

# SCHEDULE D - GUIDE TO SELECTION OF TREES

## A GUIDE TO SELECTION OF TREES, SHRUBS AND GROUND COVERS FOR THE PUBLIC DOMAIN IN GRAFTON, MASSACHUSETTS

### Sources

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TOLERATION FOR								SHADE TREES	KNOWN FOR						Additional Comments	Siting Consideration
D	S	S	P	D	W	S	S	Name	F	F	F	B	W	F		
iff	alt	oil	oll	rou	et	un	hade	Size/Shape	ruit	lower	all	ark	ild	ast		
-		P	u	gh	so			<b>Native Species in Bold</b>			C		l	G		
Site		H	t	t	il					o	o		f	row		
X	X		X			X	X	<b>RED OAK</b> (Quercus rubra) 60-75 ft rounded			X		X	X	needs well drained, acid soil; good sun for best fall leaf color; easily transplanted; long lived	Excellent for street, boulevard, parkway, but needs room
						X		<b>LAUREL OAK (also called Shingle Oak)</b> (Quercus imbricaria) shade tree 30-60ft; symmetrical in form			X		X		transplants well; somewhat tolerant of city conditions; accepts pruning well as hedge	Lawn, park, golf course; needs large area
X	X		X	X	X	X	X	<b>PIN OAK</b> (Quercus palustris) shade 50-80ft; spread 25-40ft; strongly pyramidal, central leader			X		X	X	easily transplanted; superior performer in urban situations; tolerates wetness	excellent tree for residential and commercial streets, lawns, park; limb up for street use
X		X	X	X	X	X	X	<b>PLANETREE</b> (Plantanus x acerifolia) shade tree 75-100ft; pyramidal in youth, open, spreading in maturity 'Bloodgood'	X			X		X	overplanting has brought diseases but this tree tolerates urban stress, is fast growing and quite beautiful  more resistant to anthracnose than the species; good tolerance for soil compaction, heat and drought	good street tree as long as there is room; also parks, campuses, golf courses  This tree is BIG! Can only be used where there is room
X	X	X	X			X		<b>MAIDENHAIR TREE</b> (Gingko biloba) 50-80ft; becomes wide in old age 'Sentry'  'Autumn Gold'			X				do not plant pistillate varieties, needs well drained soil; ungainly when young; free of pests; slow growing; beautiful clear yellow color in fall upright staminate variety; effective in restrictive places; broad, spreading habit	Valuable for urban street situations, but not for small streets because eventually they get very broad  (‘Sentry’ is an exception)
X	X	X	X	X	X	X	X	<b>HONEY LOCUST</b> (Gleditsia Triacanthosinermis) (thornless) light shade 30-70ft by same in spread 'Skyline' 'Moraine' 'Shade-master' are good species			X			X	use seedless varieties; well adapted to containers; limited root space; easily transplanted; ferny leaves cast light shade; no cleanup in Autumn	most popular tree for street, parks, malls
X	X	X	X	X		X		<b>ZELKOVA</b> (Z. serrata) 50-60ft; vase shaped; short trunk 'Village Green'			X	X		X	resistant to Dutch Elm disease	decent tree for residential streets

TOLERATION FOR							SHADE TREES	KNOWN FOR						Additional Comments	Siting Consideration	
D i f f - S i t e	S a l t	S o i l P H	P o l l u t i o n	D r o u g h t	W e t S o i l	S u n	S h a d e	N a m e  S i z e /S h a p e  N a t i v e S p e c i e s i n B o l d	F r u i t	F l o w e r	F a l l C o l o r	B a r k	W i l d l i f e			F a s t  G r o w
x		x	x	x		x	x	CHINESE ELM Also called <b>LACEBARK ELM</b> (Ulmus parviflora) 40-50ft by 40 wide; rounded or vase shapes				x		x	good resistance to Dutch Elm disease; adaptable to poor soils; DO NOT confuse with Ulmus pumila (siberian elm)	good tolerance for parking lot environments and many other urban situations
					x	x	<b>SWEET GUM</b> (Liquidambar styraciflua) 60-100ft; rounded	x		x				x	spring plant only; needs a lot of root space	lawn or parks; wet places; good for streets if enough room
					x	x	<b>RIVER BIRCH</b> (Betula nigra) specimen or clump 40-70ft; open habit					x	x	x	multistemmed specimens are most handsome; prone to leaf spot; resistant to birch borer; not a small tree but a small canopy	a tree for the floodplain; handsome on campuses along streams
		x	x	x		x	<b>JAPANESE PAGODA TREE</b> (Sophora japonica) specimen 50-75ft with equal spread "Regent"	x	x					x	flowers in August; tends to be messy as it drops petals, fruits, leaves, twigs for much of the growing season. A bit tender until it gets established  fast growing cultivar with uniform habit; flowers at a young age	well suited for park or large area; it needs room; good tree for city conditions; good for poor soil areas
x		x		x		x	<b>AMUR CORKTREE</b> (Phellodendron amurense) specimen 30-50ft and as wide; very open; casts a light shade		x	x	x				gorgeous bark in older age; ungainly when young; this is a wide, squat tree; good fall color but leaves drop quickly; pest free	good in parks and other large open spaces; not bad on good sized residential lawns
	x		x	x		x	<b>AMERICAN HOLLY</b> (Ilex opaca) <30ft; densest in full sun; more open with age	x							dioecious; evergreen medium-slow grow; try Ilex pedunculosa also, it's hardier, but not as tall growing	evergreen for hedge, but there are prettier and hardier hollies
x	x	x	x	x		x	<b>AUSTRIAN PINE</b> Pinus nigra) 50ft by 20-40ft					x			adjusts well to windy, exposed sites	tough evergreen that is good as a background plant along highways, parks or areas subject to pollution; also good screen or windbreak
					x	x	<b>HEMLOCK</b> (Tsuga Canadensis) evergreen 40-70ft								takes pruning well; intolerant of flooding	any situation EXCEPT city conditions; ideal for screening

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D	S	S	P	D	W	S	S	Name	F	F	F	B	W	F		
i	a	s	p	r	e	u	h	Size/Shape	r	l	a	a	i	a		
f	i	o	o	o	t	n	a	<b>Native Species in Bold</b>	u	o	l	r	d	s		
-		i	l	l	s				i	w	c	k	i	t		
S		P	H	t	o				t	e	o		e	r		
i									e		l					
t																
e																
X			X	X	X	X	X	<b>RED MAPLE</b> (Acer rubrum) shade tree >50ft; pyramidal in youth; round to avoid crown in maturity 'Scanlon' 'October Glory'	X		X	X	X	X	tendency to brittleness but quite adaptable to a variety of urban situations; tolerates both wet and dry soils  compact conical crown, rich red fall color	street, lawn, park; effective in groves;  'Red Sunset is hardiest and may be best all around cultivar
X		X	X	X		X		<b>LITTLELEAF LINDEN</b> (Tilia cordata) 50-75ft, not as wide; pyramidal, rounded, dense 'Greenspire'		X					fragrant flowers attract bees; maintenance includes clipping basal sucker growth  one of best cultivars; does well under difficult city conditions	top of the street tree list; compact form; excellent where lateral space is limited; avenue planting; containers; can be clipped for hedge
X		X	X			X		<b>SILVER LINDEN</b> (Tilia tomentosa) 50-60ft by 25-45ft; 'Fastigiata'		X					similar to Littleleaf Linden; choose named varieties eg 'Princeton' narrower than the species	excellent for street use; tolerates heat and drought well
X		X		X		X	X	<b>EUROPEAN HORNBEAM</b> (Carpinus betulus) shade tree 40-60ft by 30-40ft spread				X			no serious insects or diseases; fairly tolerant of pollution; transplant when young; best in sun; may not be as drought tolerant as some	well adapted to city use, particularly in parks, alleys, in containers. 'Columnans' the narrowest, and 'Fastigiata' work well on street if limbed up
		X		X?		X		<b>WHITE ASH</b> (Fraxinus Americana) shade tree 50-100ft; pyramidal in youth; develops open round crown as it ages			X			X	susceptible to diseases but vigorous when grown well; easily transplanted; dioecious; select staminate varieties to avoid seeds	handsome native for park and large areas; prettier than green ash but not as adaptable; good varieties include 'Autumn Purple' 'Rose Hill'
X	X	X	X	X	X	X		<b>GREEN ASH</b> (Fraxinus pennsylvanica) shade 50-80 ft by 30-40 ft; uniform pyramidal shape 'Marshall's Seedless'			X			X	avoid seedling grown plants – stay with staminate varieties; borers and scale particularly prevalent diseases; susceptible to storm damage;  glossy leaves, more vigorous than the species; beautiful yellow in the fall	excellent for difficult urban sites; also tolerates wind overplanted
X	X	X	X	X		X		<b>CALLERY PEAR</b> (pyrus calleryana 'Bradford') small shade tree 30-50 ft; moderately pyramidal in shape	X	X	X				'Bradford' variety tends to split at crotch in later years; try more relaxed varieties like 'Faurieri' and 'Redspire'	fine street tree for restricted places (commercial areas) but OVERPLANTED; also good in containers and effective as screens in parking lots
X		X	X	X		X	X	<b>HEDGE MAPLE</b> (Acer campestre) 25-35ft (50ft), same spread; rounded and dense			X				excellent tree for small spaces; pest free; tends to be low branched – prune up for street use; withstands severe pruning	tough urban street tree for narrow streets; excellent where utility wires are a problem

TOLERATION FOR								SHADE TREES	KNOWN FOR						Additional Comments	Siting Consideration
D i f f - S i t e	S a l t	S o i l  P H	P o l l u t i o n	D r o u g h t	W e t S o i l	S u n	S h a d e	N a m e  S i z e /S h a p e  <b>Native Species in Bold</b>	F r u i t	F l o w e r	F a l l  C o l o r	B a r k	W i l d l i f e	F a s t  G r o w		
X	X	X	X	X		X	X	NORWAY MAPLE (Acer plantanoides) >50ft; round, symmetrical crown  'Crimson King' 'Summer Shade'  'Emerald Queen'		X	X			X	increasing disease susceptibility due to overplanting, but fairly pest free; tolerates pollution, urban conditions; intolerant of 2, 4-D herbicide leaves are dark red heat resistant; upright in habit; excellent cultivar good cultivar for urban planting	lawn, park, street tree; shallow roots can damage sidewalk
		X				X	X	<b>SUGAR MAPLE</b> (Acer saccharum) shade tree 60-75ft  'Columnare" 'Green Mountain'			X	X	X		Crayola red-orange in fall; being struck by disease all over NR; needs well drained soil  very narrow; ungainly heat tolerant; does better in dry restricted areas than other varieties	not a good choice for streets or urban landscapes but a beautiful shade tree for lawns, parks, golf courses

TOLERATION FOR							SHRUBS		KNOWN FOR					Additional Comments	Siting Consideration
D i f - S i t e	S a l t	S o i l  P H	P o l l u t i o n	D r o u g h t	W e t S o i l	S u n	S h a d e	N a m e  S i z e / S h a p e  <b>Native Species in Bold</b>	F r u i t	F l o w e r	F a l l  C o l o r	E v e r g r e e n	F a s t  G r o w		
x		x	x			x		BORDER FORSYTHIA (f. x intermedia) 8-10ft by 10-12 ft		x				do not shear into stiff shapes; renew by taking out old canes and shortening remaining stems or cut to ground after flowering	the low variety 'Arnold Dwarf' is good for bank planting; otherwise use for massings; screening
x		x	x			x	<b>x s e m i</b>	<b>CORNELIAN CHERRY</b> (Cornus mas) 15-25ft by 15-20ft spread	x	x				early yellow flowers; red fruit in mid-late summer; a very pest free plant; prefers well drained soil but fairly adaptable	hedge, screen, foundation planting around large buildings; if lower branches removed it makes an excellent small street tree
x	x	x		x		x	<b>x s e m i</b>	<b>NORTHERN BAYBERRY</b> (Myrica pensylvanica) variable from 5-12ft; upright rounded, fairly dense shrub	x		x			aromatic; deciduous to semi-evergreen; thrives in poor sterile soils and heavy clayey ones; fixes atmospheric nitrogen so it actually improves soil; need males and females for good fruit production; bronze fall foliage	good shrub for derelict lands; good potential for highway planting and other sites where salt presents a problem
		x			x	x	<b>x</b>	<b>VERNAL WITCH HAZEL</b> (Hamamelis vernalis) 5-10ft by same spread; dense rounded shrub	x	x	x			flowers in February and March – a great sight in Winter; lovely yellow color in Fall; transplant balled and burlapped	good screen; unpruned hedge; in heavy wet soils such as inundated banks
			x		x	x	<b>x</b>	<b>COMMON WITCH HAZEL</b> (Hamamelis virginiana) 20-30ft by same spread		x	x			avoid extremely dry conditions but somewhat tolerant of dry soils; flowers October-December, but flowers are obscured by fall color	valuable for naturalized areas; near large buildings in shaded areas
		x				x	<b>x s e m i</b>	<b>WINTER HONEYSUCKLE</b> (Lonicera fragrantissima) 6-10ft by same spread	x	x			x	a number of insects bother this plant; fragrant flowers; when overgrown cut plants to ground, they will develop new shoots	good hedge or screen plant
						x		<b>DOUBLEFILE VIBURNUM</b> (V. plicatum var. tomentosum) 8-10ft, wider than tall	x	x	x			needs well drained soil; no serious insects or pests; very horizontal structure; one of the most elegant of the flowering shrubs	specimen; massing; screen; nice specimen near brick buildings
						x	<b>x</b>	<b>JUDD'S VIBURNUM</b> (V. x juddii) 6-8ft by same; dense rounded shrub		X				fragrant flowers; resistant to disease; full sun to partial shade; needs evenly moist soil	

TOLERATION FOR								SHRUBS		KNOWN FOR					Additional Comments	Siting Consideration
D	S	S	P	D	W	S	S	Name	F	F	F	E	F			
i	a	o	o	r	e	u	h	Size/Shape	r	l	a	v	a			
f	l	i	l	o	t	n	a	<b>Native Species in Bold</b>	u	o	l	e	s			
-	t	l	l	u	s	s			i	w	f	r	t			
S		P							t	e	e	r				
i		H									C	g				
t											o	r				
e											l	e				
											e	n				
											G	r				
											r	o				
											w					
							x	WINTERGREEN BARBERRY (Berberis julianae) 6-8ft mound/dense	x	x		x		hardiest of the evergreen barberries; spiny	excellent barrier or hedge	
							x	THREESPINE BARBERRY (Berberis tricanthophora) 4-5ft; more open habit				x		spiny also	can be used as a low hedge	
					x	x	x	AZALEAS & RHODODENDRONS all sizes and colors; <b>some native</b>		x	x	x		some of the small leafed varieties turn bronze in winter; deciduous species turn other colors	too many to discuss; all require acid soil and moisture	
					x	x	x	MOUNTAIN LAUREL (Kalmia latifolia) variable size, 7-15ft, similar spread		x		x		beautiful and graceful; becomes more open with age; needs cool acid soil	excellent plant for shady situations	
					x	x	x	DROOPING LEUCOTHOE (Leucothoe fontanesiana) 3-6ft, same spread; fountain habit		x		x		needs acid moist soil; leaf spot can be a problem	nice covering for shady bank	
x	x	x	x				x	PFITZER JUNIPER (Juniper chinensis 'Pfitzeriana') 5ft by 10ft wide	x			x		more handsome in youth than in maturity; usually dioecious	excellent evergreen plant for banks, slopes and large area plantings	
		x	x				x	JAPANESE YEW (Taxus cuspidate) from 10ft to 40ft; dwarf forms also	x			x		dioecious – need both sexes to get berries; needs excellent drainage; takes any amount of pruning	hedges, screens, good for bank covers	
		x					x	WINGED EUONYMOUS (Euonymous alatus) 10-20ft by similar spread			x			corky winged branches are very effective in the winter landscape; avoid extremely wet or extremely dry soils but generally does well	excellent foundation plant because of horizontal lines; beautiful in fall near water; good for screening and massing	
x		x	x	x			x	AMUR PRIVET (Ligustrum amurense) 12-15ft, 10ft spread; upright and dense		x			x	withstands pruning; withstands city conditions	hedge	



TOLERATION FOR							ORNAMENTAL TREES	KNOWN FOR								
D	S	S	P	D	W	S	S	Name	F	F	F	B	W	F	Additional Comments	Siting Consideration
i	a	o	o	r	e	u	h	Size/Shape	r	l	a	a	i	a		
f	i	i	l	o	t	n	a	Native Species in	u	o	l	r	d	s		
-		P						<b>Bold</b>	i	w	c	k	l	t		
s	s	H	t						t	e	o		i			
i	i		i													
t	t		n													
e	e															
						X	X	FLOWERING DOGWOOD (Cornus kousa) specimen <30ft; vase shaped in youth, more horizontal with age	X	X	X	X			more tolerant of drought than C. florida	ornamental; good near tall buildings but not where soil is limited, as on street
X		X	X	X		X		WASHINGTON HAWTHORN (Caetagus phaenopyrum) <30ft; broadly oval to rounded; dense	X	X	X		X		large thorns; may hamper maintenance operation fruit persists in Winter	good for groves, hedges, highway strips, as a specimen; withstands urban conditions; NOT for use in high foot traffic or children's areas
X				X		X	X	CRABAPPLES (Malus ssp) ( <b>some native</b> ) specimen <30ft; vase shape; most are broad 'Arnold' 'Katherine' 'Hope Red' (Hopa) M. sieboldii 'Zumi'	X	X			X	X	there are disease resistant varieties; try 'Donald Wyman'; for smaller areas: Malus sargentii (8-10ft)  highly susceptible to scab resistant to fire blight and scab disease susceptibility moderately susceptible to scab	parks, malls, containers, in groves and alleys, along parkways where planting strip is wide; plants are gorgeous but need some attention; maintenance in the form of periodic removal of suckers and watersprouts
						X		SARGENT CHERRY (Prunus sargentii) specimen 30-50ft	X	X	X	X	X		best of the larger cherries for landscape use; 'Colmnaris' has narrow 'beer glass' shape	can be utilized as a street tree where poor soils and stress are minimal; it can grow quite large

## SCHEDULE D – GUIDE TO SELECTION OF TREES - Continued

### APPROPRIATE TREES FOR FUNCTIONAL CATEGORIES OF STREETS (NATIVES IN BOLD TYPEFACE)

#### I MAJOR STREETS

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##### A. Thoroughfares and boulevards (heavy traffic; subject to road deicing)

- Norway Maple
- London Planetree
- Zelkova
- Littleleaf Linden
- **Red Oak**
- **Pin Oak** (particularly good for low lying areas)
- **Green Ash**
- Austrian Pine (if evergreen desired)

##### B. Collector streets

Depending on site conditions any of the above; also:

- Silver Linden
- European Hornbeam
- Red Maple
- Chinese or Lacebark Elm

##### C. Commercial streets (where set backs from roadway are restricted and there is a great deal of foot traffic)

- Callery Pear
- **Honey Locust** (thornless)
- European Hornbeam ('Columnaris')
- Silver Linden ('Fastigiata')
- Gingko (upright variety)
- Hedge Maple

#### II MINOR STREETS

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- Red Maple (good for low lying areas)
- Norway Maple
- **Red Oak**
- **Green Ash**
- Littleleaf Linden
- Silver Linden
- Hedge Maple
- Zelkova
- Chinese or Lacebark Elm

#### III RIVERFRONT PARKS AND SETTLEMENTS

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These withstand wet conditions:

- **Sweetgum**
- **River Birch**
- **Red Maple**
- **Pin Oak**
- **Green Ash**

#### IV PARKS AND CAMPUSES

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##### Large Trees

- Japanese Pagoda Tree
- **White Ash**
- Maidenhair (Gingko)
- Amur Corktree
- **Sugar Maple**
- **Sweet Gum**
- Plane Tree
- Laurel Oak

##### Ornamentals

- Washington Hawthorne (industrial not recreational parks)
- Crabapples (groves especially)
- Kousa Dogwood
- Sargent Cherry

## **SCHEDULE D – GUIDE TO SELECTION OF TREES - Continued**

### **SOME THINGS TO THINK ABOUT**

- DON'T think that small streets can only use small trees. The most memorable New England roads are often narrow and equally often flanked by large, majestic shade trees that have been happily growing for years. Many of the largest shade trees do very well under tough urban conditions.
- DON'T be afraid to space trees quite closely. Young trees planted 40 feet apart won't fill a space for 40 years, and not even then if they aren't large growing trees to begin with. Trees that tolerate urban conditions often tend to adapt well to having their growing room restricted.
- DON'T be afraid to use the same species within an area. While it is possible to overdo the use of a species over an entire town and it is wise to be aware of the dangers of monocultures, the repetition of one variety along a street or series of streets enhances visual coherence and provides spatial definition.
- DO consider the architectural setting and visual needs of the area. Then consider the effect of the mature height and spread of the proposed species. Decide whether you want an open or closed canopy effect on the site when determining proper tree spacing.
- DO evaluate the physical constraints of the site, particularly the placement of underground and overhead utilities.
- DO consider long term maintenance requirements and whether they can be met
- DO encourage the planting of public trees on private property.