



# BH &A

BRUCE HOWARD &  
ASSOCIATES, INC.

Landscape Architects, Site Planners  
& Golf Course Designers



ESTERO  
PARKWAY

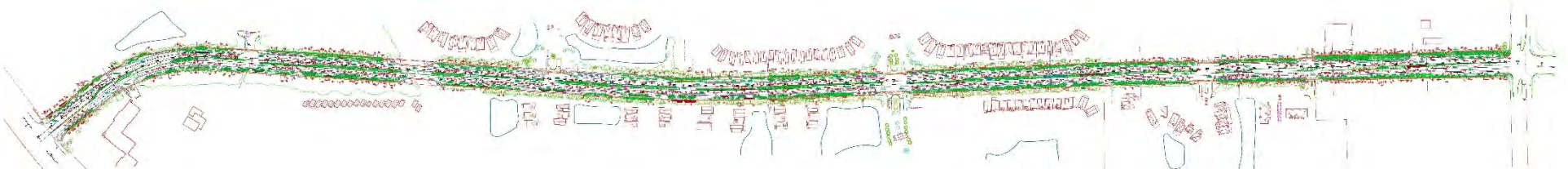
Village of Estero

Landscape Design and  
Plant Selection

# Project Scope



## US 41 to Three Oaks Parkway – Overall Landscape Plan



# South Florida Water Management – Water Wise Florida

As we have been talking about since the beginning of our design involvement, the treatment of the water storage areas (swales) dictates how we choose the appropriate plantings. As such, one of our main resources has been the Water Wise Florida booklet as referenced above. They go into great detail delineating trees, shrubs, and ground covers, capable of thriving in different wet/dry conditions.

Quoting from the Water Wise document talking about Xeriscape Landscaping,

*“The main objective of Xeriscape is to establish and maintain a healthy landscape by matching the right plants with existing site conditions so that the use of additional resources, such as water, fertilizer, pesticides and labor, is minimized.”*

We chose this reference (to right) that carefully delineates which plants can handle the different moisture levels. In our scenario, which is mostly about the storage of water in the drainage swales, we are more concerned about plants drowning than we are about a lack of water or more specifically ‘drought tolerant’.

Blueberry, evergreen	<i>Vaccinium darrowii</i>	8a-11	☹️	☀️	2	🌿🌿🌿🌿
Blueberry, highbush	<i>Vaccinium corymbosum</i>	8a-11	💧 - ☹️	☀️☀️	10	🌿🌿🌿🌿
Blueberry, shiny	<i>Vaccinium myrsinites</i>	8a-11	💧 - ☹️	☀️☀️	2	🌿🌿🌿🌿
Bottlebrush, lemon	<i>Callistemon citrinus</i>	9a-11	💧	☀️	20	🌿🌿🌿🌿
Bottlebrush, stiff	<i>Callistemon rigidus</i>	9a-11	💧	☀️	15	🌿🌿🌿🌿
Bougainvillea, paper flower	<i>Bougainvillea glabra</i>	10b-11	💧 - ☹️	☀️	8	🌿🌿🌿🌿
Boxthorn	<i>Severinia buxifolia</i>	9a-10b	☹️	☀️	6	🌿🌿🌿🌿
Buckthorn, tough	<i>Sideroxylon tenax</i> (= <i>Bumelia tenax</i> )	8b-9b	☹️	☀️	20	🌿🌿🌿🌿
Bush clock vine	<i>Thunbergia erecta</i>	10b-11	💧	☀️☀️	5	🌿🌿🌿🌿
Butterfly-bush	<i>Buddleja asiatica</i>	9b	💧	☀️	10	🌿🌿🌿🌿
Buttonbush	<i>Cephalanthus occidentalis</i>	8a-10a	💧💧 - 💧	☀️☀️	15	🌿🌿🌿🌿
Calamondin orange	<i>x Citrofortunella microcarpa</i>	10b-11	💧	☀️	10-25	🌿🌿🌿🌿
Caper, Jamaican	<i>Capparis cynophallophora</i>	10b-11	💧 - ☹️	☀️	9	🌿🌿🌿🌿
Caricature plant	<i>Graptophyllum pictum</i>	10b-11	💧	☀️☀️	5	🌿🌿🌿🌿
Carolina silverbell	<i>Halesia carolina</i>	8a-9b	💧	☀️☀️	25	🌿🌿🌿🌿
Cassia, Bahama	<i>Senna mexicana</i> var. <i>chapmanii</i>	10a	💧 - ☹️	☀️	8	🌿🌿🌿🌿
Century plant, maguey	<i>Agave americana</i>	9a-11	☹️	☀️	6+	🌿🌿🌿🌿

SOIL MOISTURE ☹️ Dry 💧 Moist 💧💧 Wet

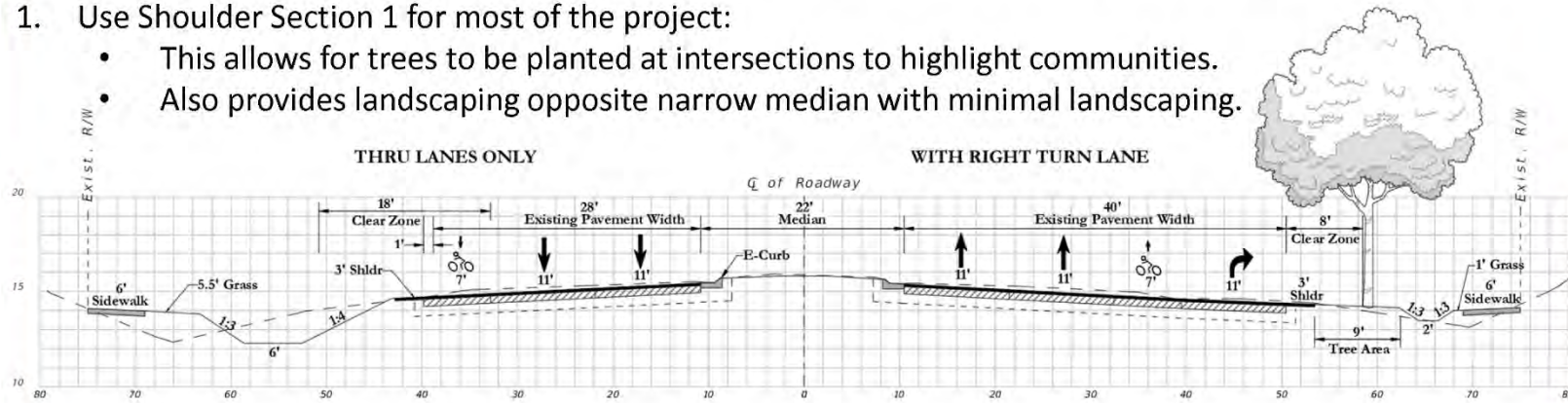
LIGHT ☀️ Full Sun ☀️☀️ Partial Sun ☁️ Shade

# Last Roadway Sections Approved by Council

## Shoulder Section Recommendations

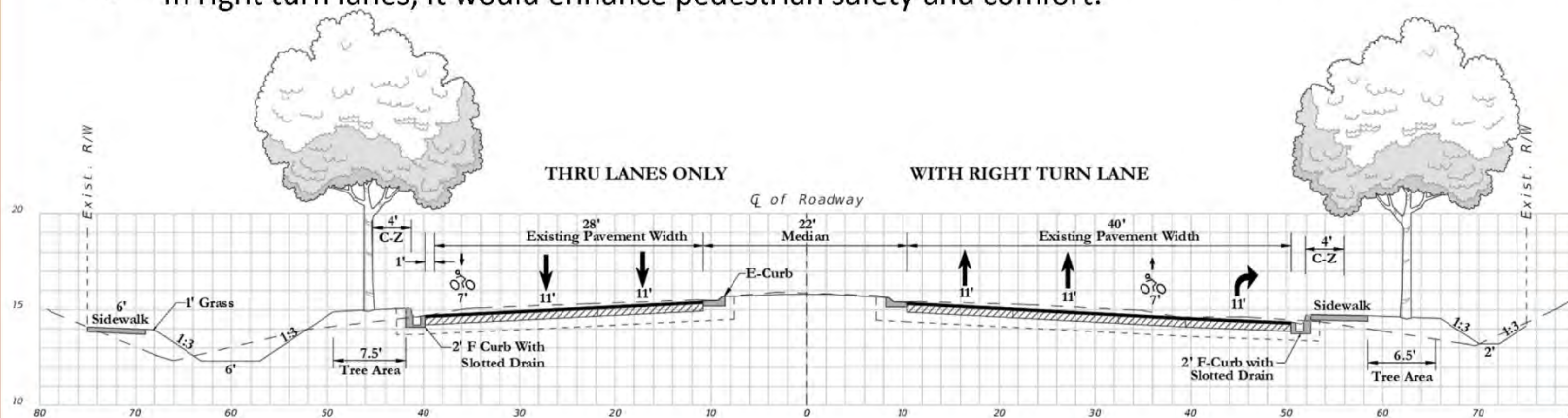
1. Use Shoulder Section 1 for most of the project:

- This allows for trees to be planted at intersections to highlight communities.
- Also provides landscaping opposite narrow median with minimal landscaping.



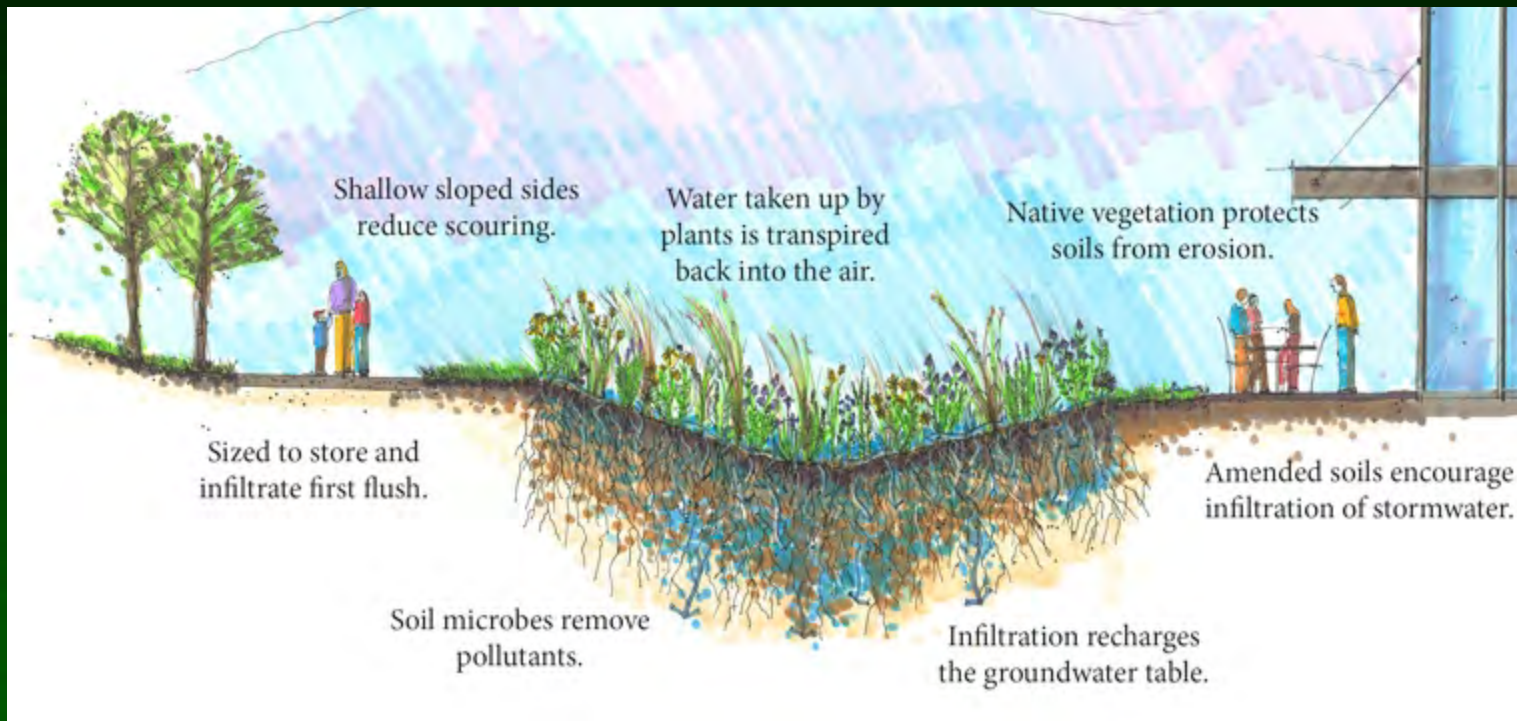
2. Shoulder Section 3 in select areas:

- In thru lanes, this could be added to create a meandering sidewalk and “mid-block” tree clusters.
- In right turn lanes, it would enhance pedestrian safety and comfort.

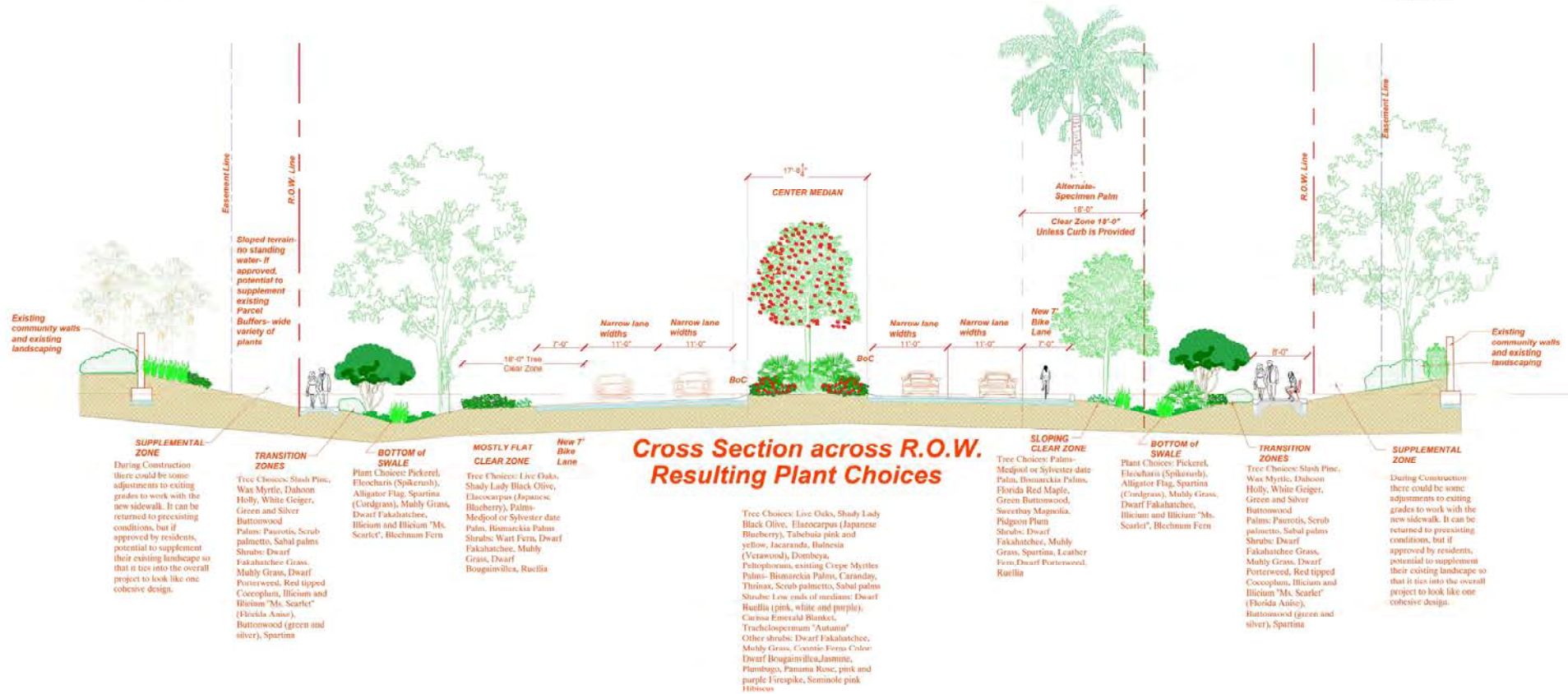
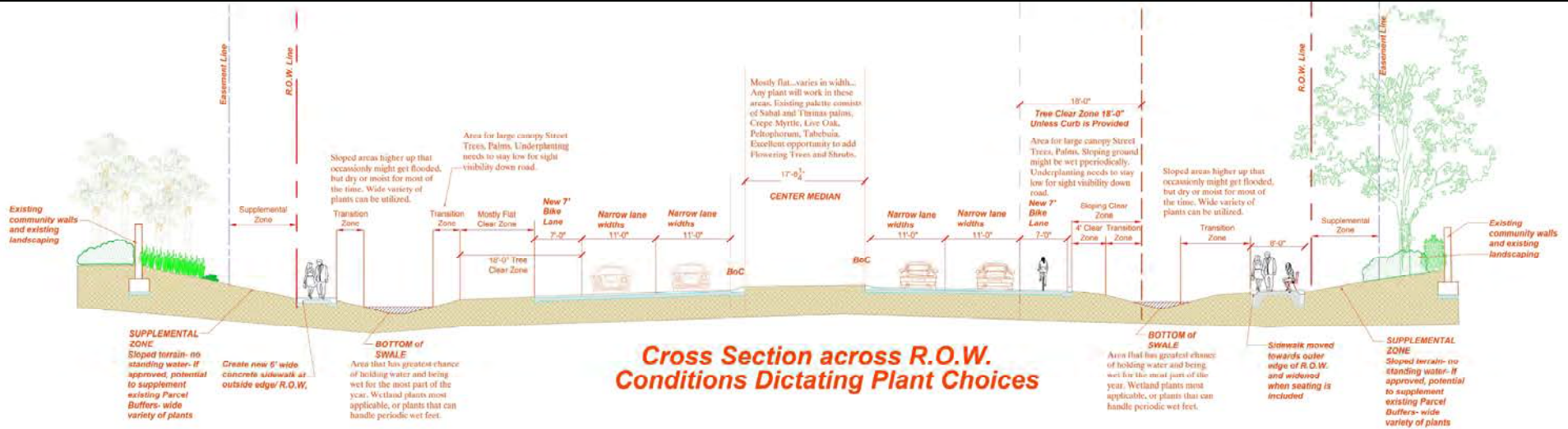


# Naturalized Swales

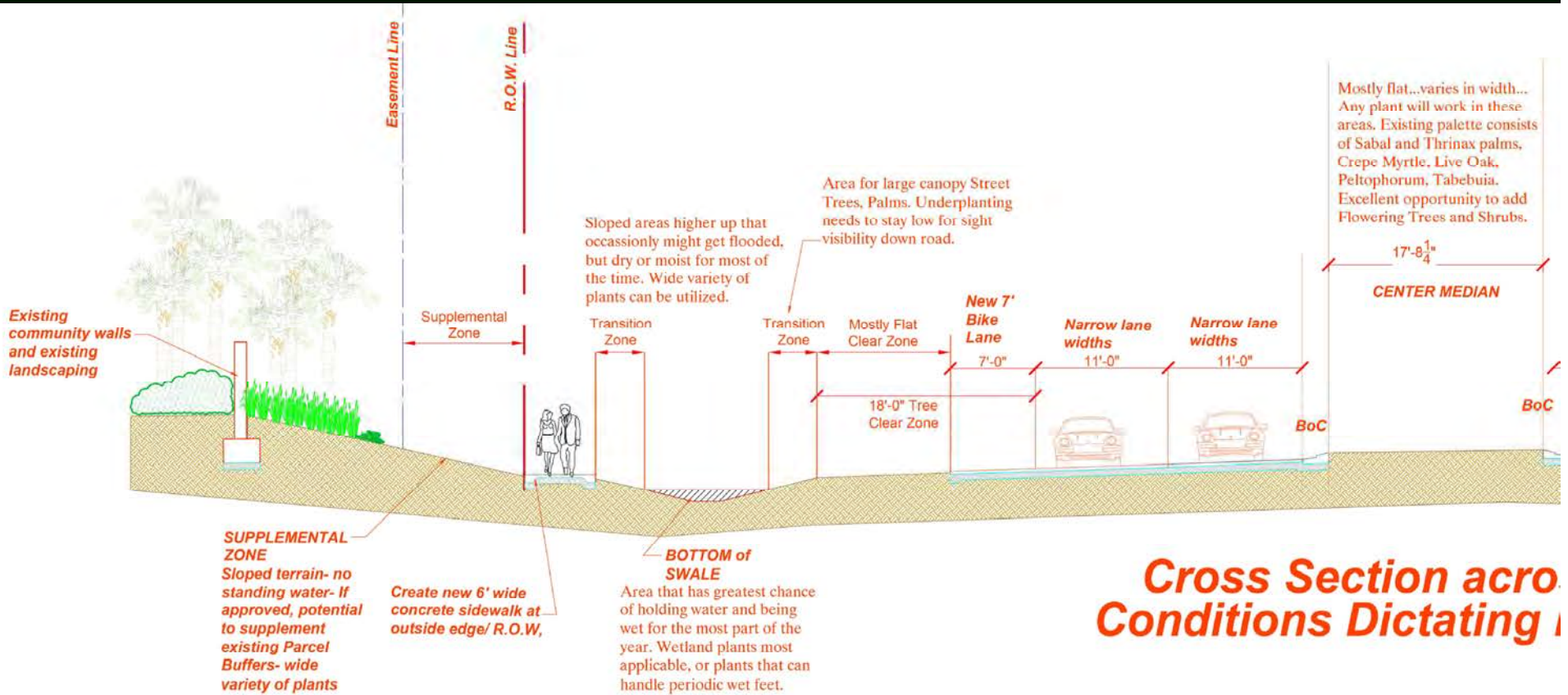
These storm water detention swales will have different water levels during the year. Understanding which plants can best handle these wet/dry conditions, ensures a successful planting plan. To naturalize this look, we have utilized multiple species of plants in proper combinations.



# R.O.W. Conditions Dictating Plant Choices

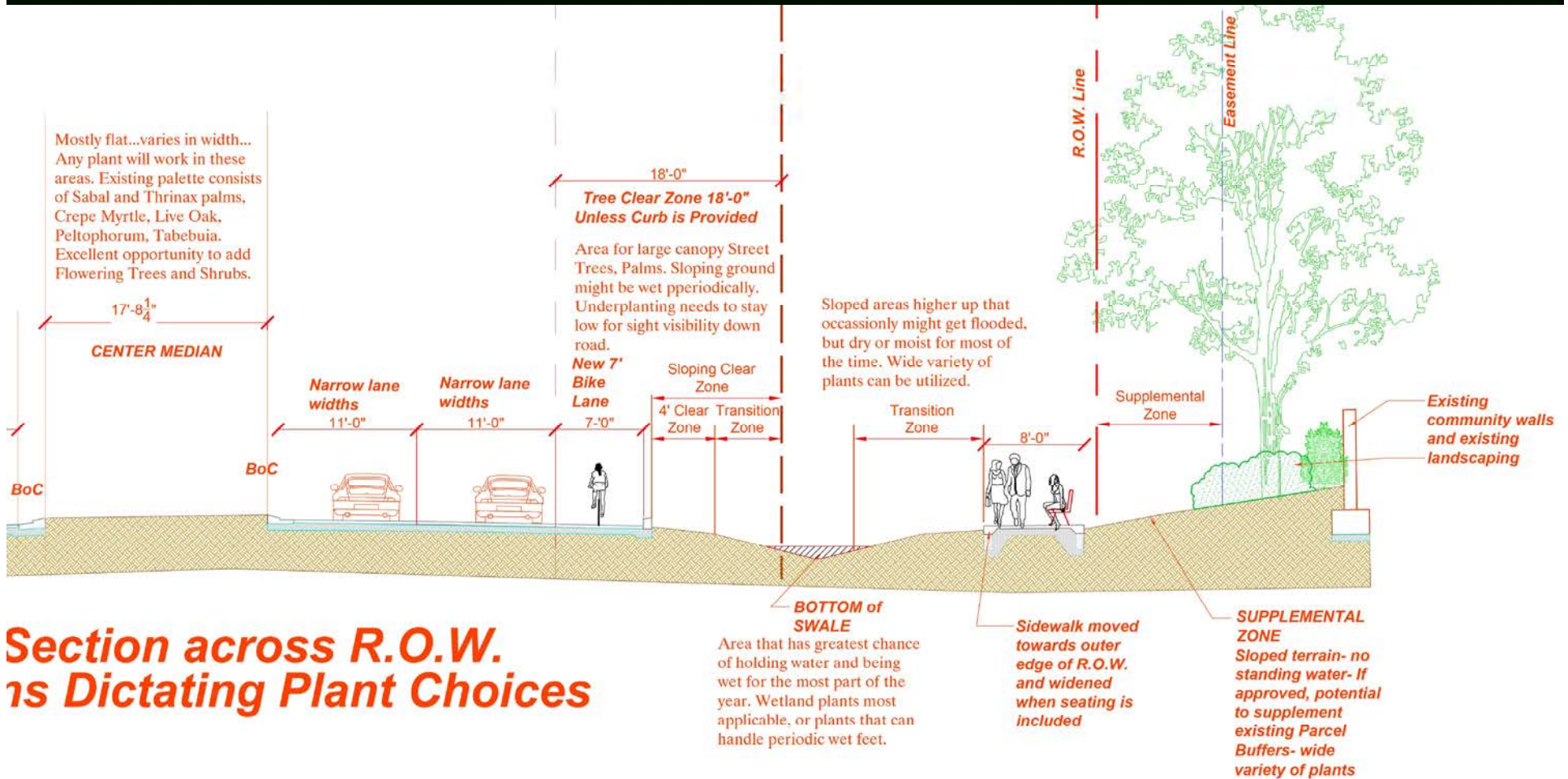


# R.O.W. Conditions Dictating Plant Choices



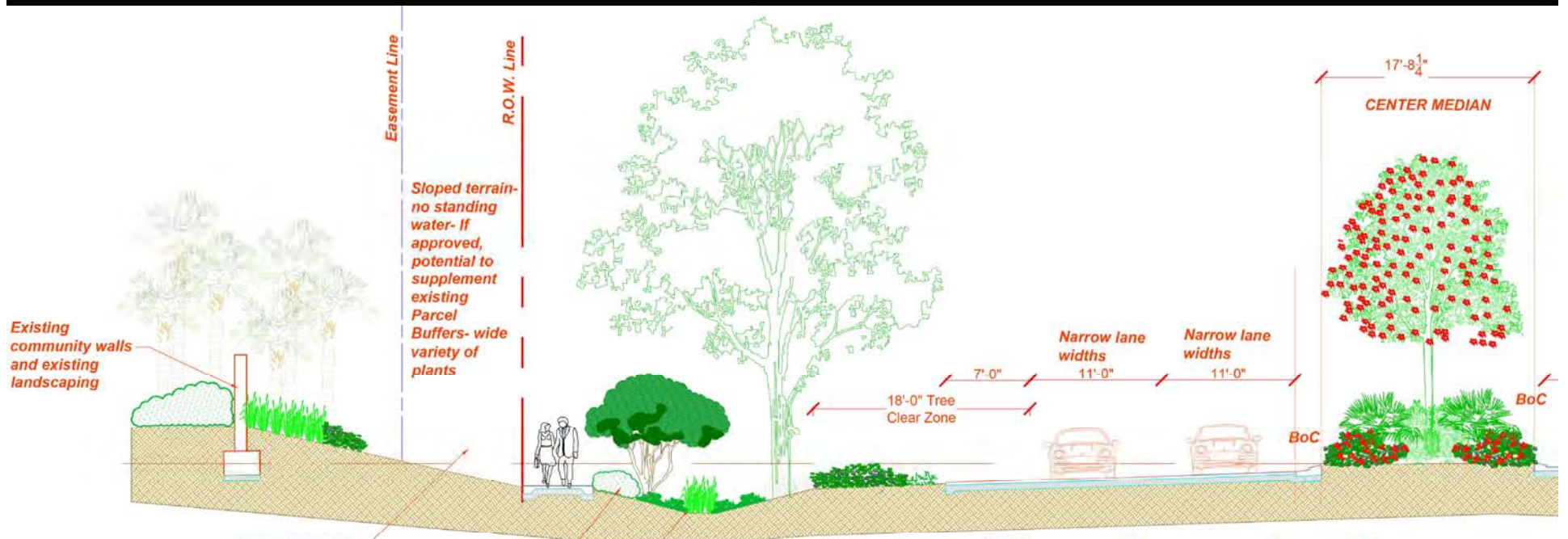


# R.O.W. Conditions Dictating Plant Choices



**Section across R.O.W.  
is Dictating Plant Choices**

# R.O.W. Conditions Dictating Plant Choices



## SUPPLEMENTAL ZONE

During Construction there could be some adjustments to exiting grades to work with the new sidewalk. It can be returned to preexisting conditions, but if approved by residents, potential to supplement their existing landscape so that it ties into the overall project to look like one cohesive design.

## TRANSITION ZONES

Tree Choices: Slash Pine, Wax Myrtle, Dahoon Holly, White Geiger, Green and Silver Buttonwood  
 Palms: Paurotis, Scrub palmetto, Sabal palms  
 Shrubs: Dwarf Fakahatchee Grass, Muhly Grass, Dwarf Porterweed, Red tipped Coccoplum, Illicium and Illicium "Ms. Scarlet" (Florida Anise), Buttonwood (green and silver), Spartina

## BOTTOM of SWALE

Plant Choices: Pickerel, Eleocharis (Spikerush), Alligator Flag, Spartina (Cordgrass), Muhly Grass, Dwarf Fakahatchee, Illicium and Illicium "Ms. Scarlet", Blechnum Fern

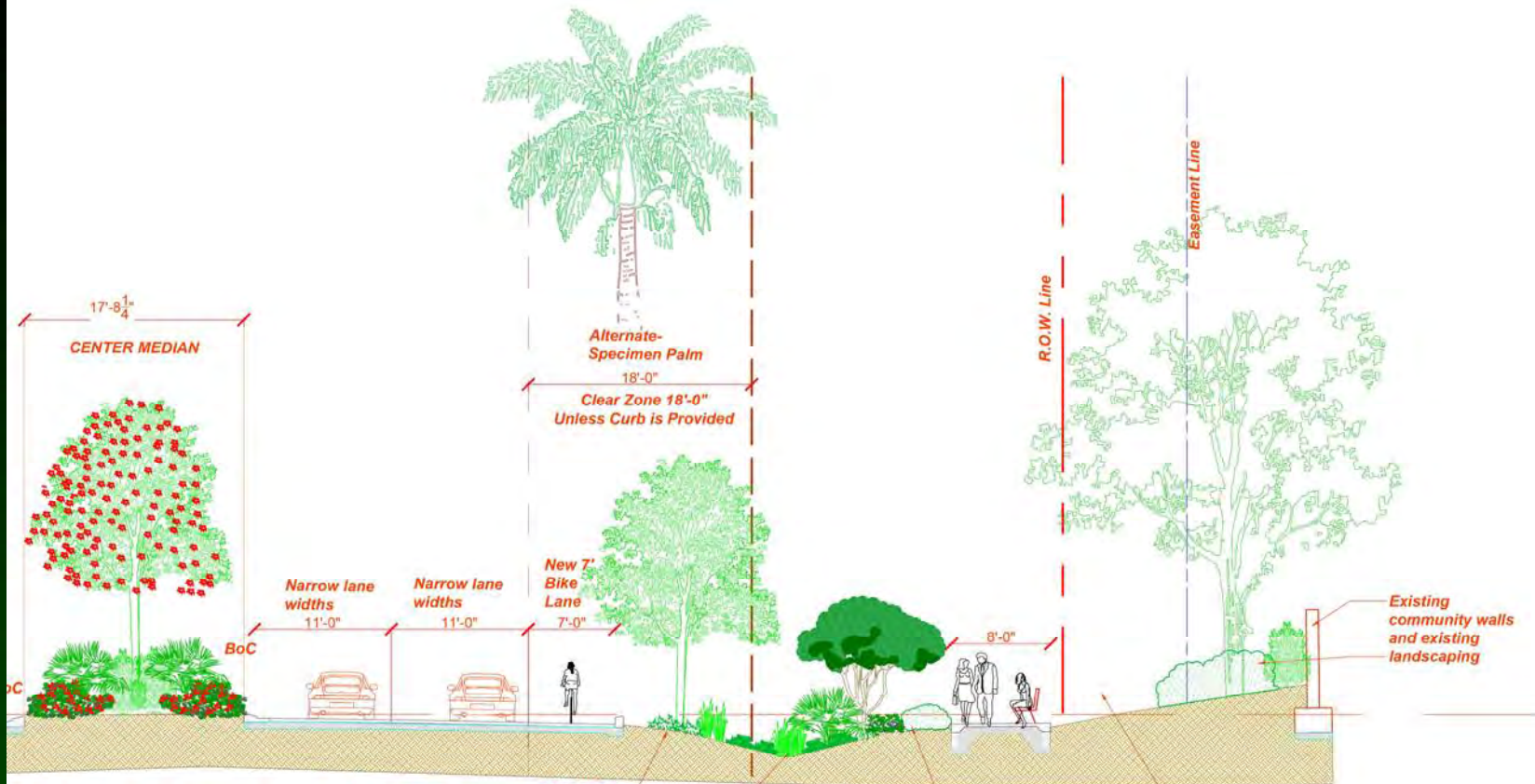
## MOSTLY FLAT CLEAR ZONE

Tree Choices: Live Oaks, Shady Lady Black Olive, Elaeocarpus (Japanese Blueberry), Palms- Medjool or Sylvester date Palm, Bismarckia Palms  
 Shrubs: Wart Fern, Dwarf Fakahatchee, Muhly Grass, Dwarf Bougainvillea, Ruellia

## Cross Section across Resulting Plant Choices

Tree Choices: Live Oaks, Shady Lady Black Olive, Elaeocarpus (Japanese Blueberry), Tabebuia pink and yellow, Jacaranda, Bulnesia (Verawood), Dombeya, Peltophorum, existing Crepe Myrtles  
 Palms- Bismarckia Palms, Caranday, Thrinax, Scrub palmetto, Sabal palms  
 Shrubs: Low ends of medians: Dwarf Ruellia (pink, white and purple), Carissa Emerald Blanket, Trachelospermum "Autumn"  
 Other shrubs: Dwarf Fakahatchee, Muhly Grass, Coontie Ferns Color: Dwarf Bougainvillea, Jasmine, Plumbago, Panama Rose, pink and purple Firespike, Seminole pink Hibiscus

# R.O.W. Conditions Dictating Plant Choices



## Section across R.O.W. showing Plant Choices

Tree Choices: Live Oaks, Shady Lady Black Olive, Elaeocarpus (Japanese Blueberry), Tabebuia pink and yellow, Jacaranda, Bulnesia (Verawood), Dombeya, Peltophorum, existing Crepe Myrtles Palms- Bismarckia Palms, Caranday, Thrinax, Scrub palmetto, Sabal palms  
 Shrubs: Low ends of medians: Dwarf Ruellia (pink, white and purple), Carissa Emerald Blanket, Trachelospermum "Autumn"  
 Other shrubs: Dwarf Fakahatchee, Muhly Grass, Coontie  
 Ferns Color: Dwarf Bougainvillea, Jasmine, Plumbago, Panama Rose, pink and purple Firespike, Seminole pink Hibiscus

### SLOPING CLEAR ZONE

Tree Choices: Palms- Medjool or Sylvester date Palm, Bismarckia Palms, Florida Red Maple, Green Buttonwood, Sweetbay Magnolia, Pidgeon Plum  
 Shrubs: Dwarf Fakahatchee, Muhly Grass, Spartina, Leather Fern, Dwarf Porterweed, Ruellia

### BOTTOM of SWALE

Plant Choices: Pickerel, Eleocharis (Spikerush), Alligator Flag, Spartina (Cordgrass), Muhly Grass, Dwarf Fakahatchee, Illicium and Illicium "Ms. Scarlet", Blechnum Fern

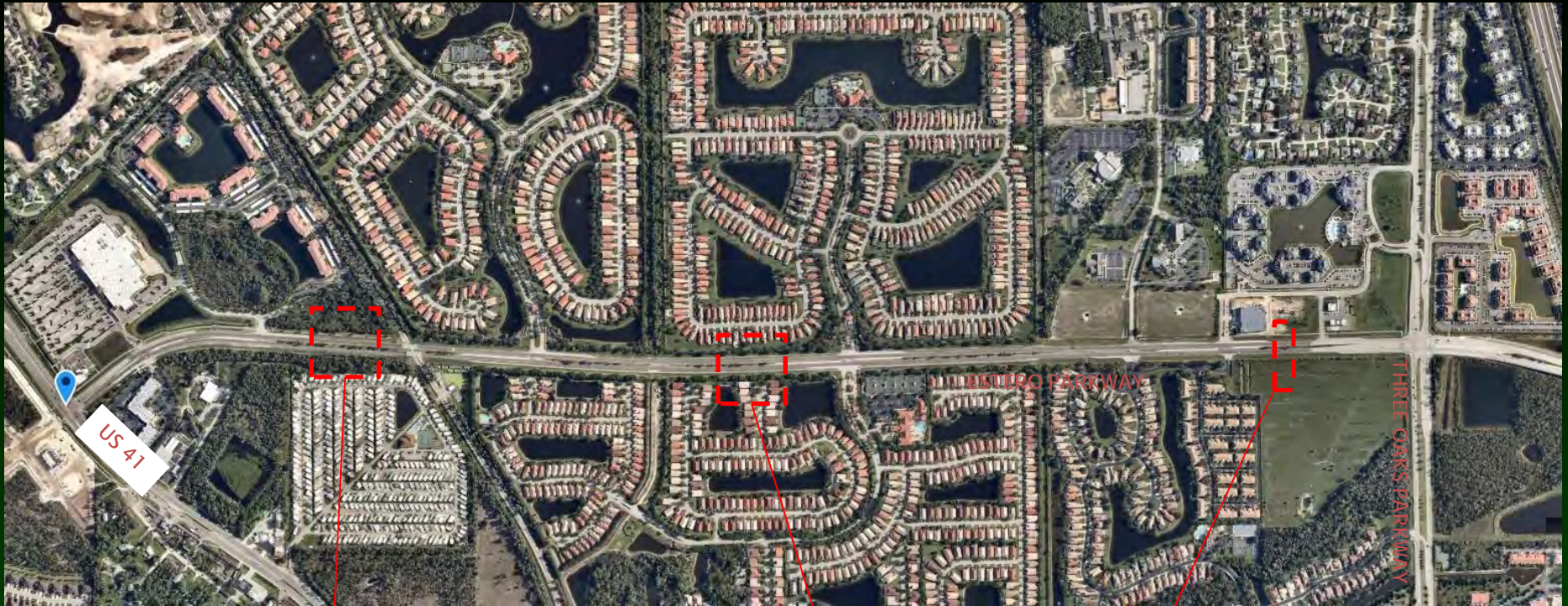
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### SUPPLEMENTAL ZONE

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# Areas of Roadway where Cross Sections were taken

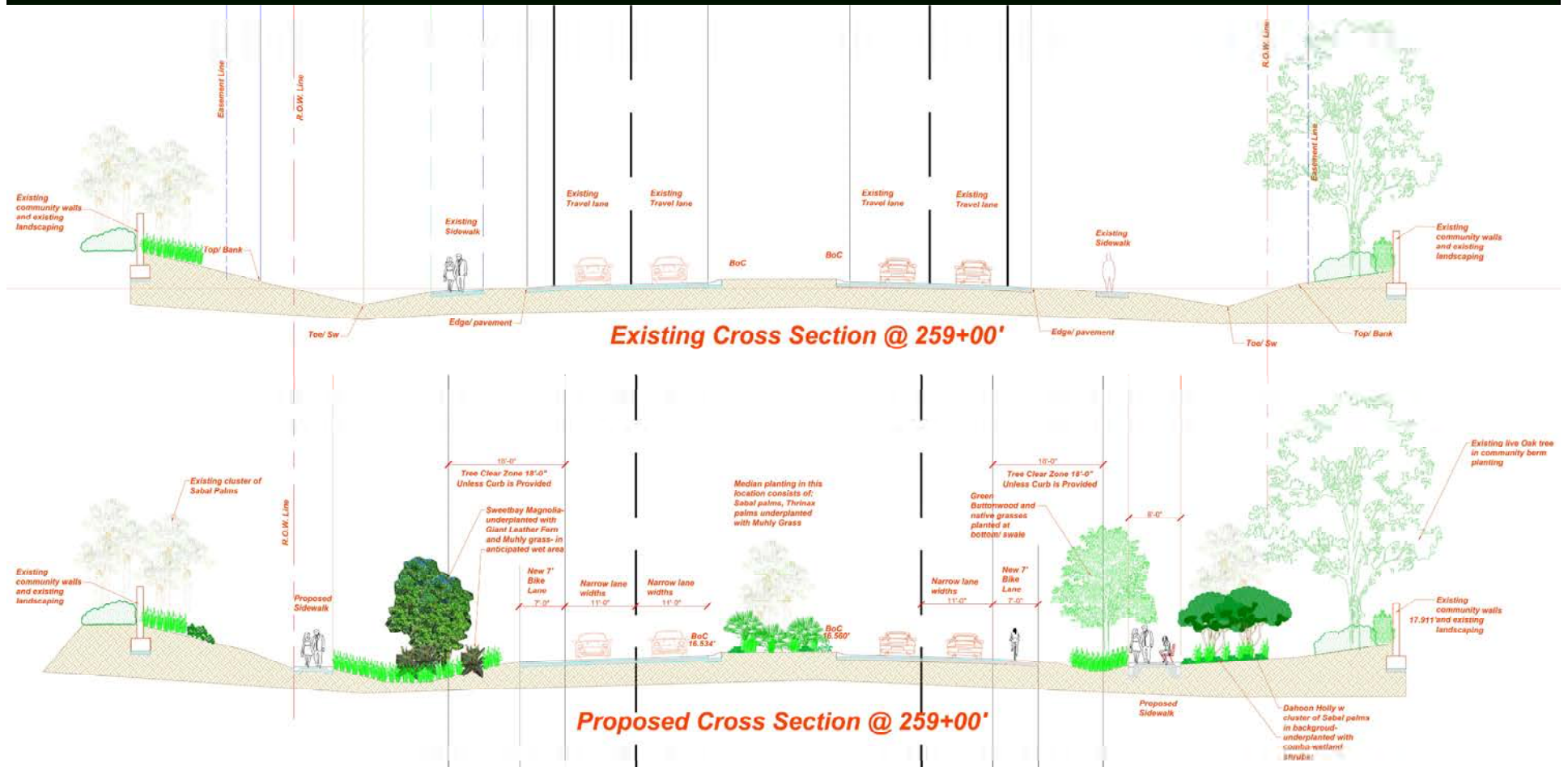


Station 230-232

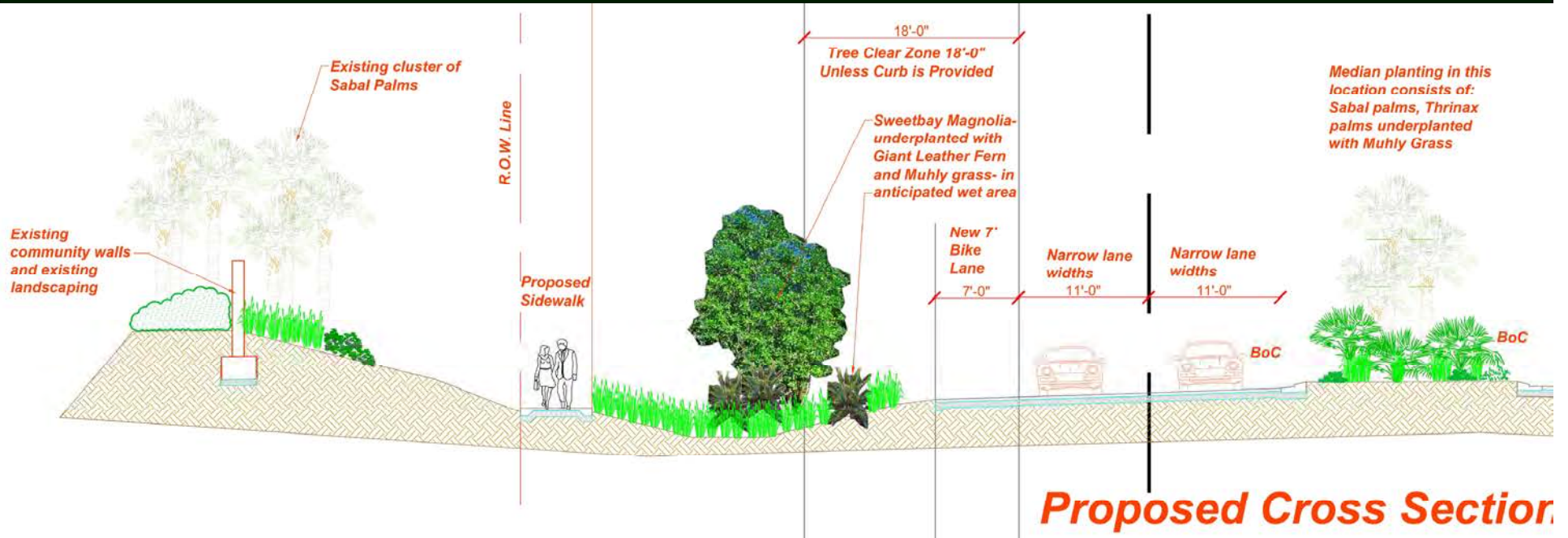
Station 257-260

Station 297

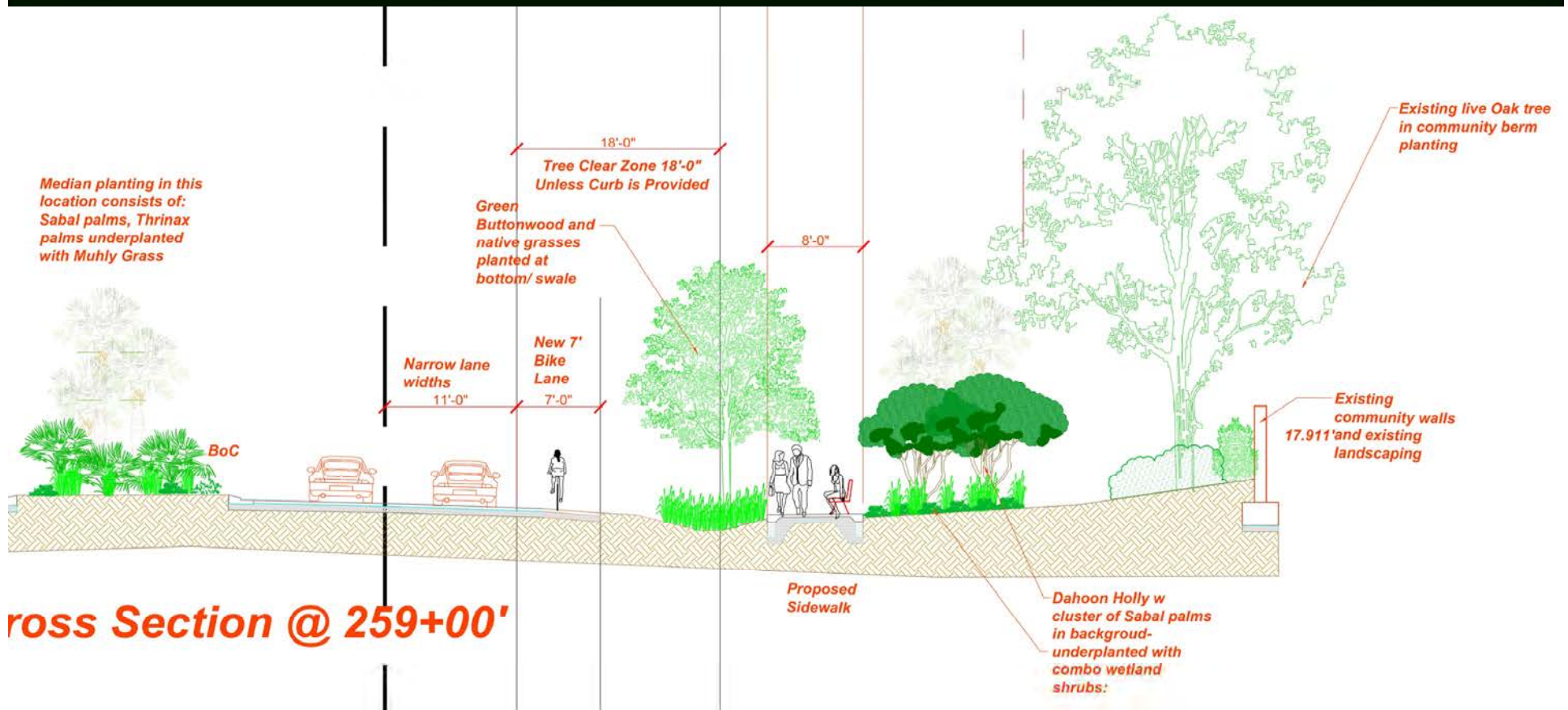
# Existing and Proposed Cross Section through R.O.W. @ Station 259



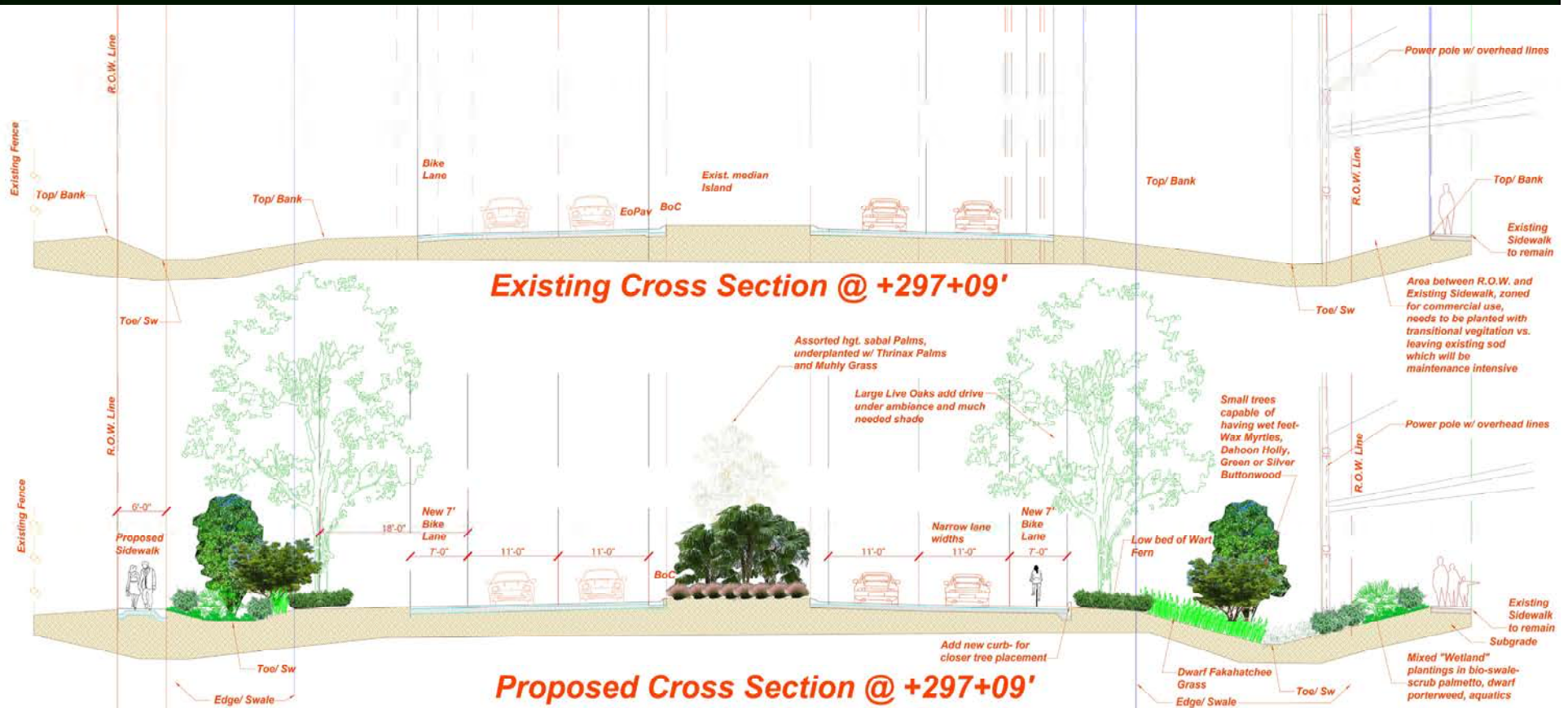
# Existing and Proposed Cross Section through R.O.W. @ Station 259



# Existing and Proposed Cross Section through R.O.W. @ Station 259



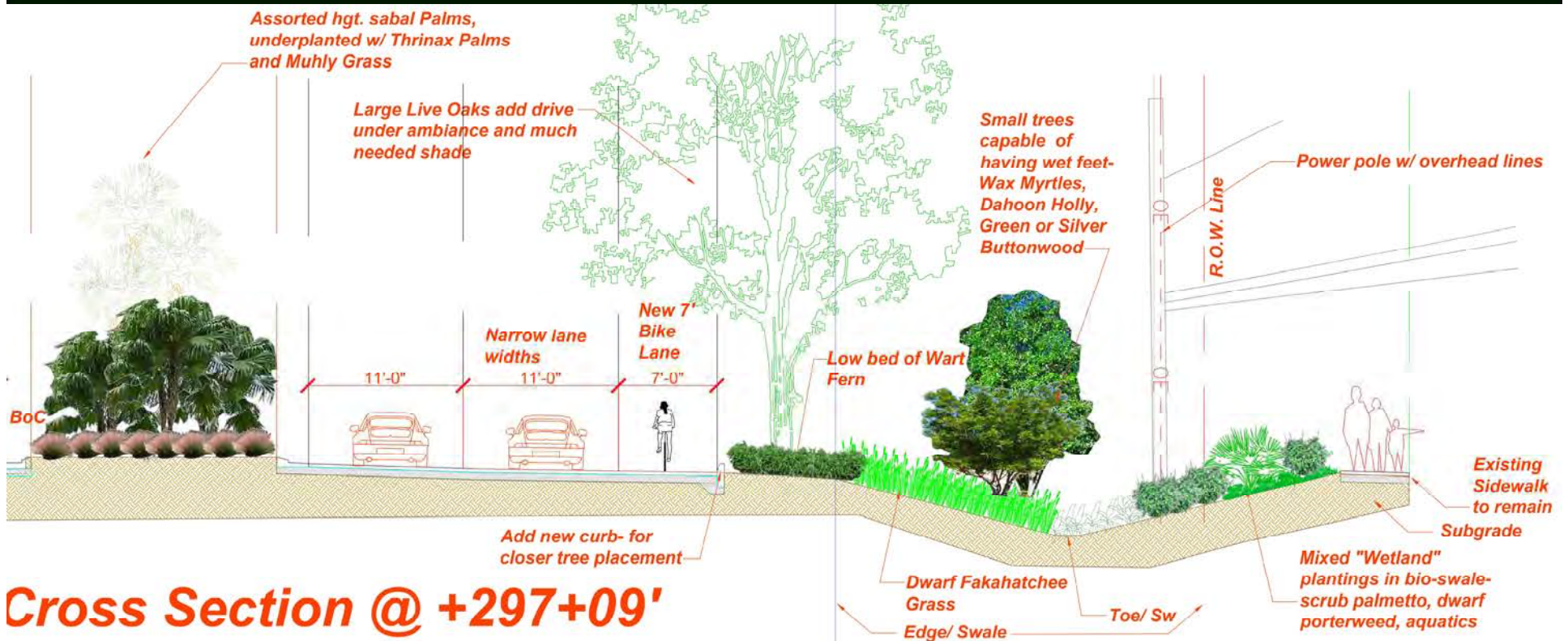
# Existing and Proposed Cross Section through R.O.W. @ Station 297



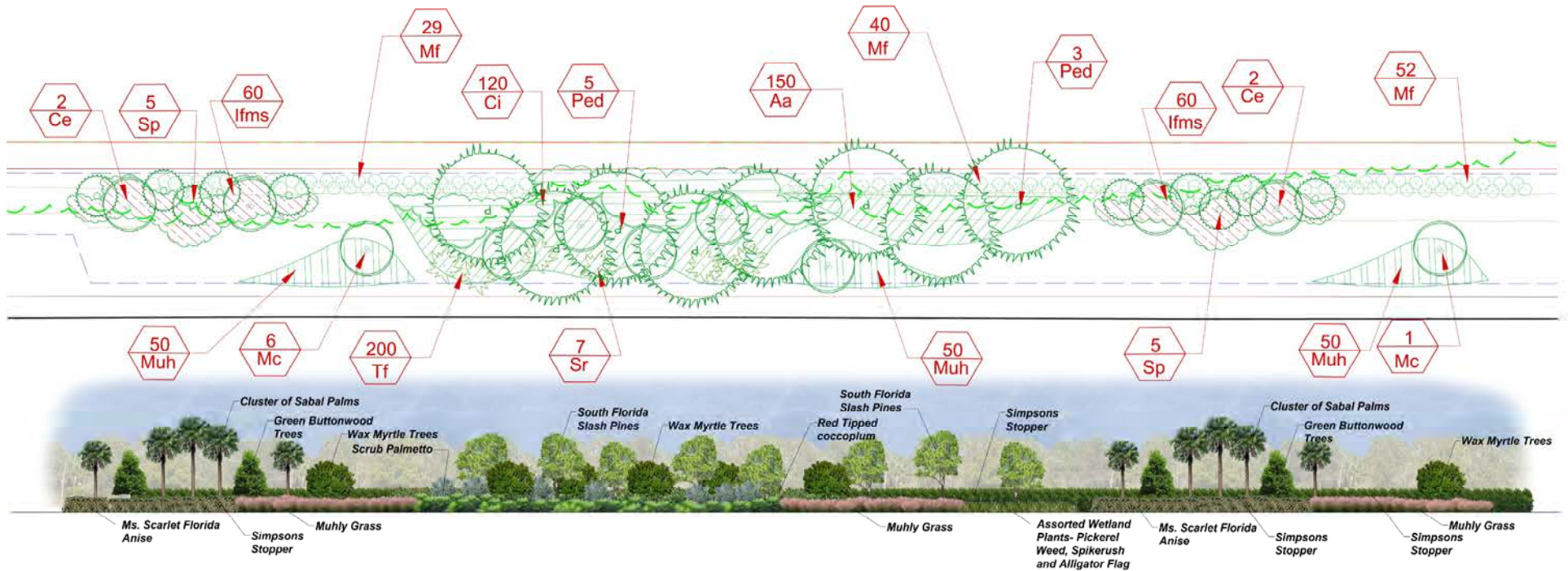


Existing and Proposed Cross Section through R.O.W. @ Station 297

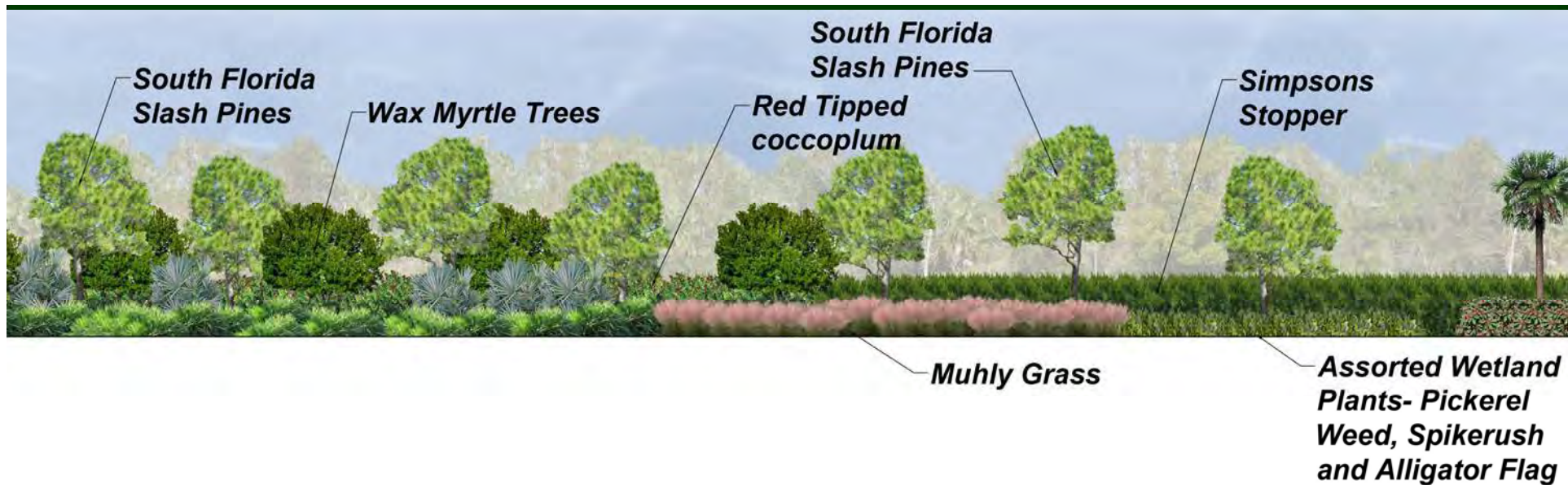
# Existing and Proposed Cross Section through R.O.W. @ Station 297



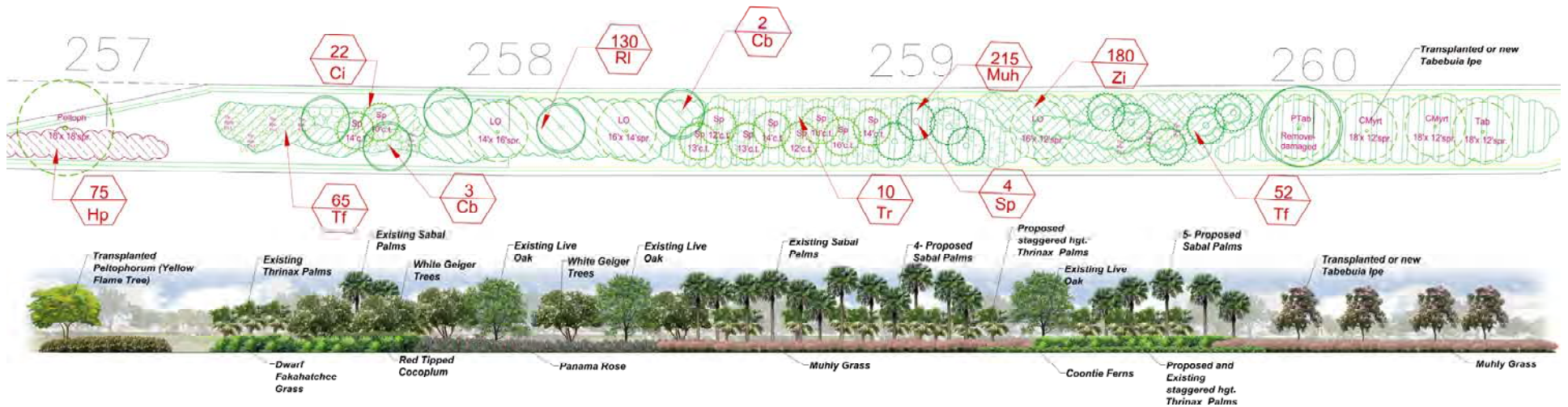
# Partial Landscape Elevations Depicting Integrated Plants Choices



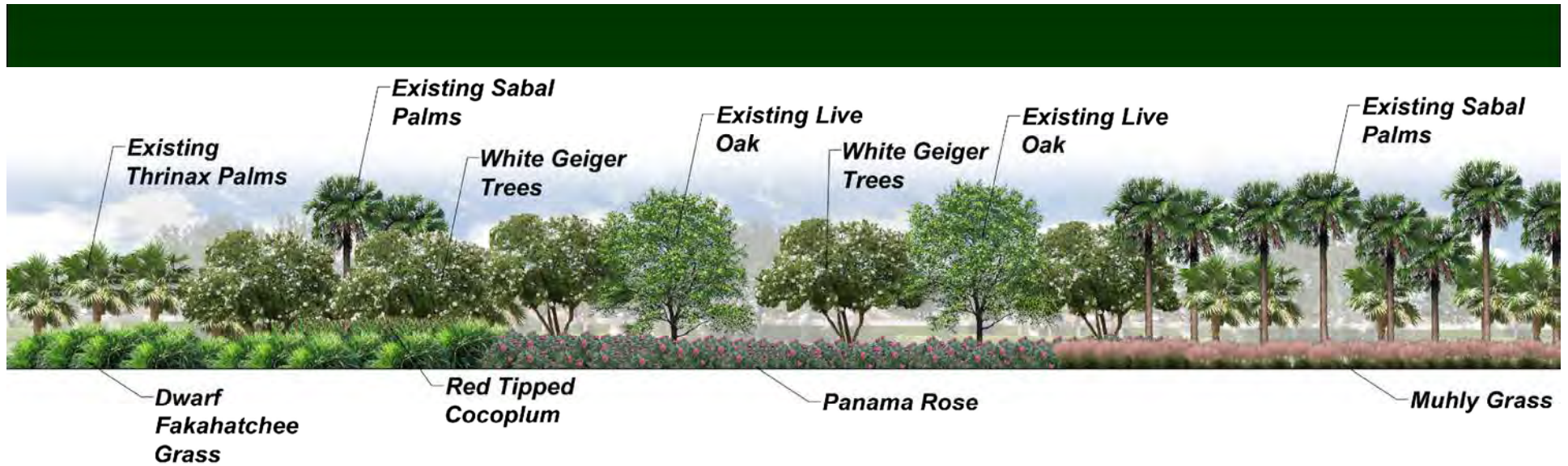
**Front Elevation - South Side Sta. 230-232**



# Partial Landscape Elevations of Center Median



Center Median- Looking North -Sta. 257-260



# Large Shade Trees

Live Oaks



Japanese Blueberry



"Shady Lady" Black Olive



Street Trees are available in many sizes varying from 65 gal to 400 gal containers to Field Grown.



# Palms

Medjool Date Palm



Bismark Palm

Sabal Palm

Thrinax Palm



Paurotis Palm

Copernicia Palm



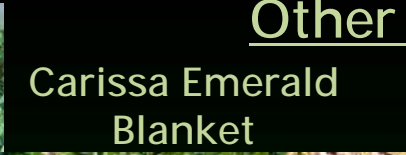
Solitaire Palm



# Other Plants Utilized



Green Island Ficus  
Coontie Fern



Carissa Emerald  
Blanket



Wild Coffee



Dwarf Ruellia



Dwarf Fakahatchee



Panama Rose



Variegated Dwarf Schefflera



Bougainvillea



Silver Saw Palmetto



Variegated  
Asiatic Jasmine

Wart  
Fern



# Native Trees Capable of Wet or Dry Conditions

Green Buttonwood



Sweetbay Magnolia



Florida Slash Pine



Wax Myrtle



Pigeon Plum

Dahoon Holly



Florida Red Maple





# Native Plants Capable of Wet or Dry Conditions

Green and Silver Buttonwood



Florida Anise  
'Miss Scarlet'



Florida Anise



Muhly Grass



String Lily



Dwarf Porterweed



Red-tip and Horizontal Cocoplum



# Native Wetland Plants – Bottom of Swale Conditions

Spikerush/Eleocharis



Blue Flag



Leather Fern



Duck Potato



Pickerelweed



Alligator Flag



Blechnum Fern



# Criteria the Irrigation System was Designed With

The existing wells were only designed to water the median and not the full R.O.W. area. One of these wells has been converted to only using potable water because of a poor quality, shallow well. The other, while still using well water, is not able to draw enough water to irrigate in the short 8 hour window we are required to comply with.

- 3 New Wells, driven to the proper depth, and using the right diameter pipe will be utilized to minimize the Mainline size which saves thousands of dollars.
- The System has been designed to be spot specific to recognize the different zones we established in our cross sections.
  - Bottom of swale has moisture sensors that will turn off the zone when wet.
  - Sod requires twice the amount of water that shrubs do, so it is on a separate zone
  - Trees have bubblers to help establish, which can be turned off at a later date

# Plant Material List Trees Only

ESTERO PARKWAY - Budget Breakdown							
TREES							
SYMBOL	BOTANICAL NAME	COMMON NAME	NATIVE	SIZE / CALIPER @ INSTALLATION	QTY	Unit Price	SubTotals
Ar	Acer rubrum	RED MAPLE	YES	16'-18'hgt.x 12'spr.	34	\$750	\$25,500
Aw	Acoelorrhaphe wrightii	PAUROTIS PALM	YES	14'-16' o.a.hgt., multi-cane	38	\$1,500	\$57,000
Bn	Bismarckia nobilis	BISMARCK PALM		12'-14'c.t.	32	\$1,500	\$48,000
SLBO	Bucida buceras "Shady Lady"	SHADY LADY BLACK OLIVE	YES	18'-22'hgt.x 12'-14'spr.	14	\$1,500	\$21,000
Ba	Bulnesia arborea	VERAWOOD		12'-14' hgt. x 2"-3' cal.	5	\$500	\$2,500
Ce	Conocarpus erectus (compact variety)	GREEN BUTTONWOOD	YES	14'x 10'-12'spr.	39	\$500	\$19,500
Ca	Copernicia alba	CARANDAY PALM		8'-12'c.t.	9	\$1,500	\$13,500
Cb	Cordia boissieri	WHITE GEIGER	YES	10' hgt. x 2" cal.	5	\$500	\$2,500
Ed	Elaeocarpus decipiens (Fishbranch Tree Farm)	JAPANESE BLUEBERRY		15'-16' hgt. x 10'-12'spr. "Tree Form"	1	\$750	\$750
Ic	Ilex cassine "Tensaw"	DAHOON HOLLY	YES	8'-10'hgt.x 5'-6'spr., standard	103	\$375	\$38,625
Mv	Magnolia virginiana	SWEETBAY MAGNOLIA	YES	12'-16'hgt.x 8'spr.	40	\$500	\$20,000
Mc	Myrica cerifera	WAX MYRTLE	YES	7'-8', 25 gal.	87	\$375	\$32,625
Pp	Peltophorum pterocarpum	YELLOW POINCIANNA		16'x 10'-12'spr.	1	\$500	\$500
Pdm	Phoenix dactylifera medjool	MEDJOOL DATE PALM		12'c.t., diamond cut trunk	49	\$5,000	\$245,000
Ped	Pinus elliottii densa	SLASH PINE	YES	12'-20'hgt., stagger sizes	35	\$750	\$26,250
Pty	Ptychosperma elegans	ALEXANDER PALM		10'c.t., max. 4" cal.	82	\$750	\$61,500
Qv1	Quercus virginiana	LIVE OAK	YES	300 gal.; 22' hgt. x 12'-14'spr., 6"-8" cal.	23	\$1,500	\$34,500
Qv2	Quercus virginiana	LIVE OAK	YES	FG: 24'-28'hgt.x 14'-16'spr., 12"-14" cal.	32	\$2,500	\$80,000
Sp	Sabal palmetto	CABBAGE PALM	YES	8'-16' c.t. (14'-22' o.a.hgt.) staggered	329	\$250	\$82,250
Srs	Serenoa repens silver	SAW PALMETTO		15-25 gal.	156	\$375	\$58,500
Ti	Tabebuia ipe	PINK TRUMPET TREE		14'-16'x 8'-10'spr.	17	\$750	\$12,750
Tr	Thrinax radiata	FLORIDA THATCH PALM	YES	4'-8'c.t.	38	\$500	\$19,000
						Trees Total:	\$901,750

# Plant Material List Shrubs and Misc. Only

SHRUBS							
SYMBOL	BOTANICAL NAME	COMMON NAME	NATIVE	SIZE @ INSTALLATION	QTY	Unit Price	SubTotals
Aa	Assort. Aqua.(Pickerel, Spikerush, Alligator Flag)	ASSORTED AQUATICS	YES	1-3 gals., randomly mix	9,175	\$7.25	\$66,518.75
Ad	Acrostichum danaeifolium	LEATHER FERN	YES	3 gal.	79	\$9	\$711
Bse	Blechnum serrulatum	SWAMP FERN	YES	1 gal.	430	\$5.50	\$2,365
BHj	Bougainvillea 'Helen Johnson'	DWARF BOUGAINVILLEA		3 gal	1,193	\$10.50	\$12,526.50
Bma	Bougainvillea "Ms. Alice"	DWARF BOUGAINVILLEA		3 gal.	265	\$10.50	\$2,782.50
Bs	Bougainvillea 'Silhouette'	DWARF BOUGAINVILLEA		3 gal.	364	\$10.50	\$3,822
Ceb	Carissa emerald blanket	EMERALD BLANKET CARISSA		3 gal.	1,043	\$9	\$9,387
Ch	Chrysobalanus horizontalis	HORIZONTAL COCOPLUM	YES	3 gal.	1,435	\$10.50	\$15,067.50
Ci	Chrysobalanus icaco 'Red Tip'	RED TIP COCOPLUM	YES	3 gal	934	\$10.50	\$9,807
Cer	Conocarpus erectus (compact variety)	GREEN BUTTONWOOD	YES	3 gal.	237	\$9	\$2,133
Ces	Conocarpus erectus sericeus	SILVER BUTTONWOOD	YES	3 gal.	326	\$9	\$2,934
Ca	Crinum americanum	STRING LILY	YES	2'-3'spr. clump	599	\$35	\$20,965
Fgi	Ficus 'Green Island'	GREEN ISLAND FICUS		3 gal	601	\$9	\$5,409
Hp	Hibiscus seminole pink	PINK HIBISCUS		3 gal.	620	\$10.50	\$6,510
HI	Hymenocallis latifolia	SPIDER LILY	YES	3 gal.	930	\$9	\$8,370
If	Illicium floridanum	FLORIDA ANISE	YES	3 gal	1,462	\$9	\$13,158
Ifms	Illicium floridanum "miss scarlet"	FLORIDA ANISE	YES	3 gal.	1,122	\$10.50	\$11,781
Jm	Jasminum multiflorum	DOWNY JASMINE		3 gal	215	\$9	\$1,935
Ms	Microsorium scolopendrium	WART FERN	YES	3 gal.	2,287	\$9	\$20,583
Muh	Muhlenbergia capillaris	MUHLI GRASS	YES	3 gal.	5,099	\$9	\$45,891
Mf	Myrcianthes fragrans	SIMPSON'S STOPPER	YES	3 gal.	322	\$10.50	\$3,381
Mc	Myrica cerifera	WAX MYRTLE	YES	3 gal.	20	\$9	\$180
Nb	Nephrolepis biserrata	SWORD FERN	YES	3 gal.	240	\$9	\$2,160
111	Odontonema strictum	FIRESPIKE		3 gal.	111	\$10.50	\$1,165.50
Pca	Plumbago capensis	BLUE PLUMBAGO		3 gal	330	\$9	\$2,970
Pn	Psychotria nervosa	WILD COFFEE	YES	3 gal	225	\$10.50	\$2,362.50
Rl	Rondeletia leucophylla	PANAMA ROSE		3 gal.	841	\$10.50	\$8,830.50
Rb	Ruellia brittoniana	MEXICAN PETUNIA		1 gal.	540	\$5.50	\$2,970
Rp	Ruellia Aztec or Mayan pink	DWARF MEXICAN PETUNIA		1 gal. Seedless variety	85	\$5.50	\$467.50
Rpwp	Ruellia Aztec or Majan dwarf pink, white, purple	DWARF MEXICAN PETUNIA		1 gal.	4,705	\$5.50	\$25,877.50
Rw	Ruellia Aztec or Mayan white	DWARF MEXICAN PETUNIA		1 gal. Seedless variety	1,340	\$5.50	\$7,370
Sat	Schefflera arboricola 'Trinette'	DWARF SCHEFFLERA		3 gal	355	\$9	\$3,195
Spb	Spartina bakeri	SAND CORDGRASS	YES	3 gal.	1,230	\$9	\$11,070
Spbg	Spartina blue-green	SAND CORDGRASS	YES	3 gal.	2,970	\$9	\$26,730
Spa	Spartina patens	SALTMEADOW CORD GRASS	YES	1 gal.	2,725	\$5.50	\$14,987.50
Sj	Stachytarpheta jamaicensis	BLUE PORTERWEED	YES	3 gal.	2,968	\$10.50	\$31,164
Tja	Trachelospermum jasminoides 'Autumn'	ASIAN JASMINE		1 gal 24" o.c.	2,050	\$5.50	\$11,275
Tf	Tripsacum floridanum	1/2-a-HATCHEE	YES	3 gals.	7,857	\$9.00	\$70,713
Zi	Zamia integrifolia	COONTIE	YES	1-3 gals.	240	\$15.00	\$3,600
						Shrub Subtotal:	\$493,125.25
EXTRANEIOUS MATERIALS							
	St. Augustine "Floritam"			Solid Sod	311.125	\$0.50	\$155,562.50

## Overall Budget Summary

Overall Landscape Budget: \$3,500,000  
Landscape Budget: \$2,100,000 - Irrigation Budget: \$1,400,000

Grand Total Estimate of All Plant/Sod Material to Date: \$1,550,438  
Estimate of Irrigation Budget to meet or be below established \$1,400,000

\*Note: These are designer estimates which could change based on when the project is available to be landscaped. They do not include a contingency, contractor overhead and profit amounts, or any clearing and grubbing or tree relocation.

### Summary of Plants Utilized

22 Different Tree Varieties – 13 of which are Florida Natives  
1,169 Total Trees  
817 Native Trees = 69.9%

39 Different Shrub Varieties – 24 of which are Florida Natives  
57,570 Total Shrubs  
42,912 Native Shrubs = 74.5%



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