



Town of Georgetown, MA      1 Library Street, Georgetown, MA 01833  
Georgetown Municipal Light Department

***VEGETATION MANAGEMENT  
ELECTRIC DISTRIBUTION LINE  
MAINTENANCE  
PROGRAM  
MANUAL***

***June 02, 2016***

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# ***GLOSSARY***

**Adventitious buds-** Dormant buds located in a leader.

**Annual growth-** A yearly incremental stage of vegetation growing that can be visually determined by the annual nodes.

**Brush-** Vegetation less than four inches DBH that may reach the overhead facilities at maturity.

**Clearance-** The distance between vegetation and the overhead facilities.

**Department-** This represents the Georgetown Municipal Light Department

**Construction type-** The configuration and design of the lineal overhead facilities.

**DBH-** The diameter of vegetation measured at a point four and one half feet above ground level.

**Dominant-** Exerting ecological or genetic superiority.

**Dormant-** Not actively growing but protected from the environment.

**Flat cutting-** The practice of cutting vegetation at ground level under or adjacent to overhead facilities, where the vegetation has the potential to interface with the overhead facilities.

**Hazard-** Vegetation which appears to: be dead or dying, be structurally weak, have loss of bark, have loss of foliage, and have stress breaks.

**Lateral branch-** A branch extending from a parent branch or stem.

**Line clearance-** The practice of removing vegetation from around overhead facilities.

**Main leader-** A dominant upright stem, usually the main trunk.

**Multiple leaders -** Many stems of vegetation originating from the same root system.

**Node-** A point on a stem at which a leaf or leaves are attached.

**Overhead facilities-** All electrical conductors and equipment that are attached to a utility pole and are used for the conveyance of electricity.

**Permission-** The act of receiving approval from the appropriate property owner, where the vegetation is located, in order to perform necessary preventative maintenance on the vegetation.

**Plant-** Relative to distribution vegetation management purposes, the definition is a tree, vine, or shrub.

**Preventative maintenance-** The pruning, trimming, removal or chemical treatment of vegetation, growing or existing in proximity to overhead facilities, for the purpose of preventing such growth from interfering with the overhead facilities.

**Pruning-** The removal, in a scientific manner, of dead, dying, diseased, interfering, objectionable, and/or weak vegetation branches.

**Scaffold branch-**A large limb that is, or will be part of the permanent branch structure of a tree.

**Shrub-** A low usually multi-stemmed woody plant.

**Sucker growth-** New growth originating from adventitious buds. Usually induced by removing a branch.

**Tree-** A woody perennial plant having a single usually elongate main stem.

**Trim-** See "Pruning"

**Trim cycle-** A predetermined period of time between preventative maintenance activities.

**Trim zone-** The area in and around overhead facilities where vegetation is removed.

**Vegetation-** Plant life such as trees, shrubs, vines, and brush that has a potential to interface with overhead facilities.

**Vendor-** A Vegetation Management service provider who has a Purchase Order to provide such services to Georgetown Municipal Light Department.

**Vine-** A plant whose stem requires support and which climbs by tendrils or twining.





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# ***DISTRIBUTION LINE VEGETATION MANAGEMENT REQUIREMENTS***

***June 02, 2016***

## ***PURPOSE***

To define a set of Electric Distribution Line Vegetation Management Requirements that are

implemented by the Georgetown Municipal Light Department, hereafter known as the Department . These requirements are to lay out the specifications for routine preventative maintenance and removal of; dead, unsound, and structurally weak branches and leaders. The Department Electric Distribution Line Vegetation Management Requirements are designed to address reliability and safety through the understanding of the dynamic interaction between vegetation and overhead facilities.

### ***TRIM CYCLE***

The recommended trim cycle is a five year cycle with a three year interim trim. The trim cycle is implemented on an annual basis, by identifying the Quadrants that are due to be trimmed and prioritizing them on a frequency reliability performance basis. The interim trim is implemented by identifying which Quadrants are halfway through the cycle. They are surveyed for growth and hazard situations and then interim trimmed accordingly. **Customer Service lines are only trimmed on the trim cycle basis unless the Departments designee determines that a special condition exists requiring an interim trim.**

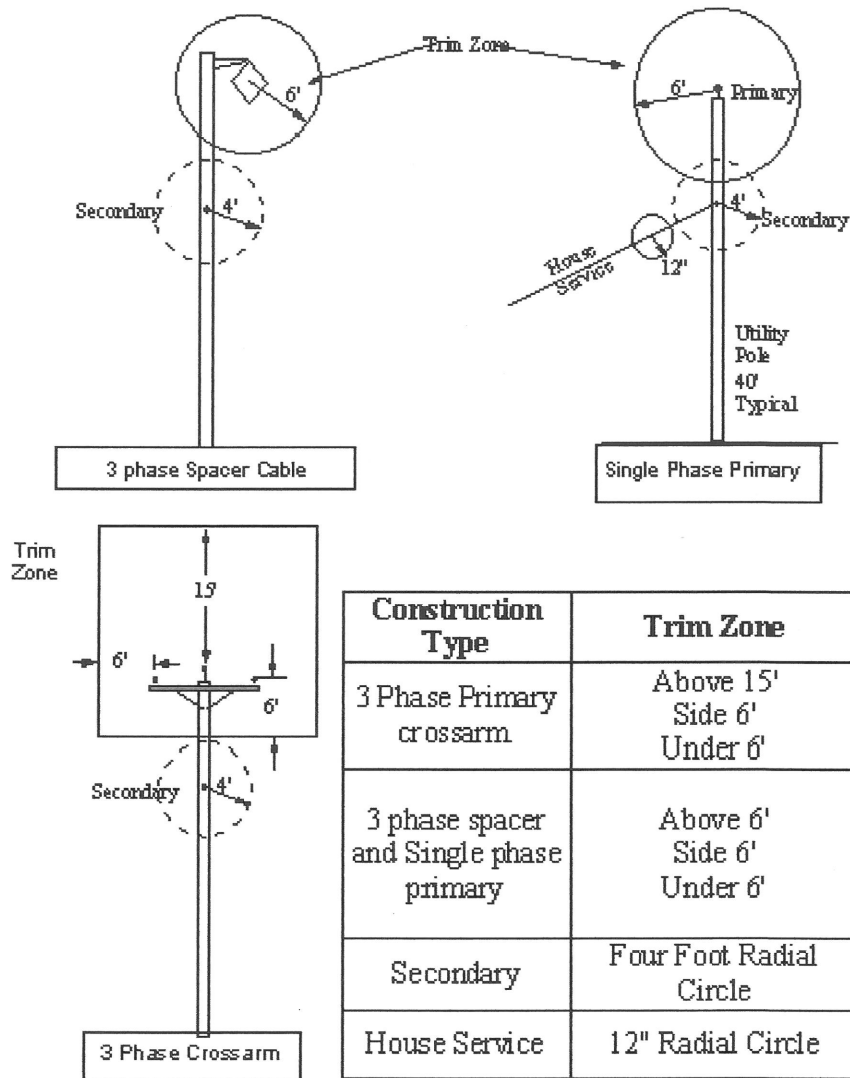
### ***TREE TRIMMING ZONE SPECIFICATION REQUIREMENTS***

Table A below illustrate the minimum clearance distance required by the Department for all electric distribution line clearance maintenance activities based on Overhead facilities construction types. As with all programs there are exceptions to the rules and additional special conditions requirements. These are all clearly spelled out in the following sub-sections. These specifications are designed to prevent vegetation capable of interfering with the overhead facilities within a four year period.

**TABLE A**

<b>CONSTRUCTION TYPE</b>	<b>TRIM ZONE</b>
THREE PHASE PRIMARY	ABOVE 15'
ALL TYPES ( except spacer cable)	SIDE 6'
	UNDER 6'
SINGLE PHASE PRIMARY	ABOVE 6'
ALL TYPES & THREE PHASE SPACER CABLE	SIDE 6'
	UNDER 6'
SECONDARY	FOUR FOOT RADIAL CIRCLE
HOUSE SERVICE	12" RADIAL CIRCLE

# **Vegetation Management Distribution Line Maintenance Minimum Requirements**



## ***HAZARD REMOVALS WITHIN TRIM ZONE***

Remove all hazardous branches from above or adjacent to the overhead facilities to protect the facilities until the next trim cycle.

## ***SELECTIVE FLAT-CUTTING WITHIN THE TRIM ZONE***

Targeted for flat-cutting will be tree species that are under the electric conductor(s) and are over 8' in height.

## ***TRIM ZONE EXCEPTIONS***

### **Clearances exceeding trim zone requirements**

In the situation where the clearance already exceeds the trim zone requirements, due to prior trim cycle trimming activities, then the vendor will remove all prior cycle sucker growth back to the previous trim cycle wounds.

### **Clearances restricting trim zone requirements**

**Permissions restrictions-**In the event that permission from a property owner to trim or remove in accordance with these specifications cannot be obtained, the following steps will be taken:

*LIGHT TRIM-* Computer or form entry with inclusion of street address and pole number.

*REFUSAL TO TRIM-* Computer or form entry with inclusion of property owner name, address, telephone number, pole number, description of site, and if possible, signature of property owner.

*REFUSAL FOR HAZARD REMOVAL-* If permission is denied for the removal of a hazardous limb/tree a computer or form entry with inclusion of the property owners name, address, telephone number, pole number, description of defect or hazard and if possible, property owners' signature. These serious hazards warrant a photo of the tree and follow up by the Department.

\*Above information will be provided back to the Department on a regular basis.

**Structural restrictions-** In the event that the main leader and/or scaffolding branches fall within the trim zone are determined not to interfere with the overhead facilities; structurally sound and free of sucker growth within the trim zone, then the main leader and/or branch may remain in the trim zone.

## ***TYPES, METHODS, AND TECHNIQUES***

### **Acceptable Tree Trimming Types**

There are three basic types of trimming that will be discussed in this section. They include; Crown Reduction (Top trimming), Side trimming, and Overhang trimming. There are two additional trimming terms used when discussing trimming types and they are under trimming and V or Through trimming. They will not be listed as separate types because they usually involves one or more of the types already listed. The type of trimming that is selected to be used should be based upon the tree to overhead facility relationship, factoring in the type of tree being trimmed and it's growth habits. The ultimate goal is to achieve the necessary clearance to provide a continuous supply of reliable electrical service free of interference from trees while maintaining, as close as possible, the natural characteristics of the tree being trimmed.

**Crown Reduction** - This type of trimming is also called "Top trimming". It is best when used on slow growing trees. The trimming methods employed to accomplish this affect include drop crotching and/or directional trimming. The trimming type reduces the top of the trees crown when the tree is directly located underneath the overhead facilities and is intended to give the tree a natural look. The trimming should be done with as few cuts as possible and the branches should cut back to a leader which will minimize the potential for sucker growth.

**Side Trimming** - Trees growing adjacent to, into, and towards overhead facilities should be side trimmed by removing the entire branch back to the main leader or at least free of the trim zone. Trees with branches that produce sucker growth when cut, should definitely be removed. Care should be taken to reduce the effect of unsightly notches by shaping adjacent branches.

**Overhang Trimming** - This is where the overhead facilities pass under a portion of the crown and the lower branches are removed to provide trim zone overhead clearance. If it is not possible to totally remove overhangs, then every attempt should be made to reduce the weight of the overhang by trimming the branches. All dead, damaged, or weakened overhang branches must be removed.

## **Acceptable Tree Trimming Methods**

There are two basic methods employed in utility line clearance trimming, "Drop Crotching" and "Directional Trimming". These are the two methods that will be accepted by the Department. On occasion a vendor may be requested to apply an alternative method to fulfill a special set of needs or criteria. Although not considered a trimming method, trees that are approximately 15 feet in height should be trimmed at the nodes. Dr. Alex Shigo calls this "First Order Pruning". The branches that should be retained are those that will produce future growth directionally away from the overhead facilities.

**Drop Crotching** - This method of trimming calls for removing some of the larger branches at variable distances below the top of the crown. It is intended to retain as much of the natural characteristics of the tree as possible while thinning the crown of the tree. This method of trimming should eliminate future sucker growth, when proper nodal pruning cuts are made, and reduces the amount of trimming work required in subsequent trimming operations.

**Directional Trimming** - The intent of this method is to direct future growth away from the overhead facilities. It is accomplished by cutting the growth to a lateral branch which will redirect its future growth away from the overhead facilities.

In Dr. Alex L. Shigo's publication, "Pruning Trees Near Electric Utility Lines" he indicates that 90% of the time 3 branches can be removed to provide 90% of the clearance, which is his 90-3-90 concept. When utilizing these two methods to accomplish a trimming type, this concept should be considered as an employable technique. The use of the two methods will provide the maximum amount of clearance necessary to assure proper clearance from the overhead facilities while minimizing the amount of tree deformation occurring.

## **Acceptable Pruning Techniques**

Pruning techniques and practices are fully explained and diagramed in ANSI A-300, and another excellent reference is Dr. Alex L. Shigo's publication "Pruning Trees Near Electric Utility Lines". Given the fact that these publications provide as excellent guides for this subject area, we feel that there is no need for further explanation.



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# ***VEGETATION MANAGEMENT VENDOR REQUIREMENTS***

***June 02, 2016***



## ***PURPOSE***

To define the role and expectations of the Department's vendors in relation to vegetation management activities performed by the vendor for the Department. The role and expectations will include such items as; personnel, equipment, customer relations, government relations, Department relations, storm emergency implementation procedures, time management, workload implementation plans, wood waste management, and other related items.

## ***VENDOR REQUIREMENTS***

### ***PERSONNEL***

The vendor shall determine and provide the appropriate level of supervision required to maintain high quality workmanship and optimum productivity in a cost effective manner and in accordance with the supervisory requirements defined in this Chapter.

The vendor is to provide the appropriately trained and certified labor force required to maintain high quality workmanship and optimum productivity while implementing the vegetation management requirements and vendor requirements.

All services are billable in accordance with the vendor submitted labor and equipment rate sheets. Any services required by the Department, which are not on the vendor submitted rate sheets, the rate will require prior approval from the Department.

## ***VEGETATION MANAGEMENT SERVICES***

**Preventative Maintenance-** Those services as described in the "Distribution Line Vegetation Management Requirements" section. All Preventative maintenance will be conducted on reliability prioritized basis.

**Re-trims** - All work which is determined by the Department to be inside the "Electric Distribution Line Vegetation Management Requirements" which does not have documentation as to why the "Electric Distribution Line Vegetation Management Requirements" could not be met will be required to be re-trimmed at the vendors expense. Any work that gains a change in permission status after trimming has occurred will be re-trimmed as a component of the Department's expense.



## ***CUSTOMER RELATIONS***

Workers shall be properly attired and act in a professional manner. Contact with residents shall be done in a businesslike manner and all requests shall be clear and precise to avoid resident misunderstanding or apprehension. Should there be a serious misunderstanding with a resident which the vendor cannot fully address or alleviate, the vendor shall notify the Department.

## ***UTILITY RELATIONS***

The vendor shall communicate with the Department on a routine basis on such matters including but not limited to: work progress; prior notification in changes to crew complement; lost time; etc. The vendor labor force will contact the Department daily and report; work location and daily location changes, observed overhead facility problems and outages particularly crew caused outages.

## ***STATE RELATIONS***

The vendor is responsible for notifying the proper state official for all proposed vegetation management activities on state highways. If a permit is required, the company shall obtain the permit. Under specific situations, the Department will obtain the necessary permits. Copies of required permits will be kept on site with the crew.

## ***EQUIPMENT***

The vendor will provide equipment necessary for the performance of the requested services in accordance with the Electric Distribution Line Vegetation Management Requirements. This equipment shall be properly maintained, in good operating and presentable condition. The equipment must meet all applicable DOT, ANSI and OSHA Regulations/Standards.

The Department will require a minimum number of truck mounted aerial lifts with the lift to be a minimum of fifty-foot platform height. Truck mounted aerial lifts with a platform height greater than 50' will, when required by the Department, be billed according to the labor and equipment rate sheet. Any equipment required by the Department, which are not on the vendor submitted rate sheets, will require prior approval from the Department.

The vendor shall be responsible for supplying, at a minimum, a properly operating cell phone to all supervisory personnel who respond to requests by the Department. This is imperative for both normal business and emergency response.

## ***WORK SITE CLEAN-UP***

The vendor is responsible for all work sites to be properly cleaned of vegetation debris, including the legal and environmentally acceptable disposal of leaves, branches, wood, wood chips or slash in accordance with federal, state, and municipal regulations and guidelines.

## ***HOURS OF OPERATION***

**Normal work schedule** - Will be at the discretion of the vendor based on the mileage workload bid. In the event that the Department requires the vendor to provide hourly services, the tree crew will provide those services and bill the work in accordance with the vendor's hourly work schedule rates as provided in the bid document.

## ***STORM EMERGENCY RESPONSE***

**Vendor storm standby** -During severe inclement weather, crew(s) may be placed on storm standby by the Department designee. They will be instructed as to which Department staging area to report to until such time needed for actual storm restoration work. The employee and equipment billable rates will take effect as soon as they are requested by the Department designee to be on standby status.

**Vendor storm response** - During off-hour call out for storm or emergency work, the vendor will be allowed no more than 90 minutes to be at the work location from the time that the Department makes contact with the first vendor contact person.

**Additional vendor storm response** - The vendor will provide additional crews as requested by the Department or their designee to the extent possible. The vendor will guarantee the Department that if requested by the Department, a minimum of 5 tree crews will be made available by the vendor for the Department as first responders at the Department's discretion. If the vendor is unable to supply the required 5 crew minimum, then the vendor will assume all hourly rate charges by the crews the Department acquires that exceeds the vendors hourly rates in their bid document.

### **Storm Equipped Aerial Lift Trucks**

All equipment required for storm response purposes shall be in a safe and reliable operating condition.

The following is required equipment during storm conditions:

Truck mounted aerial lift and lift to be a minimum of fifty foot platform height, and all necessary tools, equipment and clothing for storm restoration work including night lighting. Chippers are not required storm equipment unless requested by the Department.

**Georgetown Municipal Light Department Vegetation Management**

**2016**

**Quadrant Maintenance Trim and Labor/Equipment Hourly Rates Bid Quote Sheet**

**Quadrant Unit Price Bid Quote (Quote is for the entire quadrant.)**

Quadrant	Miles	Price Quote
0		
0		
<b>TOTAL</b>	<b>0</b>	

**Vegetation Management Billing Labor Hourly Rates for Georgetown Municipal Light Department**

Classification	Code	ST Straight Time	OT Premium Only	PT Premium Only	ST +OT	ST + PT
General Foreman	GF					
Foreman or equivalent	F					
Groundman or equivalent	GM					
Special Large Equipment Operator	LEO					
Flagger	FG					

Composite Crewing Hourly Rates	Crew Makeup Code	ST Straight Time (incl Equipment)	OT Premium Only	PT Premium Only	ST +OT	ST + PT
<b>2 Person Tree Crew</b> ( min. 65 ft aerial lift plus a chipper and all tools)	<b>F+GM</b>					
<b>3 Person Tree Crew</b> ( min. 65 ft aerial lift plus a chipper and all tools)	<b>F+2 GM</b>					

EQUIPMENT	Rate/HR
BUCKET 45FT	
BUCKET 55FT	
BUCKET 65FT	
BUCKET 75FT	
CRANE (40 Ton minimum and a Boom Reach not less than 125')	
CHIPPER 15" for Routine Pruning Services	
CHIPPER 18" Wood Chipper for Routine Tree Removal	
DUMP TRUCK SINGLE AXLE	
DUMP TRUCK TANDEM AXLE	
PICKUP 4 x4	
PICKUP TRUCK	
POWER SAW	
LOG LOADER (NOTE 4)	
RUBBER TIRED LOADER (NOTE 4)	
SPLIT DUMP / BRUSH TRUCK	