islands must be constructed on private property outside of the public right-of-way, unless required as an approved access management device.

6.3. **Size.**

1. The minimum width of the island (excluding the nose) as measured nearest the public right-of-way must be four (4) feet or six (6) feet for a planted median.
2. The minimum length must be fifty (50) feet.
3. For street type driveways with a median or island, the combined width of pavement of the separated driveway segments shall not exceed forty-eight (48) feet.
4. High volume street-type driveways with medians will be reviewed and approved on a case by case basis.

5. Minimum travel width on either side of medians and islands is 14'.

4. —

7.0 Alignment and Grades

~~7.1. Side Clearance.~~ All driveway approaches must have a minimum side clearance as specified in Table 7-1. Additional side clearance may be needed to accommodate required turn lanes, deceleration lanes and/or tapers.

~~Table 7-1: Minimum Side Clearance.~~

Land Use	Minimum Side Clearance
Single-Family Residential Uses	5 feet
All Other Uses	10 feet

~~Corner Clearance.~~ All driveway approaches must have a minimum clearance ~~of sixty~~

~~(60) feet from the edge of parallel public rights-of-way (street intersections) to the nearest edge of the driveway approach, as measured along the edge of the perpendicular public right-of-way as indicated by the minimum separations and/or stem lengths shown in Tables 5-1 and 5-2. This requirement is not applicable to a residential subdivision with a lot width less than 85'.~~

~~7.2.~~

~~**Corner Lots.** Driveways associated with corner lots should be located on the street with the lower street functional classification (i.e., the lowest traffic volume).~~

~~7.3.~~ 7.1 – 7.3 moved to 5.3 – 5.5

~~7.4.7.1.~~ **Sidewalk Crossings.** Driveway approaches must cross the sidewalk area at the existing or proposed sidewalk grade. The sidewalk must be constructed separately from the driveway apron. Sidewalk should be a minimum of 6" thick at driveway crossings.

~~7.2.~~ **Angle.** The driveway angle (the angle between the driveway centerline and the ~~curbline~~ curb line) must be ninety (90) degrees, unless engineering considerations dictate otherwise, ~~as~~ and approved by the Director of Transportation.

~~7.5.~~

~~7.6.7.3.~~ **Directional Restrictions.**

- a. Where special pedestrian or vehicular hazards may be encountered, driveway approaches may be restricted to one-way operation.
- b. Such driveways shall be clearly signed and marked as one-way driveways using pavement arrows and directional signs.
- c. Failure to erect and maintain such signs or the failure to use these driveways in accordance with the signing and marking shall be considered a violation of this article.

~~7.7.7.4.~~ **Near Traffic and Utility Structures.**

- a. No driveway approach shall be permitted to encompass any municipal facility, including but not limited to:
 1. traffic signal ~~standards~~ elements,
 2. catch basins,
 3. fire hydrants,
 4. crosswalks,
 - 3.5. curb ramps,
 6. loading zones,
 - 4.7. utility poles,

- 5.8. fire alarm supports,
- 6.9. meter boxes, and/or
- 7.10. sewer cleanouts.

b. The driveway approach must be located a minimum of 3 feet from any such facilities.

~~7.8. Shared Access Points. Landowners of adjacent property, may, by written mutual agreement, construct a joint driveway to service both properties provided that all other requirements of this article are met with the exception of a part from the side clearance restriction along the property line where the shared access is located. Minimum separation of shared access points shall follow Table 5-1 with the exception that the minimum separation for shared access points for Single-Family Attached shall be 30 feet. Moved to 5.4~~

8.0 Turn Lanes

8.1 Dedication and construction of turn lanes may be needed to serve one or more entrances into a development. Turn lanes must be provided for conditional uses, special uses, driveway permits, or subdivision approvals for developments proposing direct or indirect (i.e. adding accesses to existing dead end or limited access neighborhood/development street networks) adjacent access to two-lane public streets with average daily traffic (ADT) exceeding four thousand (4000) vehicles per day, or four-lane or larger public streets with ADT exceeding ten thousand (8,000) vehicles per day, if any one of the following conditions are also present:

- 8.1. a. Fifty (50) or more off-street parking spaces are required;
- 8.2. b. More than (100) trips during the peak hours of 7:00 a.m. and 9:00 a.m., 11:00 a.m. and 1:00 p.m., and 4:00 p.m. and 6:00 p.m. are generated. Data shall be based on the latest edition of the Institute of Transportation Engineers Manual titled "Trip Generation" and based upon the highest land use permitted by the zoning classification considering any restrictions imposed by any conditional use permit, special use permit, or other legally enforceable restriction;
- 8.3. c. More than twenty-five (25) truck (more than 13,000 G.V.W.) trips per day through a single driveway are expected;
- 8.4. d. Special safety or traffic conditions exist due to limited sight distance and/or posted speeds in excess of thirty-five (35) miles per hour along the adjacent public street; or
- 8.5. e. At least fifty (50) attached or detached residential dwelling units are served by the

access point.

8.2 In addition to the criteria listed above, Tables C-1 and C-2 in Appendix C, Article VIII of the TSM, offers further guidance to warrant the installation of dedicated left or right turn lanes on streets throughout Concord.

8.3 NCDOT publishes a chart (pg. 80) in the NCDOT Policy On Street and Driveway Access that recommends storage lengths for left and right turn lanes based on the number of turns versus the opposing volume of traffic. This chart should be used as a basis for determining the storage length required for turn lanes into a site. The chart is included in Appendix C, Article VIII of the TSM. The typical minimum length is 100' for tapers, and 100' for storage. Storage and taper lengths less than 100' will be reviewed on a case-by-case basis.

8.4 Turn lanes should be designed per NCDOT recommendations. Two charts (pages 78 and 79) outlining NCDOT recommended treatments for turn lanes, included in the NCDOT Driveway Permit Manual, are provided in Appendix C, Article VIII of the TSM for general reference.

Note: Dual right- or left-turn lanes should be considered when the turning volume exceeds 300 vehicles per hour.

8.5 Where turn lanes are determined to be needed based on the above criteria, they will be considered necessary improvements for the transportation infrastructure to be considered adequate to safely and efficiently serve proposed accesses.

9.0 One-Way Access Point Standards

9.0

9.1. Signage.

a. Location.

1. At a minimum, one double-faced sign must be located on private property at least ten feet from the back of the curb to the right of each driveway approach.
2. Additional signs may be placed on the opposite side of the approach.
3. The sign should not be blocked from view by vegetation or other obstacles.

b. Size.

1. The area of the sign cannot be less than three square feet or more than six square feet.
2. Business logos may be used but shall not exceed one-third of the sign area.

c. *Content.* Only the words “Enter” and “Exit” or “In” and “Out” with the appropriate arrow shall be used.

d. *Lettering Standards.*

1. Uppercase letters must be at least six inches tall; however, eight-inch letters are preferred;
 2. Lowercase letters must be at least four inches tall; however, six-inch letters are preferred;
 3. The first letter of each word must be uppercase; and
 4. Letters must be black or white on a reflectorized or illuminated background of contrasting color.
- e. *Arrow Standards.*
1. Arrow dimensions must be at least six inches long with a shaft width of at least two inches.
 2. The head of the arrow must be at least twice as wide as the shaft.
 3. Arrows must be comprised of thermoplastic material.
- f. *Pavement Arrows.*
1. *Location.* A sufficient number of pavement arrows designating the appropriate direction of traffic must be installed in the driveway approach and driveway so that they are clearly visible to oncoming traffic.
 2. *Size.* Pavement arrows must be a minimum of eight feet in length and shall conform in size and proportion to the standards set forth in the Manual on Uniform Traffic Control Devices.

10.0 Roadside Drainage

A well-functioning roadside drainage system is important to maintaining the structural integrity of the street and providing a safe driving surface during storm events.

- 10.1. **Drainage System.** Roadside drainage is accomplished using ditches, driveway pipes, curb and gutter, or some combination of both systems.
- 10.2. **Modifications** to existing drainage systems must be evaluated and approved by the City prior to construction, and are reviewed and permitted as a part of the site plan or subdivision construction plan approval process.
- 10.3. **Piping Existing Ditches**
 - a. The design and cost for piping existing roadside ditches is the responsibility of the property owner unless it is included as part of a neighborhood capital improvement project funded by the City of Concord.
 - b. Piping ditches will only be allowed if the following criteria are achieved:
 1. The hydraulic capacity of the existing ditch system will not be reduced or diminished.
 2. The culvert pipe shall be of size adequate to carry the anticipated flow in the ditch

as determined by the City of Concord and shall not be smaller than 15-inches inside diameter.

3. The flow from and to adjacent properties will not be inhibited.
4. All pipe materials and installation meet City of Concord and NCDOT standards. No pipe with broken joints or other defects is allowed.
5. A swale must be maintained over the pipe to prohibit sheet flow of water from the property onto the road surface, and adequate inlet grates are included in the design and installation. In no case shall the construction cause water to flow across the pavement, or to pond on the shoulders or in the ditch, or result in erosion within the right-of-way.
6. A minimum cover of 8-inches must be maintained over the top of the pipe. If vehicular traffic will cross the pipe, a minimum cover of 24-inches must be maintained, or Class IV reinforced concrete pipe must be utilized.
7. Pipe installation must be inspected by the City prior to back-filling the pipe and inlet boxes.
8. All grates and frames shall meet NCDOT standards for traffic bearing, and must be pre-approved by the City of Concord.
9. Drainage collected by ditches, gutters, or pipes on private property shall not be discharged into the road drainage system unless expressly approved by the City of Concord. The applicant may be required to submit a drainage study to the City justifying the drainage system proposed and the pipe or sewer sizes to be used. Natural drainage laws and practices must be observed.

10.4. Pipe Construction Options

- a. All commercial or industrial sites are responsible for the design, construction and cost associated with all drainage improvements in accordance with these regulations.
- b. All residents have two options for construction of the ditch pipe, once a permit has been issued:
 1. The City will contract with a licensed contractor following payment of all estimated costs associated with the project to the City by the owner. The project will then be completed based upon the Contractor's schedule.
 2. The resident will hire a licensed contractor who will complete the project according to the submitted plans. The contractor will be responsible to schedule inspection by the City prior to placing any backfill into the excavation, so that all pipe joints, bedding, and inlet construction can be inspected.
- c. Failure to obtain the proper permit and/or inspection may result in the pipe being removed at the owner's expense.

10.5. Acceptable Piping Materials

- a. All pipe located within the street right-of-way must be reinforced concrete pipe or other acceptable material approved on a case-by-case basis, high density polyethylene

~~plastic pipe, double-walled corrugated pipe with a smooth interior, meeting ASHTO M294 Type S (smooth interior—corrugated exterior) that has been approved by the NCDOT for use in secondary and subdivision road systems.~~

- ~~b. No corrugated metal pipe is allowed.~~
- ~~e. Approved HDPE pipe includes the following, but documentation on other manufactures will be reviewed for consideration:~~
 - ~~1. Advanced Drainage System (ADS) N-12 HDPE pipe~~
 - ~~2. Hancor Hi-Q HDPE pipe~~

10.6. Acceptable Grates and Frames

- a. All grates and frames must be cast iron and must meet City of Concord and NCDOT standards.
- b. Each casting shall be permanently imprinted with the image of a fish and the following statement: “Dump No Waste! Drains to Streams.”
- b.c. Roll-over grates are not acceptable within driveways.**

11.0 Inspections

11.0

- 11.1 Once the permit is duly issued, the supervisor on the driveway construction site shall keep the permit available for on-the-job inspection by authorized personnel of the city.
- 11.2 The applicant shall request an inspection by ~~the Director of Transportation~~ **a city inspector** 24 hours in advance of any concrete pouring. The Director of Transportation or ~~his/her~~ authorized representative shall have the authority to require the immediate stoppage of work not performed under the requirements of this article.
- 11.3 In the event of failure to comply with the provisions of this article or the term of the permit or in the case of faulty workmanship or materials, **the permit may be revoked and the property owner will be required to remove or correct** ~~the city may remove~~ the non-complying driveway at the property owner’s expense.

12.0 Street and Utility Repairs

- 12.1. Operations requiring the cutting and removal of roadway and sidewalk surfaces, or operations interfering with the normal flow of vehicular or pedestrian traffic shall be subject to the guidelines set forth in Part VI of the Manual of Uniform Traffic Control Devices.
- 12.2. Prior to cutting of the street, sidewalk or curb and gutter, a street cut permit is required to be obtained from the Director of Transportation or their designee. No street cut permits will be issued for streets that have been resurfaced within the last two years, unless there is an emergency situation or other physical constraints and approved by the Director of Transportation.

- 12.3. Cost of replacing the asphalt, concrete or other materials and other related costs such as street cleaning, sidewalk cleaning, etc. as a result of the above described work will be paid by the permit holder.
- 12.4. A copy of the permit must be kept at the job location.
- 12.5. Street cuts and sidewalks should be completely repaired in an expedient manner.
 - a. Cuts must be filled with stable material (asphalt, concrete or approved equal) to within 1 ½ inches of finished grade within 3 days of initial work.
 - b. Finished roadway surfaces, sidewalks and curbs must be restored within 30 days of initial work.
- 12.6. If circumstances justify, the Director of Transportation may grant an extension of these time requirements.

13.0 Use and Protection of Property

13.1. Rights-or-Way.

- a. Rights-of-way of streets may not be used for private or commercial purposes without an approved encroachment agreement. ~~approved by City Council.~~
- b. The area to which the driveway provides access shall be sufficiently large to store any vehicles using the driveway completely off the right-of-way and must be of sufficient size to allow the necessary function to be carried out completely on private property. This includes vehicle queues from drive-through and curb side services.

13.2. Raised Curbing.

- a. Except for driveway approaches to single family residences, a six (6) inch raised curb shall be constructed a minimum distance of three (3) feet behind the street right-of-way line in the vicinity of:
 1. street corners,
 2. sidewalk safety zones,
 3. entrance driveways and other points.
- b. Construction of curbing should be completed in such a manner as to:
 1. prevent vehicles from crossing sidewalks other than by means of a driveway as herein prescribed,
 2. prevent vehicular overhang on the right-of-way and
 3. provide for proper drainage and control of water on private property.

13.3. Parking areas and loading areas.

- a. Parking and loading areas shall be constructed, marked, signed, and properly curbed

so that all movements to park and un-park, and load and unload will take place back of or within property lines.

- b. In the central business area, the Director of Transportation is hereby granted the authority to waive requirements set forth in this subsection after all engineering investigation and provided the following conditions are present:
 1. The area is within the parking exempt area of the city;
 2. The waiver requested arises from peculiar physical conditions not ordinarily existing in other areas of the city;
 3. Due to the nature or operation of the business on the applicant's property the requirements of the above causes unnecessary hardship;
 4. The waiver requested is not against the public interest, safety, convenience, and general welfare; and
 5. The granting of the waiver will not adversely affect the rights of adjacent property owners.

- 13.4. Except as may be provided for under the Concord City Code, Part II, Chapter 580, **Traffic and Vehicles Streets, Sidewalks, and Other Public Places**, no part of the right-of-way or the area between the curb or edge of pavement and the property line shall be used to place private signs, fences, wall post lights, or any other item. All such items shall be placed on private property in such a manner as not to interfere with vehicular or pedestrian traffic or visibility.

14.0 Protecting the public from injury

- 14.1. Whenever any person or firm shall do or undertake any of the items set forth in this article it shall be the duty of such person(s) to protect from harm and damage all persons or vehicles which may be using any street, sidewalk, right-of-way or other public area where such work is in progress.
- 14.2. All persons or firms shall erect and maintain suitable barricades, signs, lights, flares and other appropriate warning devices at the proper locations where such work is in progress in accordance with the current policy and regulations for street construction and maintenance operations within the City of Concord, as established by the Director of Streets and Traffic Engineering and in accordance with the Manual on Uniform Traffic Control Devices.
- 14.3. Permits for driveway construction can only be issued to persons who are properly licensed and bonded to work within the street or highway right-of-way.
- 14.4. The city's intent is to further increase safety and decrease congestion along specified major thoroughfares. In order to accomplish these objectives, certain goals have been identified. These goals are:
 - a. To prohibit driveways within a certain distance of intersecting streets unless alternate

access is not available,

- b. To decrease the number of driveways along major thoroughfares, and
- c. To increase the distance between adjacent driveways along major thoroughfares.

16.0 ~~15.0~~ Non-Residential and Multi-family Development

156.1 Parking Aisle and Space Dimensions

Minimum dimensions of standard parking spaces (other than compact car spaces and handicap spaces) and maneuvering area shall be as set forth in 10.3-1 below.

~~(a) Handicapped Spaces~~

- a. ~~Handicapped~~ **Accessible** parking spaces shall be a minimum of 13 feet by 18 feet for a single non-van space (8 feet in width in addition to a 5 foot access aisle); a minimum of 16 feet by 18 feet for a single van space (~~8~~ **eight** feet in width in addition to an ~~8~~ **eight** foot access aisle, **or 11 feet in width in addition to a 5 foot access aisle**); or 24 feet by 18 feet for a double van space, or a non-van and van double space (~~8~~ **eight** feet in width for each space with an eight foot access aisle between spaces). **Accessible** ~~P~~ parking spaces ~~for handicapped or disabled persons~~ shall comply with the N.C. Accessibility Code ~~(do we have this to insert)~~.

~~(b) Compact Car Spaces~~

- b. **Compact Car Spaces are only permitted in** ~~This section shall apply only to~~ parking facilities providing 100 spaces or more. Not more than 20 percent of the off-street parking spaces required by this Section shall be designed as compact car parking spaces. Each compact car parking space shall be a minimum of eight feet wide and 16 feet long. Compact car parking spaces shall be clearly marked or posted for "Compact Cars Only." All other provisions of this Article relating to off-street parking requirements shall be met.

Parking Area Dimensional Standards

For standard-size vehicles

A	B	C	D	E	F	G
45°	9.0'	18.0'	12.0' ONE-WAY	8.0'	51.0'	2.0' / 4.0'
60°	9.0'	18.0'	18.0' ONE-WAY	8.0'	58.0'	2.0' / 4.0'
90°	9.0'	18.0'	24.0' TWO-WAY	8.0'	60.0'	2.0' / 4.0'

For compact-size vehicles (see Sect. 8.3.2.2)

A	B	C	D	E	F	G
45°	8.0'	16.0'	N/A	8.0'	N/A	1.5' / 3.0'
60°	8.0'	16.0'	N/A	8.0'	N/A	1.5' / 3.0'
90°	8.0'	16.0'	N/A	8.0'	N/A	1.5' / 3.0'

Note: Parallel parking spaces shall be 9' by 26' with a 20' two-way access, or a 12' one-way access.

Key (also see Figure 10.1-1):

- A. Parking Angle
- B. Stall Width
- C. Stall Depth
- D. Aisle Width
- E. Planting Island Width (minimum width shown, refer to Article 7 for minimum area)
- F. Parking Bay Width
- G. Bumper Overhang (front / rear)

DRAFT

16.2 Overhang Protection

Wheel or bumper guards or curbing shall be provided, located and arranged so that no part of any parked vehicle will extend beyond the boundaries of the parking space and into a pedestrian crossing area.

Except where a wall is constructed, a minimum six inch high vertical concrete curb (or individual bumper guard) shall be constructed or installed so that no part of a vehicle extends beyond the property line.

16.3 Striping Required

Off-street parking areas, as required by this Ordinance, shall be striped in accordance with the dimensions as set forth in ~~this § 10.3.~~ **Standard DRV-121, and shall be 4" white paint.**

16.4 Sight Triangles

~~Sight Triangles for intersections of driveways and public streets shall be regulated in accordance with Article 10 and the City's Technical Standards Manual.~~