

RIGHT PLANT, RIGHT PLACE, RIGHT PRACTICE







Kendrick Lake, Lakewood Public Park

# DENVER BOTANIC GAR愛ENS

#### Western environment:

- ✓ Dry/low humidity
- ✓ Little precipitation
- ✓ Intense UV
- ✓ Lean poor soils
- ✓ Heavy wet snows & Hail
- ✓ Steppe Climate/Pinon Juniper

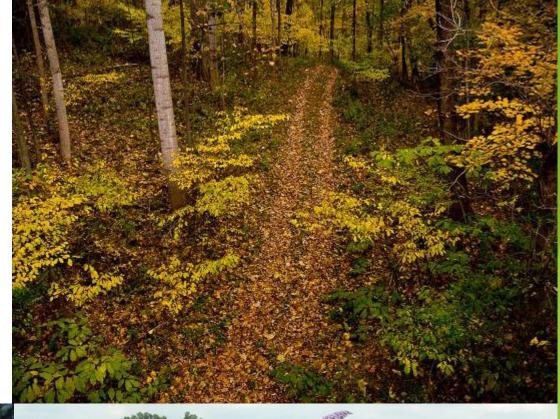




## DENVER BOTANIC GAR BENS

#### **East Coast/Midwest environment:**

- ✓ Humid
- √ 40+"precipitation
- ✓ Cloudy days
- ✓ Clay and rich heavy soils
- ✓ Woodland/Forested







Right plant, Right Place ...and Right Practice SANDY CLAY LOAM

LOAM

SILTY LOAM

SILT

#### **SQUEEGEE** is 1/4" rock and smaller



### RIGHT PRACTICE SOILS Amend the soil with inorganic material

- Creates porous soil
- Xeric and Native plants thrive in lean soils
- Prevents crown rot
- Lower cost fewer mulch applications

These recommendations are for xeric and low water landscapes.

Does not apply to vegetables, annuals, etc.



### RIGHT PRACTICE SOILS Soil amendment and Mulch

- Amend with 1:1 ratio of squeegee: existing soil/topsoil
- Amend soil from 3" to 12" depth
- entire bed/berm/backfill
- Mulch with 1-2" of squeegee/inorganic material 1" and smaller





Where soils are extremely poor, provide up to 12" of amended soil



Season one – weekly irrigation, season two, monthly irrigation





### DENVER BOTANIC GAROENS

Is there a place for organic mulch? Yes...

...ONLY USE FINE organic mulch 1" and smaller



**Dry Shade -** many shade loving plants are native to understory plantings where the canopy provides "natural mulch" in the form of leaf litter, fruits, etc.

**Under Existing Trees** – adjust planting to accommodate roots

Plants with heavy feeding needs such as roses, edible berry producing shrubs and other plants native to rich, humus, acidic soils.



#### **Large Wood Mulch**

- Takes a long time to break down due to lack of soil microbiota and limited moisture
- Absorbs/hold water away from plant roots
- Being dark in color, water may evaporate prior to reaching roots







### **RIGHT PRACTICE: Plant Small**

- Quart or Flats (perennials)
- 1 gallon (shrubs)
- Smallest available (trees)





### DENVERBOTANIC **GARBENS**

RIGHT PLANT, RIGHT PLACE

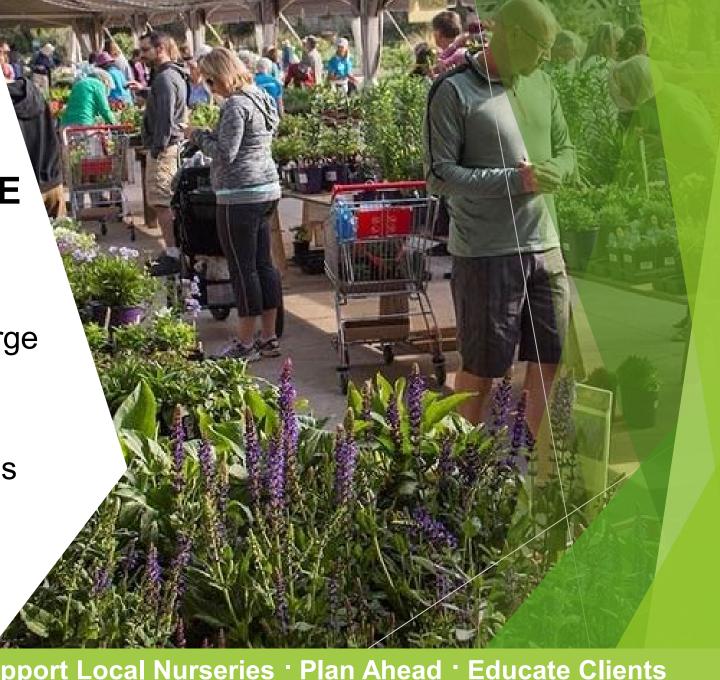
Often we choose plants because:

Familiar with plant name/plant

Easily and readily available in large numbers

Sentimental value/heirloom

Not aware of better suited options





### RIGHT PLANT, RIGHT PLACE

Recommended Western Plant list (PDF)



## DENVER BOTANIC GARBENS

#### RIGHT PLANT, RIGHT PLACE

#### Plants that prefer "wet feet'

- Echinacea purpurea
- Miscanthus
- Pennisetum
- Physocarpus
- Spirea japonica
- Rudbeckia 'Goldsturm'

#### **OVERUSED PLANTS**

- Calamogrostis 'Karl Foerester'
- Hemerocallis 'Stella d'Oro'



www.missouribotanicalgarden.org/plantfinder/plantfindersearch.aspx

### RIGHT PLANT, RIGHT PLACE

While waiting for market to respond to demand, choose readily available dry loving plants.











High	Elevation - up	to 8000'								
Olant 6	Genus	species	Cultivar	Common Name		Water Use	Inet	lation Size	Annual Maintenance	5-10 years Maintenance
riant a	Achillea	millefolium	'Paprika'	Paprika Yarrow				iation size	Cut back/shear to base every spring	Follow annual maintenance
			'Рарпка'			moderate to dry	quar			
	Achillea	tomentosa		Woolly Yarrow		moderate to dry	quar		Cut back in spring	Follow annual maintenance.
	Aconitum	napellus		Monkshood		moderate to dry	quar		Cut/shear back every spring. May require staking	Follow annual maintenance.
	Alchemilla	mollis		Lady's Mantle	_	moderate to dry	quar		Cut/shear back every spring.	Follow annual maintenance.
	Alvasum	montanum	'Mountain Gold'	Creeping Basket-of-Gold		moderate to dry	flat		Cut back in spring	Follow annual maintenance
	Amelanchier	alnifolia	'Standing Ovation'	Standing Ovation Serviceberry		moderate to dry	IIat		Do not shear to shape. Prune out dead limbs	This can be a long lived woody shrub
	Aquilegia	coerulea	Standing Ovation	Colorado Blue Columbine	_	moderate to dry	flat		Cut back in spring	Follow annual maintenance.
	Aquilegia	COETAICS		Colorado Bide Coldinbine		moderate to dry	i i di			
/es	Arctostaphylos	× coloradensis	'Panchito'	Panchito Manzanita		moderate to dry	#1/1	allon	Never touch unless there is damage to branches and only prune those branches out in spring.	Follow annual maintenance. This can be a long lived woody shrub if growing conditions are correct.
	Arctostaphylos	uva-ursi		Bearberry		moderate to dry	#1/1	OR quart	Never touch unless there is damage to branches and only prune those branches out in spring.	Follow annual maintenance. This can be a long lived woody shrub if growing conditions are correct.
	Aronia	melanocarpa		Black Chokeberry		moderate to dry	#1/1	allon	Do not shear to shape. Prune out dead limbs	This can be a long lived woody shrub
	Artemisia	Iudoviciana		White Sage		moderate to xeric	guar		Cut/shear back every spring.	This can be a vigorous plant. Divide and remove to keep contained
	Baptisia	australis		Blue False Indigo		moderate to dry	quar		Cut/shear back every spring.	Slow growing but long lived
	Betula	occidentalis		Western Birch				allon	Cut/snear back every spring.	Slow growing but long lived
					_	moderate to dry	11 11 1	lalion	0.46	F-8
	Brunnera	macrophylla		False Forget me not		moderate to dry	quar		Cut/shear back every spring.	Follow annual maintenance.
	Calamagrostis	× acutiflora	'Karl Foerster'	Feather Reed Grass Karl Foerster		moderate to dry	quar		Cut/shear back every spring.	Divide once center of plant no longer produces folia
	Cornus	sericea		Redtwig Dogwood		moderate to dry			Do not shear to shape. Prune out dead limbs	Responds well to rejuvenation pruning if necessary
									Hand trim back dead stems in spring. May require	
	Delphinium			Delphinium		moderate to dry	quar		staking	Follow annual maintenance.
				Double Midget Mix Dwarf Sweet						
	Dianthus	barbatus	'Double Midget Mix'	William		moderate to dry	quar		Hand trim back dead stems in spring.	Follow annual maintenance.
	Dianthus	deltoides	'Flashing Lights'	Flashing Lights Maiden Pink		moderate to dry	quar		Hand trim back dead stems in spring.	Follow annual maintenance.
	Dianthus	gratianopolitanus	'Tiny Rubies'	Tiny Rubies Cheddar Pink		moderate to dry	quar		Hand trim back dead stems in spring.	Follow annual maintenance.
		· ·		1			1			Follow annual maintenance. This is a long lived
				ORANGE CARPET® Hummingbir					No maintenance or trim a few inches each year to	perennial and continously spreads out from center a
es	Epilobium	canum ssp. garrettii	ORANGE CARPET®	Trumpet		moderate to dry	quar		promote spreading the plant into a wider size.	resonable rate, but divide if it grows too large.
es	Epilobium	flescheri		Alpine Willow Herb		moderate to dry	quar		Cut back dead stems in spring	Follow annual maintenance
	Lpiiobiam	neodien		Tapare White Trees		moderate to dry	quai		out buok acua stems in spring	Follow annual maintenance. This is a long lived
				KANNAH CREEK® Sulphur Flowe						perennial and continously spreads out from center a
es	Eriogonum	umbellatum var. aureum	'Pedowne'	Buckwheat		moderate to dry	flat		No maintenance	resonable rate, but divide if it grows too large.
es es	Erodium	chrysanthum	FSdOWIIS	Golden Storksbill		moderate to dry	guar		Hand trim back dead stems in spring.	Follow annual maintenance
-5	Eryngium	× zabelii	'Big Blue'	Big Blue Sea Holly	_	moderate to xeric	quar		Hand trim back dead stems in spring.	Follow annual maintenance
	Euphorbia	polychroma	'Bonfire'	Bonfire Cushion Spurge		moderate to dry	quar		Cut back in spring	Follow annual maintenance.
	Forsythia	poryenroma	'Meadowlark'	Meadowlark Forsythia		moderate to dry		allon	Do not shear to shape. Prune out dead limbs	Follow annual maintenance
	Geum		weadowark	Geum				anon	Cut back dead stems in spring	Follow annual maintenance
	Geum			Geum		moderate to dry	quar		Cut back dead stems in spring	Follow annual maintenance
	Helictotrichon	sempervirens		Blue Oat Grass		moderate to dry	quar		Cut/shear back every spring.	Divide once center of plant no longer produces folial
							7,2,3,1		No maintenance, trim out any dead in spring if	
	Helleborus	orientalis		Lenten Rose		moderate to dry	quar		any.	Follow annual maintenance
	Heuchera			Coral Bells	_	moderate to dry	quar		Cut back dead stems in spring	Follow annual mainatenance
							7,2,30			Follow annual maintenance. Divide when blooming
	Iris	germanica		German Iris		dry to xeric	quar		growth resumes	reduced and center of plant is open
		7					7.22		No maintenance, trim out any dead in spring if	
es	Jamesia	americana		Waxflower		moderate to dry	#1/1	allon	anv.	Follow annual maintenance
	1					Junior and any				Follow annual maintenance Divide when controls

### Xeric, Natives, Steppe, Dry Shade, Traditional Dry Loving & High Elevation plant lists

yes	Marrubium	rotundifolium	Silverheels Horehound	moderate to xeric	quar	Trim back dead stems in spring	Follow annual mainatenance
						Plant in groups of 3 or 5 in a single hole for v	isual
	Narcisuss		Daffodils	moderate to dry	bulb	appeal and effect	Cut back yellowed leaves

## DENVER BOTANIC GAR BENS

### **Water Use Designations**

Water designations are not consistent or regulated. These recommendations correlate to plant lists from this presentation.

### After 2 full growing seasons:

- "Xeric" water during hottest & driest part of the year
- "Dry" water 1" per month
- "Moderate" water 2" per month

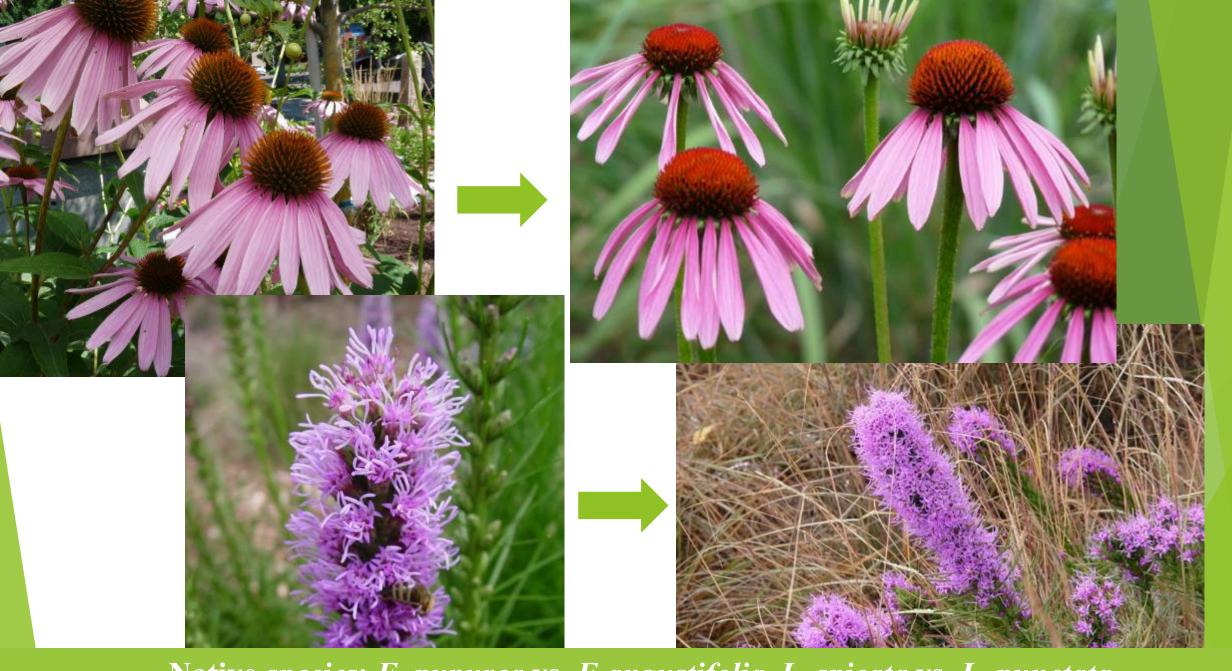




Xeric Plants: Adapted to dry conditions – often with fine, silver, hairy or waxy leaves



Native to Colorado and Western North America



Native species: E. pupurea vs. E angustifolia, L. spicata vs. L. punctata





**Native to Steppe Regions** 



**Traditional Dry Loving Plants** 





**Dry Shade Plants** 



#### **SEEDING**

In landscape beds, self sowing plants fill in the gaps



**Self Sowing Plants** 

#### **NATIVE SEEDING**

- Species selection
- Seed in fall
- Ensure excellent soil contact
- Water warm season in early summer

#### **SEEDING TURF ALTERNATIVES**

- ▶ Grama/Buffalo Mix
- ▶ Native Grass & Wildflower Mix







Dog Tuff<sup>TM</sup> 1-2 seasons = full lawn



RIGHT PLANT, RIGHT PLACE: Trees

#### **PLANTING TREES**

- Amend backfill soil with 50% squeegee
- Top dress with compost (species dependent)
- Mulch with squeegee OR fine organic mulch
- Pay attention to root collar should be at grade
- Wrap young trees to prevent sunscald
- Winter watering as necessary: when no snow on the ground and 5 days of 60F sunny weather

Trees require supplemental watering throughout their lifetime where average precipitation is 14" or less



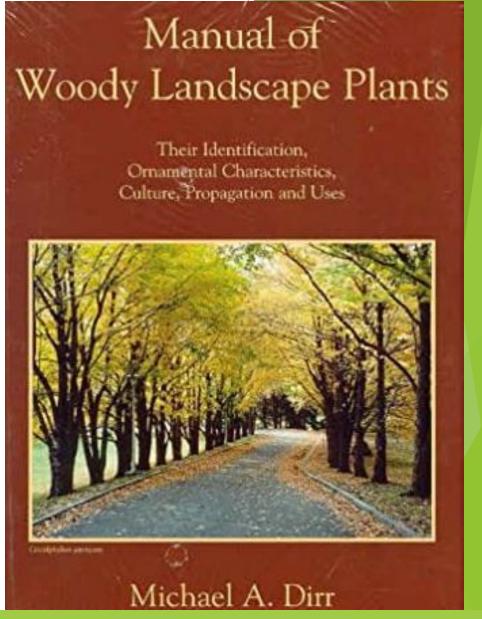
## GARBENS

50 year Tree Study in Denver: Al Rollinger Report

#### <u>Top 10</u>

- 1. Gymnocladus dioicus
- 2. Koelreuteria paniculata
- 3. Quercus (8 total in top 10)
- 4. Sophora japonica
- 5. Aesculus sp.

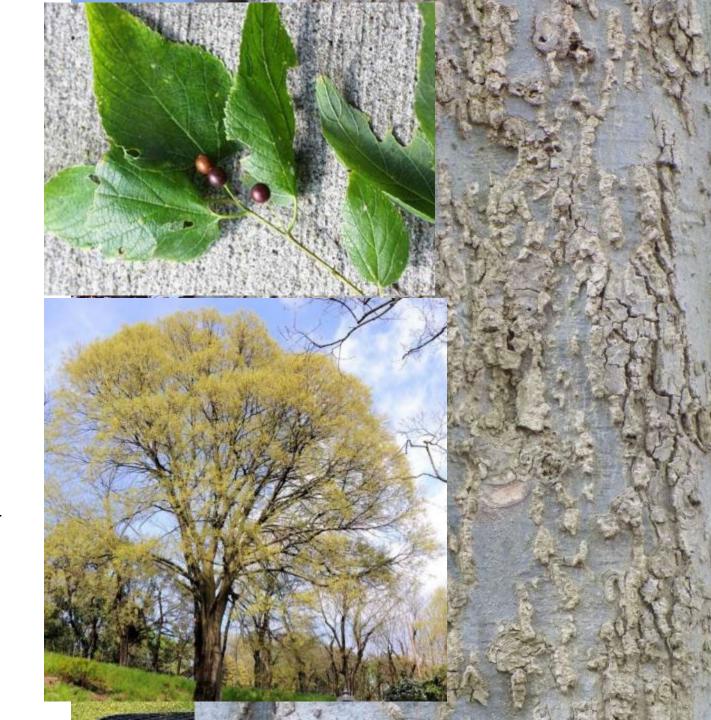
Dirr's Manual of Woody Landscape Plants



#### Celtis occidentalis Hackberry

"The hackberry is found on a wide range of soils east of the Rockies from southern Canada to Florida, these trees thrive in a broad span of temperatures and on sites that vary from 14 to 60" of annual rainfall. They can even stand up to strong winds and tolerate air pollution.

All of this hardiness adds up to a good landscape choice, particularly if you're looking for an energy-conserving shade tree that doesn't require watering."

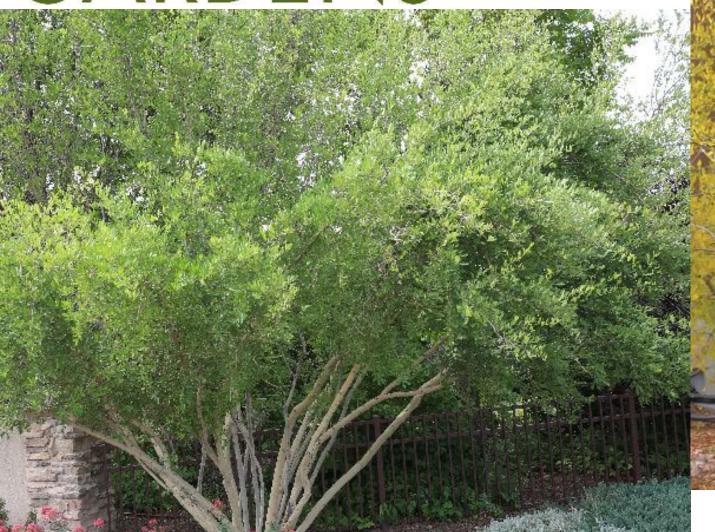


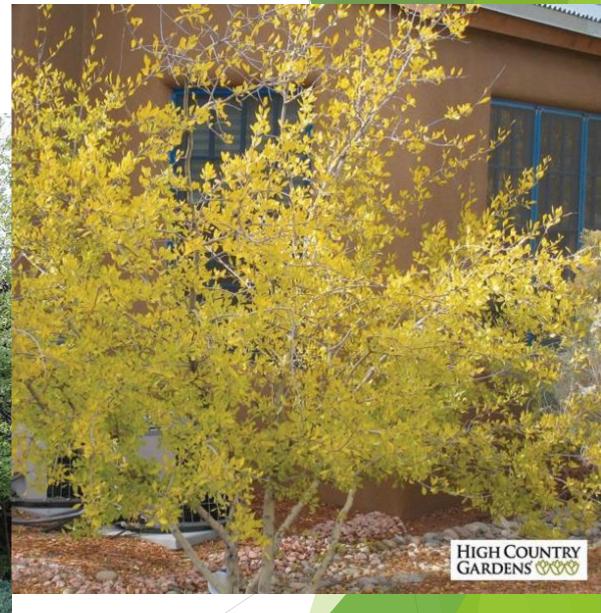


Acer tataricum Hot Wings® Maple



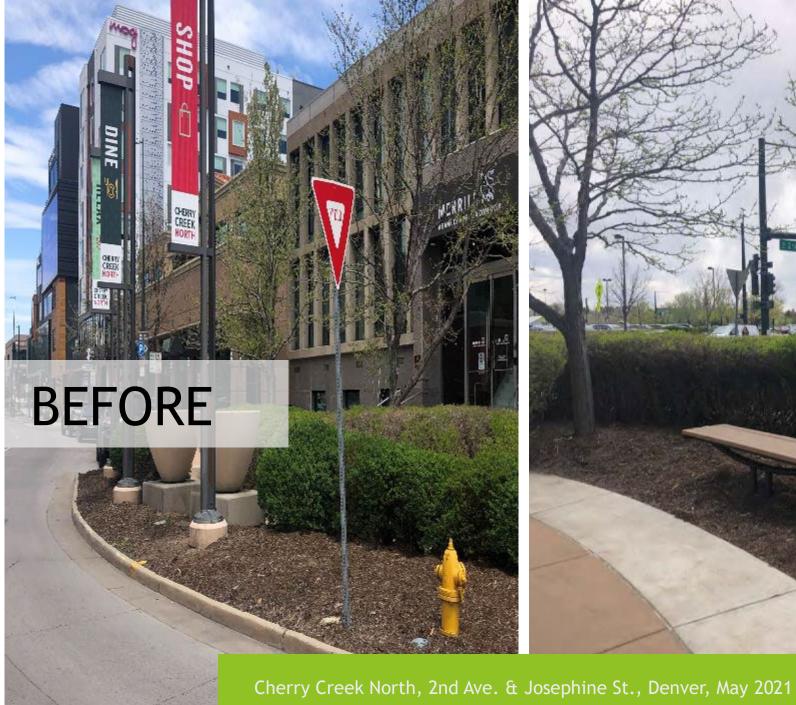
Trials show this selection does better than species at lower elevation





Forestiera neomexicana New Mexican Privet











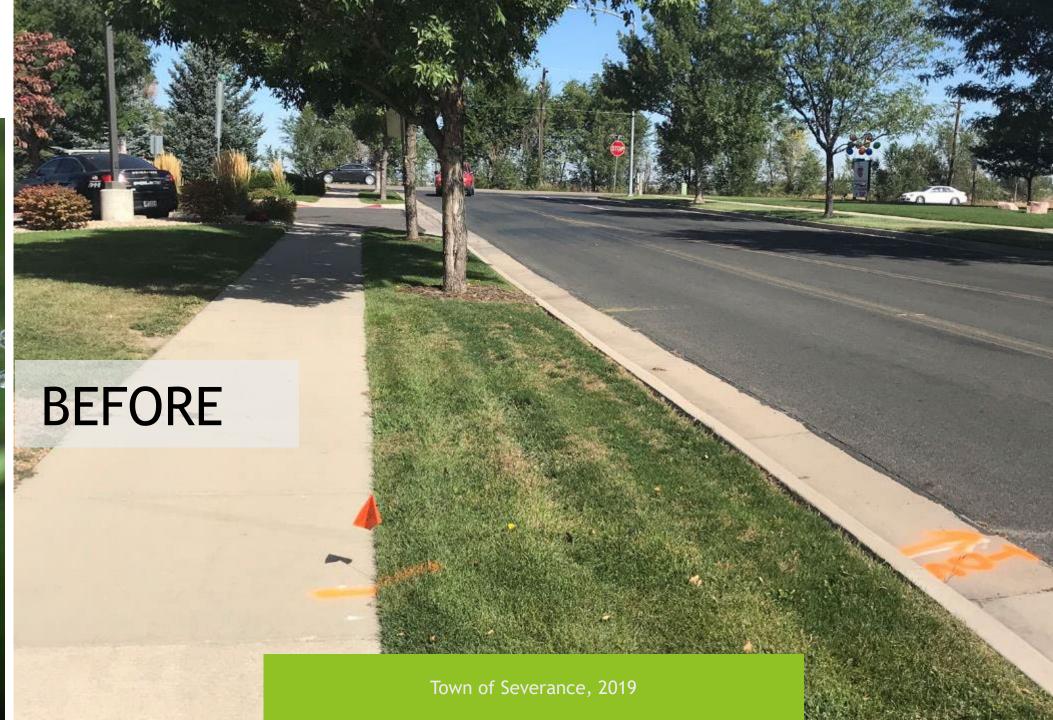




















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## Annie Barrow Manager of Sustainable Landscape Services

Annie.barrow@botanicgardens.org

773.412.3776

Sustainable Landscape Services Webpage