



VDOT Vegetation Management Policy

Appropriation Act Item 436 H (2010)

**Report to the Chairmen of House Appropriations and Transportation Committees and
Senate Finance and Transportation Committees**

Virginia Department of Transportation
1401 East Broad Street
Richmond, Virginia 23219

October 2010



COMMONWEALTH of VIRGINIA

Office of the Governor

Sean T. Connaughton
Secretary of Transportation

October 15, 2010

The Honorable Joe T. May
Chairman, House Transportation Committee
Post Office Box 2146
Leesburg, Virginia 20177-7538

The Honorable Charles J. Colgan
Chairman, Senate Finance Committee
10660 Aviation Lane
Manassas, Virginia 20110-2701

The Honorable Lacey E. Putney
Chairman, House Appropriations Committee
Post Office Box 127
Bedford, Virginia 24523

The Honorable Yvonne B. Miller
Chairwoman, Senate Transportation
Committee
Post Office Box 452
Norfolk, Virginia 23501

Dear Chairpersons:

Item 436 H of Chapter 874 of the 2010 Acts of Assembly directs the Secretary of Transportation to review the Virginia Department of Transportation's (VDOT) vegetation management policies with the objective of evaluating the costs savings associated with limiting mowing and the removal of vegetation only within such distances from actively used pavements or shoulders consistent with traffic safety and convenience, and to propose a new vegetation management policy.

In 2009, VDOT initiated a review of its mowing practices. This review was prompted by a need to identify budget reduction strategies. The agency investigated the best practices of other transportation agencies. The review led to a recommendation, modeled after programs in Washington and Ontario, to establish service levels based on road system and average daily traffic counts. VDOT tested these proposed mowing practices starting with the spring 2009 mowing season. The changes reflected a reduction in expenditures from \$32,102,946 (Calendar Year 08) to \$18,145,110 (CY09). In addition, the changes did not compromise safety clear zones or sight distance requirements. The preliminary findings were shared with the Joint Commission on Transportation Accountability on August 4, 2010 (see attached presentation). I have reviewed VDOT's vegetation management policies and recommend that the Department's mowing practices be revised to reflect these service levels. I propose that the changes be incorporated into the Department's Maintenance Best Practices Manual prior to the 2011

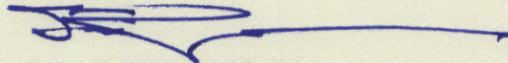
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mowing season. A copy of the new vegetation management policy is attached. Pursuant to the requirements of the Appropriations Act, I request your concurrence with this proposed policy.

If you have any questions or need additional information, please contact me.

Sincerely,

A handwritten signature in blue ink, consisting of several loops and a long horizontal stroke extending to the right.

Sean T. Connaughton

Attachment

VDOT, Maintenance Division

Best Practices Manual, Section 11.2.2

11.2.2 Mowing

Required mowing practices are shown in Appendix 11.2.2. These practices provide the minimum requirements for all mowing operations on roadsides. Required mowing practices include those mowing activities that are initiated based on the following primary business needs:

1. Ensuring all related safety requirements are met, including but not limited to clear zone and sight distance requirements,
2. Protecting the traveled roadway or roadside assets, and
3. Ensuring efficient management of woody vegetation within roadway right of way.

Modifications to these practices must be approved by the District Administrator with documented justification. Copies of this approval are to be sent to the Chief of System Operations and the Maintenance Division Administrator prior to implementing such changes. Additional mowing guidelines are contained in Appendix 11.2.3.

Appendix 11.2.2—Mowing and Litter Removal Service Levels

I. Mowing & Litter Removal Service Level Matrix

The following table entitled “Mowing & Litter Removal Service Level Matrix” should be utilized to determine the service level for specific routes based on Average Daily Traffic count and roadway category.

Mowing & Litter Removal Service Level Matrix													
Average Daily Traffic (ADT)	Interstate and Other Limited Access Roads			Primaries			Secondaries			Unpaved Roads			
	Roadway Category	Mowing Service Level	Litter Removal	Roadway Category	Mowing Service Level	Litter Removal	Roadway Category	Mowing Service Level	Litter Removal	Roadway Category	Mowing Service Level	Litter Removal	
200,000+	1	B	YES										
100,000-199,999	1	B	YES	1	B	YES							
50,000-99,999	1	B	YES	1	B	YES	1	B	YES				
25,000-49,999	1	B	YES	1	B	YES	1	B	YES				
10,000-24,999	1	B	YES	1	B	YES	1	B	YES				
5,000-9,999	1	B	YES	2	B	YES	2	B	YES				
2,500-4,999	2	B	YES	3	C	*	3	C	*				
1,000-2,499	2	B	YES	3	C	*	3	C	*	4	C	*	
750-999	2	B	YES	3	C	*	4	C	*	5	D	*	
450-649							4	C	*	5	D	*	
100-449							4	C	*	5	D	*	
50-99							4	C	*	5	D	*	
<50							4	C	*	5	D	*	

II. Service Levels

The following information provides a descriptive narrative for each service level and a supporting diagram for Service Levels “B”, “C” and “D”. In addition, it is important to note that the maintenance of intersection sight distances shall take precedence over any service level. Additional mowings may be required to maintain sight distances. Six intersection site distance example diagrams are provided below as general guidance only. Field conditions and right-of-way limitations shall dictate the site distance maintenance requirements.

Service Level A:

The area between the pavement/paved shoulder edge and centerline of ditch or no greater than 18 feet, whichever distance is less, shall be mowed no more than four cycles annually. Litter pickup and removal shall be performed prior to and during each mowing cycle in all non-wooded areas visible from the roadway.

Service Level B:

More than two lanes: The area between the pavement/paved shoulder edge and centerline of ditch or no greater than 18 feet, whichever distance is less, shall be mowed no more than three cycles annually. Litter pickup and removal shall be performed prior to and during each mowing cycle in all non-wooded areas visible from the roadway.

Two lanes: Mow no greater than 9 feet from the pavement/paved shoulder edge no more than three cycles annually. Litter pickup and removal shall be performed prior to and during each mowing cycle in all non-wooded areas visible from the roadway.

Service Level C:

Mow no greater than 9 feet from the pavement/paved shoulder edge no more than two cycles annually. *Litter removal services may be obtained via contract, Adopt-A-Highway, Community Service or other means based on available resources.

Service Level D:

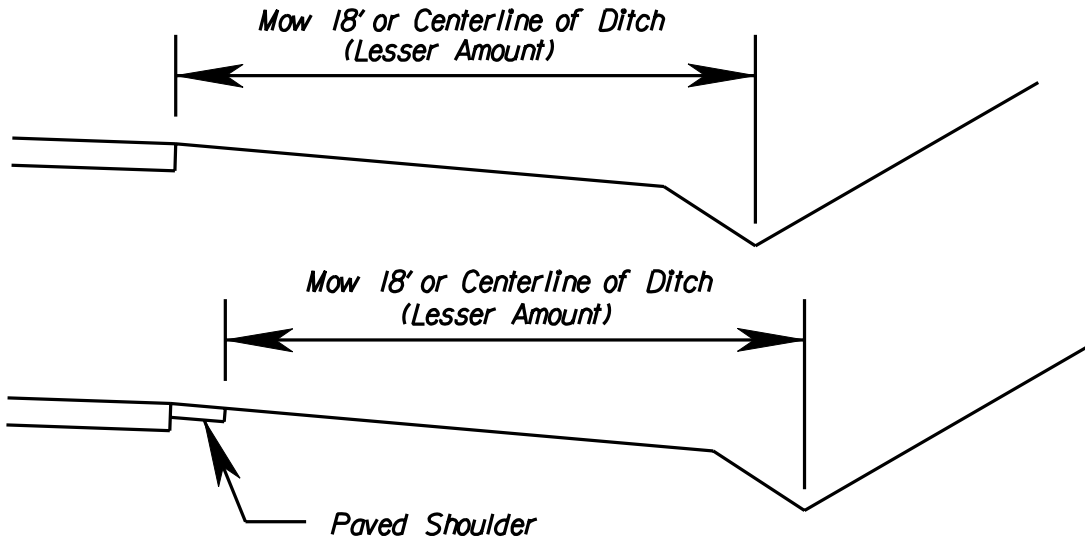
Mow no greater than 9 feet from the pavement/paved shoulder edge no more than one cycle annually. *Litter removal services may be obtained through Adopt-A-Highway, Community Service or other means based on available resources.

Service Level E:

Mowing shall occur to remove sight distance problems only.

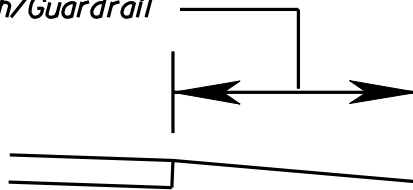
Note related to guardrail: Annually, a minimum of five (5) feet should (use “shall” for contracts as needed) be mowed behind guardrails unless the vegetative species is predominantly no-mow type turf grass.

Service Level "B"
(Roadway more than 2 lanes)

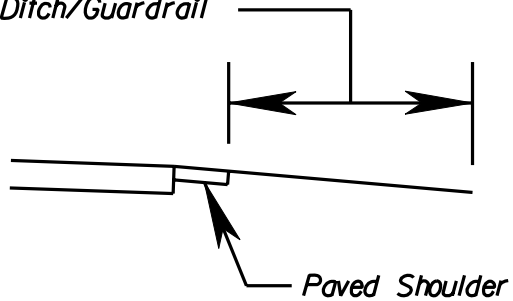


Service Level "B" (2 Lanes), "C" and "D"

Mow No Greater Than 9', Regardless of Ditch/Guardrail



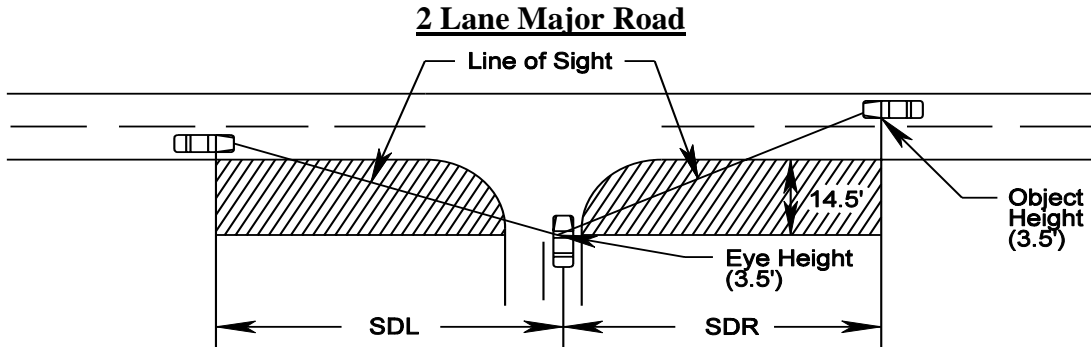
Mow No Greater Than 9', Regardless of Ditch/Guardrail



The following Intersection Sight Distance Examples are to be used as **GUIDANCE ONLY.**

Location specific conditions shall dictate actual site distance maintenance requirements.

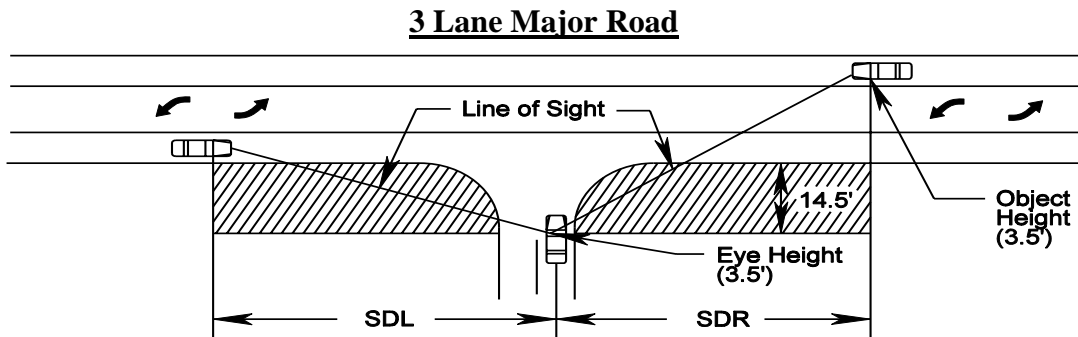
**For all tables, use design speed if available, if not use legal speed.



- Denotes Area To Be Mowed Within Right of Way

SDL = Sight Distance Left
SDR = Sight Distance Right

HEIGHT OF EYE 3.5'		HEIGHT OF OBJECT 3.5'									
Design Speed** (mph)	20	25	30	35	40	45	50	55	60	65	70
SDR: 2 Lane Major Road	225'	280'	335'	390'	445'	500'	555'	610'	665'	720'	775'
SDL: All Roads Above (Turning into 1 st lane)	195'	240'	290'	335'	385'	430'	480'	530'	575'	625'	670'

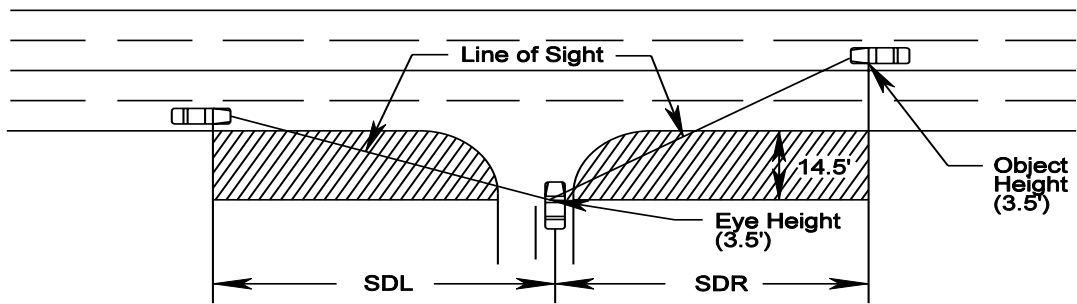


- Denotes Area To Be Mowed Within Right of Way

SDL = Sight Distance Left
SDR = Sight Distance Right

HEIGHT OF EYE 3.5'		HEIGHT OF OBJECT 3.5'									
Design Speed** (mph)	20	25	30	35	40	45	50	55	60	65	70
SDR: 3 Lane Major Road	240'	295'	335'	415'	475'	530'	590'	650'	710'	765'	825'
SDL: All Roads Above (Turning into 1 st lane)	195'	240'	290'	335'	385'	430'	480'	530'	575'	625'	670'

4 Lane Major Road (Undivided)

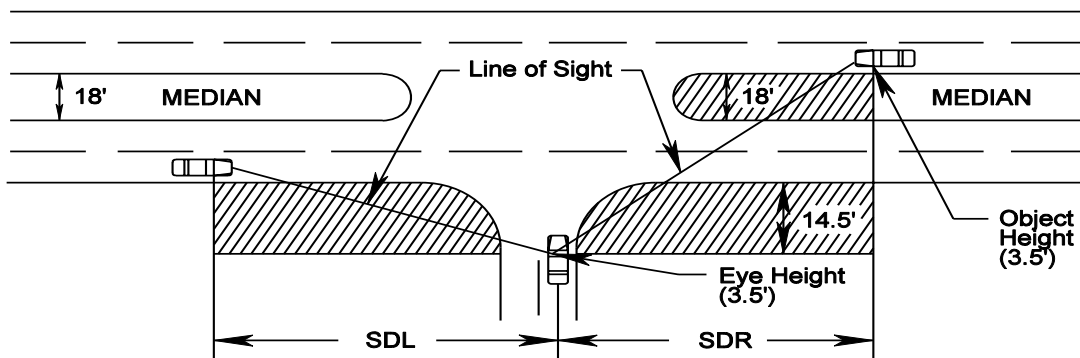


▨ - Denotes Area To Be Mowed Within Right of Way

SDL = Sight Distance Left
SDR = Sight Distance Right

HEIGHT OF EYE 3.5'	HEIGHT OF OBJECT 3.5'										
Design Speed** (mph)	20	25	30	35	40	45	50	55	60	65	70
SDR:4 Lane Major Road (Undivided)	240'	295'	335'	415'	475'	530'	590'	650'	710'	765'	825'
SDL: All Roads Above (Turning into 1 st lane)	195'	240'	290'	335'	385'	430'	480'	530'	575'	625'	670'

4 Lane Major Road (Divided – 18' Median)

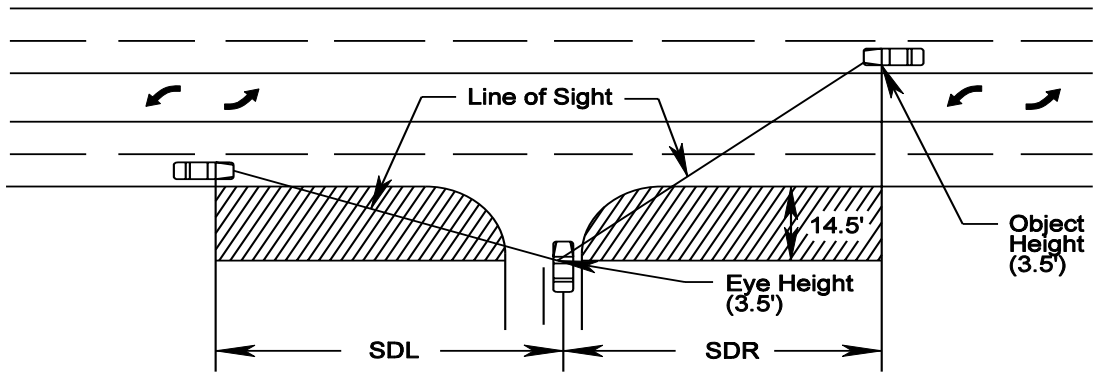


▨ - Denotes Area To Be Mowed Within Right of Way

SDL = Sight Distance Left
SDR = Sight Distance Right

HEIGHT OF EYE 3.5'	HEIGHT OF OBJECT 3.5'										
Design Speed** (mph)	20	25	30	35	40	45	50	55	60	65	70
SDR:4 Lane Major Road (Divided – 18' Median)	260'	325'	390'	455'	515'	580'	645'	710'	775'	840'	905'
SDL: All Roads Above (Turning into 1 st lane)	195'	240'	290'	335'	385'	430'	480'	530'	575'	625'	670'

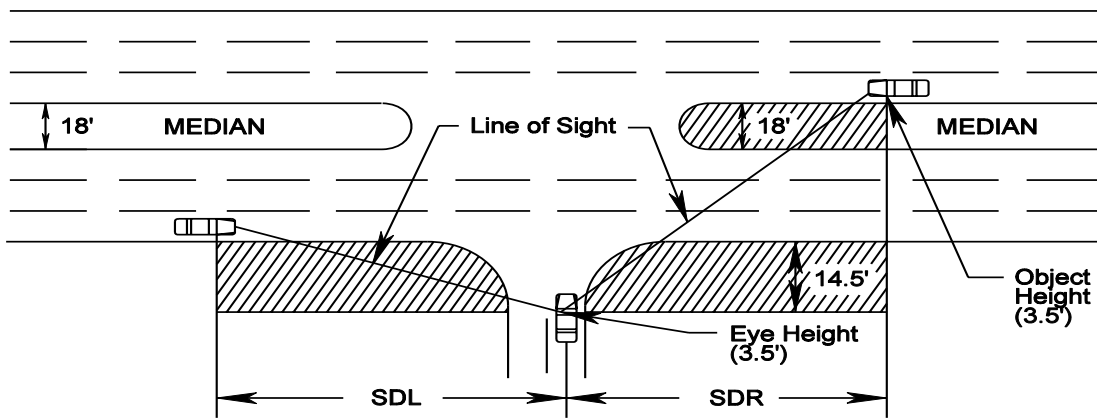
5 Lane Major Road



- Denotes Area To Be Mowed Within Right of Way
 SDL = Sight Distance Left
 SDR = Sight Distance Right

	HEIGHT OF EYE 3.5'											HEIGHT OF OBJECT 3.5'										
Design Speed** (mph)	20	25	30	35	40	45	50	55	60	65	70	20	25	30	35	40	45	50	55	60	65	70
SDR: 5 Lane Major Rd.	250'	315'	375'	440'	500'	565'	625'	690'	750'	815'	875'	250'	315'	375'	440'	500'	565'	625'	690'	750'	815'	875'
SDL: All Roads Above (Turning into 1 st lane)	195'	240'	290'	335'	385'	430'	480'	530'	575'	625'	670'	195'	240'	290'	335'	385'	430'	480'	530'	575'	625'	670'

6 Lane Major Road (Divided – 18' Median)



- Denotes Area To Be Mowed Within Right of Way
 SDL = Sight Distance Left
 SDR = Sight Distance Right

	HEIGHT OF EYE 3.5'											HEIGHT OF OBJECT 3.5'										
Design Speed** (mph)	20	25	30	35	40	45	50	55	60	65	70	20	25	30	35	40	45	50	55	60	65	70
SDR: 6 Lane Major Road (Divided – 18' Median)	275'	340'	410'	480'	545'	615'	680'	750'	820'	885'	955'	275'	340'	410'	480'	545'	615'	680'	750'	820'	885'	955'
SDL: All Roads Above (Turning into 1 st lane)	195'	240'	290'	335'	385'	430'	480'	530'	575'	625'	670'	195'	240'	290'	335'	385'	430'	480'	530'	575'	625'	670'

1 *Appendix 11.2.3—Additional Mowing Guidelines*

District Region	Mowing Height Range ^{4,5}	Primary Roadside Turf Species ^{6,7}	Timing			
			First Mowing Range (control grass growth and promote overseeding) ⁸		Second Mowing Range (control herbaceous weeds) ⁹	Third or Last Mowing Range (control woody growth) ^{9,10}
			Not before	Prior to		
Bristol, Staunton	4" to 6"	Cool	May 10	June 10	late July to late Aug	mid Sept to late Oct
Salem, Lynchburg, Culpeper	4" to 6"	Cool	May 5	June 5	late July to late Aug	mid Sept to late Oct
Richmond	4" to 6"	Cool	May 1	June 1	late July to early Aug	mid Sept to late Oct
	2" to 4"	Warm	May 25	--	--	After Aug. 30
Hampton Roads	4" to 6"	Cool	April 20	May 20	early July to early Aug	late Sept to late Oct
	2" to 4"	Warm	May 10	—	—	After Sept. 20
Fredericksburg	4" to 6"	Cool	May 5	June 5	late July to late Aug	mid Sept to late Oct
	2" to 4"	Warm	June 5	—	—	After Aug 30
N. Virginia	4" to 6"	Cool	May 5	June 5	late July to late Aug	mid Sept to late Oct
	2" to 4"	Warm	June 5	—	—	After Aug. 30

- 1) Safety: Mowing operations to ensure clear zones and sight distance requirements (safety) of the motoring public and VDOT personnel and contractors shall supersede any standard mowing practice or operations.
- 2) Plant Growth Regulators (PGRs) usage may be considered on all areas of appropriate turf type vegetation as a goal to reduce the number of mowing cycles and/or extend mowing cycle frequencies.
- 3) Litter removal: Litter shall be removed prior to mowing operations and immediately thereafter (where litter remains). Where mowing activities can be reduced successfully, litter removal activities may need to be increased.
- 4) Mowing Height Range: Mowing at a height less than the requirements above is not recommended. Such mowing, including scalping may damage or kill the desirable turf species. Areas that are mowed to a height less than these requirements that creates denuded areas, promotes excessive weed growth or areas that are scalped shall be revegetated in accordance with the Road and Bridge Specifications.

- 5) Mowing Equipment: Blade sharpness is the most critical element to all mowing activities. Sharpness of mower blades should be visually verified prior to commencement of any mowing operation. Rough cuts due to dull blades will result in increased plant disease, increased mower operation costs, and poorly groomed turf.
- 6) Predominant roadside turf species reflect regional growth assessments and may include a mix of originally planted mixes, native grasses, native wildflowers, invasive plants, noxious weeds, and woody vegetation. Mowing practices are based on these assessments and categorized into Cool-season, warm-season, and no-mow plant species (leguminous or wildflowers).
- 7) Where to mow:
 - a. No mow areas: No mow slopes, weeping lovegrass and leguminous species such as crown vetch, sericia lespedeza, and flat pea shall not be mowed unless for sight distance concerns. Most of these species have been cultivated on many no-mow steep slopes, areas of medians, etc. outside of any sight distance/clear zone areas. Mowing of these areas may damage and, ultimately, kill the species, promote weed growth, cause erosion problems and may contribute to slope failures. Mowing in these areas may also occur when non-desirable species and/or woody vegetation are predominant and mowing is determined as a necessary component to reclaim such areas.
 - b. Mow areas: Mowing shall be performed in accordance with the parameters established in Appendix 11.2.2-Mowing and Litter Removal Service Levels for Service Levels “A”, “B”, “C”, “D” and “E”.
 - c. Additional mow areas: Areas outside of the established service levels, including but not limited to areas that are not forested, contain landscaped plant beds (including wildflower plots) and the backside of drainage ditches should be mowed on an average of once every 3 years based on various factors such as District’s climatic conditions and plant species. In some cases, wildflower plots may require an additional mowing in the fall. Districts should consider the most cost effective method to manage woody vegetation. Options include the use of selective herbicides, selective removal with hand tools, and machine removal in multiple year cycles.
- 8) First mowing cycle: Strict adherence to the timing of the first mowing is essential to a cost effective roadside turf management program. The first mowing during this time frame enables plants to be cut during the reproductive stage in which seeds are produced, thereby enabling an overseeding program as a component of the first mowing. This mowing enables seeds to be spread in areas that promote an increase the density of desirable turf species, choking out undesirable weed species.
- 9) Second & Third mowing cycles: Conducting these mowing cycles meet the minimum business requirements of mowing practices within established service levels. In addition, allowing species to reach full maturity will result in much higher mowing energy costs and lower efficiencies. These factors dictate the need for the final mowing to occur in all potential mowable areas that are not producing uniform, dense, and desirable leguminous, native or wildflower covers. Dry seasons may enable the elimination of the second and/or third mowing cycle.