

RESOLUTION NO.

A RESOLUTION OF THE CITY OF DENTON, TEXAS, ADOPTING THE CITY OF DENTON'S VEGETATION MANAGEMENT PROGRAM ("VMP") TO PROVIDE RULES AND POLICIES NECESSARY TO MANAGE TRANSMISSION SYSTEM AND DISTRIBUTION PROVIDERS' VEGETATION MANAGEMENT STANDARDS TO PROVIDE A SAFE SYSTEM ENVIRONMENT FOR CUSTOMERS AND THE GENERAL PUBLIC TO MINIMIZE TREE RELATED OUTAGES CAUSED DURING HIGH WIND, SNOW AND ICE STORMS, AND TREES LOSING THEIR BRANCHES FROM DISEASE OR OLD AGE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, in 2006, Denton Municipal Electric (DME) established a vegetation management program that has functioned to protect DME transmission system and distribution right-of way and easements in compliance with North American Electric Reliability Corporation ("NERC"); and

WHEREAS, the City desires to adopt similar vegetation management program that will establish the program's objectives to apply to all transmission system and distribution providers operating without a compliance requirement, within the City of Denton; and

WHEREAS, the program objectives (i.e. customer relation requirements; tree trimming practices, procedures, and definitions) will adopt actual standards for clearances based on the Institute of Electric and Electronic Engineers Standards, Occupational Safety & Health Association Tree Trimming Standards, American National Standards Institute Standards for Pruning, and applicable City of Denton Development Code and Electric Service Standards; and

WHEREAS, the City Council desires to effect vegetation management standards upon all transmission system and distribution providers who utilize wood poles or other structures within the City of Denton; and

WHEREAS, the City Council finds that the implementation and adoption of the City of Denton Vegetation Management Program is in the best interests of the health, safety, and general welfare of the citizens of the City of Denton, Texas; NOW, THEREFORE,

THE CITY COUNCIL OF THE CITY OF DENTON, TEXAS HEREBY RESOLVES:

SECTION 1. The findings and recitals contained in the preamble to this resolution are hereby incorporated by reference into the body of this resolution as fully set forth herein.

SECTION 2. The City Council hereby adopts that the City of Denton Vegetation Management Program to establish and provide a comprehensive and consistent program for performing vegetation management within the transmission system and distribution rights-of-way and easements in compliance with North American Electric Reliability Corporation ("NERC") Standard FAC-003-1 within the territorial limits of the city of Denton.

SECTION 3. The Denton City Council adopts the City of Denton Vegetation

Management Program and its recommendations and implementation actions, as presented in Exhibit A, attached hereto and made a part hereof.

SECTION 4. If any provision of this resolution or the application thereof to any person or circumstance is held invalid by any court, such invalidity shall not affect the validity of the provisions or applications, and to this end the provisions of this ordinance are severable.

SECTION 5. This resolution shall become effective immediately upon its passage and approval.

The Motion to approve this resolution was made by _____ and seconded by _____, the resolution was passed and approved by the following vote [_____ - _____]:

	Aye	Nay	Abstain	Absent
Mayor Gerard Hudspeth:	_____	_____	_____	_____
Vicki Byrd, District 1:	_____	_____	_____	_____
Brian Beck, District 2:	_____	_____	_____	_____
Paul Meltzer, District 3:	_____	_____	_____	_____
Joe Holland, District 4:	_____	_____	_____	_____
Brandon Chase McGee, At Large Place 5:	_____	_____	_____	_____
Chris Watts, At Large Place 6:	_____	_____	_____	_____

PASSED AND APPROVED this the _____ day of _____, 2023.

GERARD HUDSPETH, MAYOR

ATTEST:

JESUS SALAZAR, INTERIM CITY SECRETARY

BY: _____

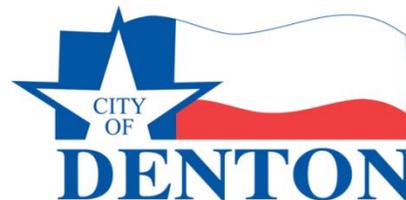
APPROVED AS TO LEGAL FORM:

MACK REINWAND, CITY ATTORNEY

BY: Benjamin N. Samples, Jr. _____

Digitally signed by Benjamin Samples
DN: cn=Benjamin Samples, o=City of Denton, ou=Department Users and
Groups, ou=General Government, ou=Legal, cn=Benjamin Samples,
email=Benjamin.Samples@cityofdenton.com
Date: 2023.05.18 15:31:48 -0500

EXHIBIT A



City of Denton Vegetation Management Program

Vegetation Management Program Section Table of Contents

Section I – Objectives

Section II – Customer Relations

Section III - Trimming Practices, Procedures and Definitions

Section IV – Removal and Trimming Standards – Work Specifications

Section V – Document Control

SECTION I Objectives

- The objectives of the City of Denton (“City”) Transmission Vegetation Management Program (TMVP) are to provide a safe system environment for customers and the general public to minimize tree-related outages caused during high wind, snow and ice storms, and trees losing their branches from disease or old age. The objectives are to be achieved while maintaining positive relations and utilizing sound environmental practices.
- To establish a comprehensive and consistent program for performing vegetation management in the City of Denton transmission system and distribution right-of-ways and easements in compliance with North American Electric Reliability Corporation (“NERC”) Standard FAC-003-1. This program defines the responsibilities of Transmission and Fiber Companies personnel and contractors, identifies procedures to be followed by contractors performing all work and defines the clearance requirements between conductors and vegetation acceptable to the City for maintaining a reliable transmission and distribution service.

NOTE: This program will be reviewed annually for accuracy and revisions by the Vegetation Management Subject Matter Expert (SME)(Currently Brad Watts).

SECTION II Customer Relations

Customer Contact Steps

1. IVR (Interactive Voice Response) will make contact by telephone informing the customer when tree trimming will be done at their property and or neighborhood.
2. Door hangers are to be placed on all addresses affected by the tree trimming job.
3. All attempts shall be made to contact customers in person by a City employee or contractor working for the City before entering a customer property to trim trees.



SETTLEMENT STRATEGY

- City will make direct contact with the land owner and or current resident. We will state the fact of the important need to access the land with the respect of the land owner and his property staying within the boundaries of transmission system and distribution right-of-ways and easements.
- City and its contractors will restore any property damage that occurs from the direct result of Citycrews back to its original state at which we entered the property.
- All other matters will be processed through the City Attorney's Office in a timely manner.

SECTION III Trimming Practices, Procedures, and Definitions

Brush - a woody plant that is less than 3 inches diameter at breast height (dbh), that is not part of an existing tree, and that may reach the conductor at maturity.

Brush work – trimming, clearing brush and applying an herbicide to the cut stems, or only applying herbicide to brush.

Clearance 1 — The Transmission Operator (TO) shall determine and document appropriate clearance distances to be achieved at the time of transmission vegetation management work based upon local or regional conditions and the expected time frame in which the TO plans to return for future vegetation management work. Local or regional conditions may include, but are not limited to: operating voltage, appropriate vegetation management techniques, fire risk, reasonably anticipated tree and conductor movement, species types and growth rates, species failure characteristics, local climate and rainfall patterns, line terrain and elevation, location of the vegetation within the span, and worker approach distance requirements. Clearance 1 distances shall be greater than those defined by Clearance 2 below.

Clearance 2 — The TO shall determine and document specific radial clearances to be maintained between vegetation and conductors under all rated electrical operating conditions. These minimum clearance distances are necessary to prevent flashover between vegetation and conductors and will vary due to such factors as altitude and operating voltage. These TO- specific minimum clearance distances shall be no less than those set forth in the Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) and as specified in its Section 4.2.2.3, Minimum Air Insulation Distances Without Tools in the Air Gap.

- o Where transmission system transient overvoltage factors are not known, clearances shall be derived from Table 5, IEEE 516-2003, phase-to-ground distances, with appropriate altitude correction factors applied.
- o Where transmission system transient overvoltage factors are known, clearances shall be derived from Table 7, IEEE 516-2003, phase-to-phase voltages, with appropriate altitude correction factors applied.

Coniferous - any cone-bearing trees or shrubs, mostly evergreens.

Contractor Coordinator-

Danger tree - any dead, dying, weak, diseased, or leaning tree (on or off the right-of-way) that could fall onto the conductors.



Diameter at Breast Height (dbh) – the diameter of individual tree trunks or individual stems of brush measured at a point 4.5 feet above ground.

Deciduous - any perennial plant that sheds its leaves annually or at the end of a growing season

Demand tree trimming -trimming or removing the trees on a customer requested or emergency basis. Also may include tree work associated with line construction projects. This is typically required when trees have grown into the conductors, or are close to the conductors, and have created a potentially dangerous situation. This may also include special trimming or chipping work when requested by Denton Municipal Electric. Customer requested demand tree work should only be assigned by Denton Municipal Electric.

Directional trimming - a form of natural trimming (pruning) used to encourage tree re-growth away from the conductor. It is accomplished by removing limbs growing toward the conductors entirely at the branch collar near the trunk of the tree, or by pruning to lateral branches that are at least one-third the diameter of the limb being cut and are growing away from the conductor.

Drop-crotching - generally speaking, is a crown reduction technique in which a tree trimmer makes the proper pruning cuts at crotches, removing the larger limb and favoring the smaller. For electric line clearance, the trimmer would remove limbs growing toward the conductors and favor those growing away from the conductors. This usually results in a "V" shaped appearance of the tree crown and is frequently referred to as "V-trimming". See definition of "natural pruning" for further description.

Evergreen - any plant that retains its leaves/needles year-round.

Herbicide - a chemical pesticide used to control, suppress, or kill plants, will have a colored die for recognition. - BASAL SUMP MIX #1

E.P.A # 228-385

INGREDIENTS	Tahoe	4E
(Triclopyr).....	20	
%		
Dye.....	05%	
Basal Oil.....	79.5%	

Natural pruning -a method by which branches are cut to the branch collar at a suitable parent limb, the trunk of the tree, or an appropriately sized lateral branch. This method of pruning is sometimes called "drop-crotching", "proper pruning", the "Shigo method" or "lateral trimming."

Preventative maintenance - trimming or removing vegetation on a systematic basis typically by, but not limited to, circuit or grid, and in a manner intended to achieve system reliability.

Pruning - the removal of dead, dying, diseased, interfering, objectionable, and/or weak branches of trees or shrubs using proper arboricultural techniques.

Removal - completely removing an entire tree as close as practical to ground level and applying herbicide to the cut stump.



Right-of-way - a transmission or distribution right-of-way, an easement, a utility easement, or any other corridor of land paralleling, on both sides, an overhead transmission or distribution line within the City of Denton territorial limits.

Safety zone work – removing all overhangs by cutting back limbs to a minimum clearance of 10 feet from energized conductor.

Selective herbicide - an herbicide that, when applied to a mixed population of plants, will control specific species without injury to others.

Shearing -the making of many small cuts so that a tree adjacent to the conductors is sheared in a uniform line. This is not a generally acceptable practice.

Side pruning - using natural pruning methods to cut back or removing side branches that are threatening the conductors; required where trees are growing adjacent to conductors.

Topping - cutting back the upper crown of a tree to a uniform horizontal line, leaving multiple stubs. This is an improper and unacceptable trimming technique.

Tree - a perennial plant with a woody trunk measuring at least four (3) inches (dbh), and having one set of annual rings at ground level or more than one set of annual rings not separated by included bark. Trees that grow adjacent to one another and share an apparent common base completely separated by "included bark" are considered to be distinct trees. "Included bark" is bark that is included within the wood of a tree, or between the woody stems of separate trees, creating a physical separation between the trees.

Tree crown - the upper portion of the tree, the branches or leaf area.

Trimming - cutting back tree branches or shrubs to shape or reduce the size of the tree or shrub.

V-trim - using natural pruning methods to cut back large portions of the upper crown of a tree. This is required when trees are located directly beneath a conductor. Also known as crown reduction pruning or drop crotching.

Vegetation - all the plant (flora) life in a particular region. A plant community, assemblage or aggregation with distinguishable characteristics.



Type of tree refers to tree being Deciduous or Evergreen:

Deciduous trees are trees whose leaves lose their green coloring and turn orange, red or brown before they are shed at the end of the growing season, generally in autumn. **Evergreen** trees carry their leaves throughout the year. Evergreens do shed their leaves, but only a few at a time and over a long period, so there is never a noticeable change. For most evergreen trees, the leaves don't change color.

A. Distribution Clearance Work Specifications Based on Growth Chart for Native Trees in North Texas.

1. General Guidelines

Effective tree to conductor clearance is determined by: OSHA Tree Trimming Standards [1910.269\(a\)\(1\)\(i\)\(E\)](#); [1910.269\(a\)\(2\)\(ii\)](#); [1910.269\(r\)](#)
American National Standards Institute A300 Pruning Standards

- a. Voltage, tree location, and importance of the individual line
- b. Ambient air temperature and the height of the poles and line
- c. The species and growth habit.
- d. The trimming cycle

2. Under and Side-clearance

Any tree affecting or potentially affecting a primary distribution line shall be trimmed to prevent any involvement with the line (see table 1. "*DME Minimum Clearance Requirements*").

Note: (1) Where the amount to be removed in order to obtain adequate clearance will have an adverse impact on the overall long term health of the tree, the tree will be considered for removal; (2) The neutral wire has the potential to carry primary voltage, which contractor shall take into consideration when clearing primary lines; and (3) Open- Wire Secondary Conductor and neutral shall have a minimum 5' of clearance. All poles will have a minimum 5' of clearance around the bottom of the pole.

3. Overhang Clearance

When at all possible, overhangs shall be removed. When not removed, clearance shall be a minimum of 15 feet. Note: Overhang clearance shall be increased where circuits have experienced historical exposure to snow and ice.

4. Other Clearances

Secondary Conductors, Service Drops, Streetlight Circuits, Fiber-optic and Guy Wires shall be cleared on a case by case basis as determined necessary by during field inspection, to free them from weight, strain, or displacement caused by contact with trees.

5. Vine Clearance:

Unless otherwise instructed, vines ascending all poles and guy wires shall be cut off at ground level.



Tree Trimming Clearances are established and based on the following

- IEEE Table 5 and Table 7, of 516-2003
- OSHA Tree Trimming Standards (1910.269)
- American National Standards Institute (ANSI) A300 Pruning Standards, which are industry trimming standards developed by the Tree care Industry Association (TCIA) and accepted by industry leaders, including the International Society of Arboriculture, the American Society of Consulting Arborist, the Utility Arborist Association, the US Forest Service and other tree care organizations. The standards include use of natural lateral or directional trimming methods that promote growth of the tree away from the electrical facilities. These trimming methods ideally allow a tree to retain as much of its natural form as possible while requiring less trimming in the future.
- a standard 75' R.O.W for transmission lines
- applicable City of Denton codes

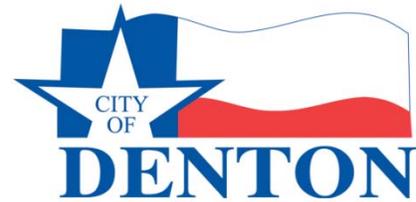
Clearance from vegetation	Conductor Type	0 to 480 V	2- 25 KV	69 KV	138 KV
SIDE	PRIMARY, TELECOM, & FIBER	5 FEET	10 FEET	15 FEET	30 FEET
OVERHANG	PRIMARY, TELECOM, & FIBER	5 FEET	15 FEET	NONE	NONE

**All clearances are at the time of trimming.*

Mitigation Measures – if sufficient clearances cannot be achieved for the protection of transmission facilities due to various restrictions, then the TVMP SME shall notify Engineering and System Operations to create a plan to deal with the insufficient clearance.

B. Inspection Process – Approved Procedures

1. All transmission circuits are trimmed on a five year trim cycle.
2. Upon completion of a trim, the Contractor Coordinator will inspect the circuit.
3. All transmission circuits are inspected on a Quarterly basis.
4. For IMMEDIATE THREAT of a transmission line outage due to vegetation:
 - a. inspector shall as soon as practical notify TVMP SME
 - b. SME will notify System Operations as soon as practical
 - c. An action plan shall be determined based on consultation with Engineering, System Operations, TVMP SME, and if necessary, outside entities such as neighboring entities or ERCOT



C. Transmission Circuits and Types of Growth - Schedule

Vegetation Management Maintained Transmission Circuits

Circuit and Circuit Location	KV	Length/Miles	Growth Types/
Denton West to ONCOR Fly Tap	345	8.9	Native Trees/Quarterly
Denton West to Jim Christal	138	3.2	Native Trees/Quarterly
Denton West to RD Wells	138	4.47	Native Trees/Quarterly
Denton West to Fort Worth	138	4.06	Native Trees/Quarterly
Jim Christal to Masch Branch	138	2.95	Native Trees/Quarterly
Masch Branch to Denton North	138	4.38	Native Trees/Quarterly
Denton North to North Lakes	138	1.87	Native Trees/Quarterly
Denton North to Arco	138	5.9	Native Trees/Quarterly
Denton North to Kings Row	138	2.84	Native Trees/Quarterly
Kings Row to Cooper Creek	138	2.13	Native Trees/Quarterly
Arco to Cooper Creek	138	1.63	Native Trees/Quarterly
Cooper Creek to Mc Kinney	138	1.47	Native Trees/Quarterly
Cooper Creek to Brinker	138	2.28	Native Trees/Quarterly
McKinney to Brinker	138	0.89	Native Trees/Quarterly
Spencer Interchange to Pockrus	138	2.17	Native Trees/Quarterly
Pockrus to Corinth	138	1.37	Native Trees/Quarterly
Pockrus to Teasley	138	2.9	Native Trees/Quarterly
Teasley to Fort Worth	138	4.05	Native Trees/Quarterly
Locust to DME Node	138	1.68	Native Trees/Quarterly
Woodrow to DME Node	138	0.08	Native Trees/Quarterly
Spencer Interchange to DME Node	138	0.44	Native Trees/Quarterly
Brinker to Industrial	138	0.22	Native Trees/Quarterly
Brinker to Woodrow	138	0.47	Native Trees/Quarterly
Industrial to Spencer Interchange	138	0.33	Native Trees/Quarterly
RD Wells to Hickory	69 KV	1.73	Native Trees/Quarterly
Hickory to Bonnie Brae	69 KV	0.95	Native Trees/Quarterly
Bonnie Brae to North Lakes	69 KV	1.64	Native Trees/Quarterly
Spencer Interchange to Spencer Switch	69 KV	0.23	Native Trees/Quarterly
Total Miles per KV			
	345	8.9	
	138	51.78	
	69 KV	4.55	
Total Miles Inspected		65.2	



NOTE: the above schedule can be adjusted for changing conditions. The schedule is based on anticipated growth of vegetation and other environmental and operational factors. These may include operating voltage, appropriate vegetation management techniques, fire risk, reasonably anticipated tree and conductor movement, species types and growth rates, species failure characteristics, local climate and rainfall patterns, line terrain and elevation, location of the vegetation within the span, and worker approach distance requirements.

A schedule based on the above shall be created, with adjustments to the schedule documented as they occur. The schedule considers the amount of time needed to gain applicable permissions and permits.

The TVMP SME is responsible for ensuring that the vegetation management work has been completed according to the work schedule and work specifications.



SECTION V Document Control

Prepared by:

DME	12/18/2009
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Change History:

The change history below reflects changes to the Manual or its structure.

Version	Description of change	Date
V 00.01	Initial version	12/18/2009
V00.01	Minor editorial corrections, formatting changes	3/10/2011
V00.02	<i>NOT USED</i>	N/A
V00.03	Clarified section titles	1/24/2013

Review Log:

Reviewed By	Title	Date
Brad Watts	Operations Line Superintendent	11/15/2010
Brad Watts	Operations Line Superintendent	3/10/2011
Brad Watts	Operations Line Superintendent	2/24/2012
Brad Watts	Operations Line Superintendent	1/24/2013
Brad Watts	Operations Line Superintendent	12/17/2014
Brad Watts	Operations Line Division Manager	8/25/2021

Approved By	Title	Date
Chris Lutrick	Executive Manager of Operations	8/26/2021