Final Draft

Aesthetic Plan Report

S.R 524
Widening PD&E Study
from Friday Road South to Industry Road

Brevard County, Florida

Financial Project No. 437983-1-22-01

May, 2022

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1.0 INTRODUCTION

This portion of the PD&E Study evaluates the aesthetic component specifically related to landscape improvements along the SR 524 roadway widening project. The project is within Brevard County jurisdiction. Along the western limits is the Interstate 95 interchange.

While the entire roadway improvement project study limits extend from Precious Boulevard to Industry Road, the landscape analysis limit under this Report, is only between Cox Road (Sta. 443+00+00) to Industry Road (Sta. 545+10) intersections, approx. 1.933 miles.

2.0 EXISTING SITE CONDITIONS

2.1 Existing improvements

SR 524 is a two-lane roadway with paved medians. An existing sidewalk located on the north side of the roadway runs through the entire length of this study area ranging in widths from +/- 8' wide from Cox Road to Coventry Court and +/- 5' from east of Coventry Court to Industry Road. There are traffic signals at Cox Road, London Boulevard and Industry Road. A major overhead power line is located on the north side of the roadway along the existing R/W. No retention ponds appear to exists.

2.2 Existing Land Uses

General land uses include: commercial, offices, multi and single-family, park, school, several future developments and natural vegetation pockets. Refer to the" SR 524 Conceptual Plans".

A small office building is at the northeast corner of Cox Road. Several single-family residential subdivisions are on the north side of the roadway. Junny Rios Martinez Park (Park) is west and east of Westminster Drive. Eastern Florida State College Fred Gay Golf Academy is located west of the Park. A Fire Station is west of London Boulevard on the south side and gas/convenience station on the north.

There are large retail centers west of Industry Road on both sides of the roadway that contain retail, offices, hospital, bank, drug store, convenience store and a fast-food restaurant. Large parking lots face SR 524.

Several proposed developments, shown on the "SR 524 Conceptual Plans", are located south of the roadway. They include multi-family projects "Cocoa Landings" and "Integra Preserve" and retail buildings of "London Cove". It is not known where in the permitting process these developments are currently.

Large Retail Centers west of Industry Rd

2.3 Existing Vegetation

Existing natural vegetation is on the south side of the R/W consisting of scrub oaks, scattered pines, palmettos and wetlands species. Due to the extensive future developments shown along

this segment, it is anticipated that only small pockets of natural areas will be preserved. One is at the southeast corner of Cox Road and the other is between Cocoa Landings and Integra Preserve.

Existing street trees are only on the north side of the R/W, are located adjacent to subdivisions, park, school and gas station south of the existing sidewalks. Preservation of the street trees within the R/W should be attempted. Existing canopy shade outside the R/W will provide shade for the proposed shared use path.

Power Line Pruning

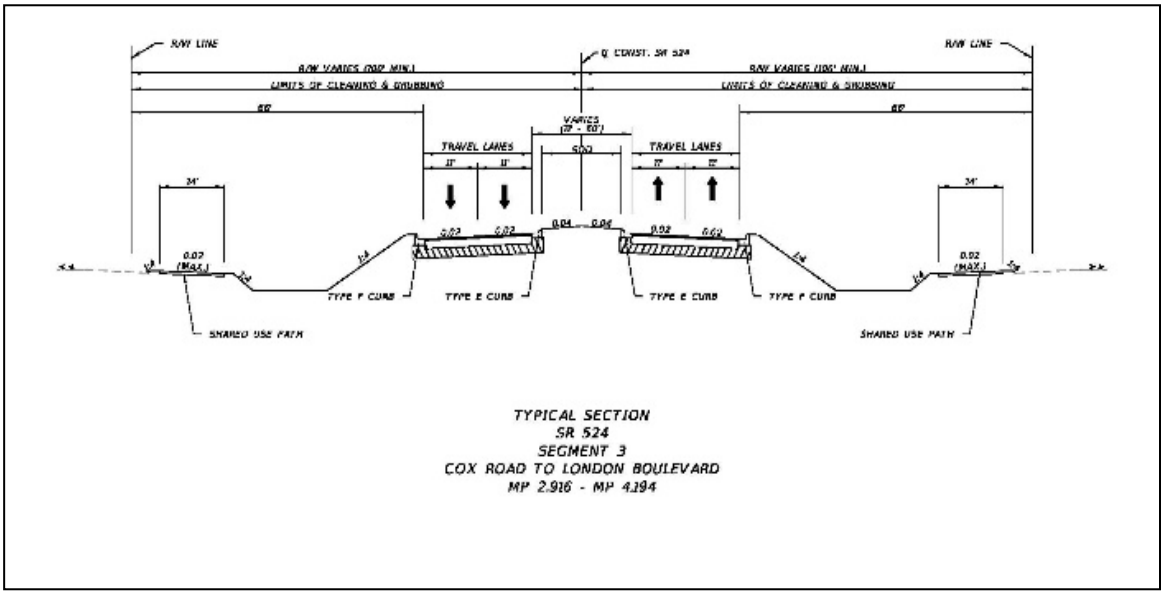
Based on the proximity of the existing overhead power line on the north side, several street trees have been significantly pruned facing the line. This does not create a healthy condition for the trees.

There are no permitted billboards recorded along the entire length of the SR 524 project that will affect preservation of clear vegetation view zones.

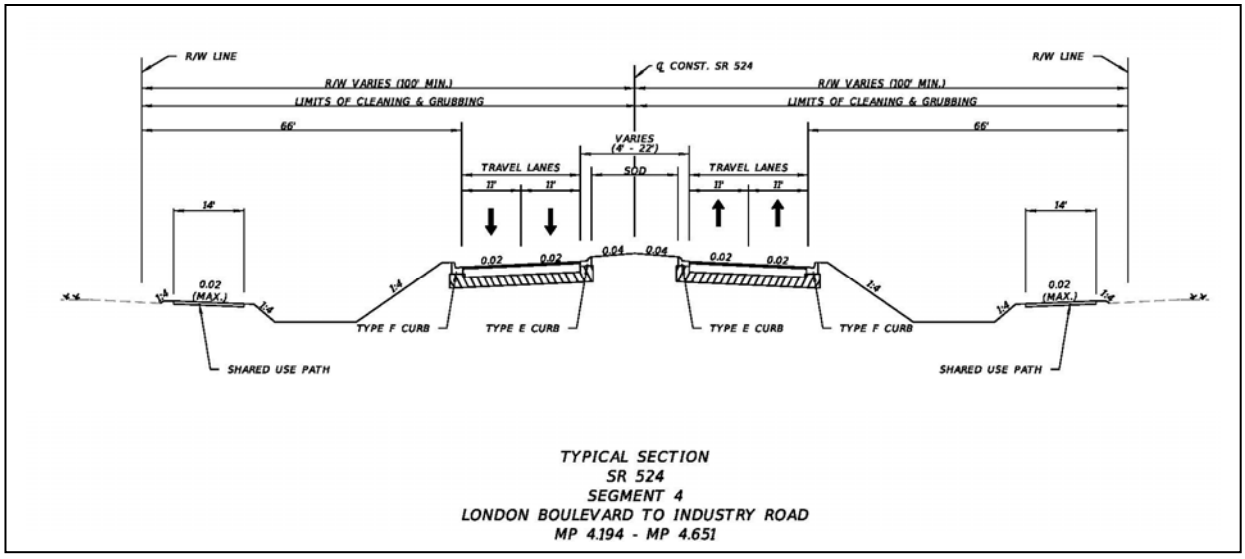
3.0 PROPOSED PROJECT DESCRIPTION

The proposed minor arterial roadway improvements consist of widening SR 524 from a two-lane roadway to a 4-lane divided highway. Refer to Cross Sections below, Segment 3 from Cox Road to London Boulevard and Segment 4 from London Boulevard to Industry Road.

Roundabouts are proposed at the Cox Road and London Boulevard intersections, both are existing signalized intersections.



TYPICAL SECTION
SR 524
SEGMENT 3
COX ROAD TO LONDON BOULEVARD
MP 2.916 - MP 4.194



TYPICAL SECTION
SR 524
SEGMENT 4
LONDON BOULEVARD TO INDUSTRY ROAD
MP 4.194 - MP 4.651

Full median openings, left turn only and right turns are proposed. Type E curbs are shown on the median side and Type F on the south side of the roadway. Median widths range from 11' - 60' between Cox Rd and London Blvd. and 2' – 22' from London Blvd. to Industry Rd. Signalized intersections are planned at Cirrus Drive and Industry Road.

A fourteen-foot-wide shared use path (pathway) is proposed for both sides of the roadway adjacent to the R/W. Bus stop chicanes are located in several locations.

Wide drainage conveyances are located between the roadway and pathways on each side ranging up to 45' wide with 1:4 slopes. There are two retention ponds, Pond 3A and 3B, located west of Industry Road on the north side of the roadway.

The proposed roadway improvements are within the existing R/W limits with the exceptions of minor R/W acquisition at the intersections of Cox Road and London Boulevard.

See Attachment "A" - "SR 524 Conceptual Plans – Landscape Potential Areas".

4.0 CRITERIA AND GUIDELINES

There are several jurisdiction resources and required regulations that apply to future roadway landscape improvements along this corridor. These include the "FLORIDA Design Manual" (FDM) and jurisdictional agencies ordinances. Refer to Attachment "B", "List of Agency Criteria and Guidelines". The list is generalized and shall not be considered complete. The Design Landscape Architect (DLA) is responsible to fully research and comply with the applicable codes that will apply to the plant placements.

A Major component of landscape design is compliance with the FDM and Indexes addressing horizonal and vertical Vehicle Sight Line criteria and horizonal off-set clearances.

Brevard County landscape performance standards will require sidewalks, landscape buffers along the roadway frontage and encourage preservation of tree canopies on the future developments. This requirement will assist in providing shade over the 14' pathway.

4.1 Design Criteria and Considerations

Consider the following elements during the development of the landscape design:

- Traffic calming effect
- Safety
- Pavement durability
- Preserve required sight distance, lateral offset, and clear zone with plants that do not require routine maintenance to preserve sight distance.
- Protect, conserve, complement, and enhance planted and natural roadside vegetation, scenic resources, and natural features.
- Screen unfavorable views and frame favorable views.
- Use of context appropriate native plant materials, locally adapted, and disease resistant.
- Selectively clear and thin existing vegetation
- Remove exotic and nuisance vegetation
- Choose and place plants to minimize the need to maintain uniform height and spacing to sustain design intent
- Select a diverse mix of plant species for sustainable landscapes
- Provide shade opportunities along the shared use pathways.
- Benefit pollinators.
- Complement the performance, function, and aesthetic quality of stormwater systems.
- Be compatible with existing and proposed ITS devices, above and below ground utilities.
- Be compatible with a maintaining agency's preferences, abilities, and resources.
- Select and place plants to prevent harm to pavement from growing roots or from accumulation of falling debris (fruit, nuts, large leaves).
- Select a diverse, low maintenance mix of Florida Friendly plant species. The use of native tree species is encouraged. Drought tolerant plants will have a better success rate. Landscapes must be context appropriate and disease resistant. Planting design should reflect Florida's unique identity and reflective of the local ecology environment. Providing diverse species and various heights will
- Select shrubs that will recover or regenerate naturally after mechanical damage. Select trees and plants with a variety of height, color, form, and texture. Select trees that will continue to grow in value, after establishment, without routine irrigation should irrigation not be provided. Plants placed within Site Visibility Lines must not exceed 18-inches in height, at full maturity. If more decorative plantings are requested by local agency or groups, maintenance agreement should be obtained.

5.0 AESTHETIC LANDSCAPE AND ANALYSIS REPORT

It is strongly recommended a **"Landscape Opportunity Plan",** indicating future designated landscape areas, be part of Roadway Plan Construction Plan documents. Coordination with the design Engineer can address: final pathway alignments; soil replacement; tree removal; clearing; and tree canopy pruning.

5.1 Budget

Budgetary goals during the initial stages have been established of $400,000.00 with an emphasis placed on speed management. As the design progresses that includes public involvement input, coordinate with FDOT and the impacted communities, address final budget amount.

Prioritizing locations by placement of strong accent areas, species selection and quantities of plants for the project to achieve optimum aesthetics will be paramount for future landscape concepts moving ahead.

5.2 Strategic Landscape Design Locations

The DLA to establish a priority of planting locations with top priorities to creating traffic calming, safety and screening residential areas from vehicle traffic in order to properly allocate the landscape budget. Establishing landscape areas designated on the "Landscape Opportunity Plan" may apply as follows.

- Priority One: Roundabouts/Approaches–Strong Accent and Safety
- Priority Two: Medians –Consistency
- Priority Three: Shared Use Pathways – County Coordination
- Priority Four: Plantings for Shared Use Pathways – Shade and Buffering Opportunities
- Priority Five: Retention Ponds – Enhancement of Open Area Views
- Priority Six: Subdivision entrances – Mitigate Impacted Vegetation

5.2.1 Roundabouts and Approaches

Landscaping is one of the distinguishing features that give roundabouts an aesthetic advantage over traditional intersections. The landscaping of the central island can enhance the safety of the intersection by making the intersection a focal point for community enhancement, promote lower speeds and break headlight glare of oncoming vehicles.

Plant material in the approaches help create a funneling effect and induce drivers to slow down when approaching the roundabout. Landscaping between the sidewalk and the circulatory roadway will help to channelize pedestrians to the crosswalk areas and discourage pedestrian crossing to the central island.

Since these proposed roundabouts will be located where existing pavement will be removed, it is paramount that soils are replaced to supporting healthy growth long term. Based on proposed plantings species, provide typical limits of areas and depths of soil excavation to achieve this goal. For example, differences between Oak Trees, Sabal Palms, shrubs, etc.

5.2.2 Median Plantings

Address compliance with Vehicle Sight Lines and horizontal off-sets based on roadway cross section and design speed limit. Type of curb construction will establish limitations of plant placement in the center medians and to the sides. Indicate horizonal off-sets from back of curbs. Develop a plant pallet and design rhythm to establish a consistency throughout the project limits.

Proposed medians, similar to the roundabouts, will be located over demolished existing roadway to be removed. Soil replacements criteria for healthy plant growth will apply here.

5.2.3 Shared Use Pathways – County Coordination

A 14' wide shared use pathway is proposed on both north and south sides along the R/W. Existing sidewalks range from 5' to 8' with some street trees are located south of the sidewalks.

NOTE: It is recommended FDOT coordinate with Brevard County for future developments to provide a 14' wide pathways to fulfill the County's sidewalk requirement.

Brevard County will require sidewalks and landscape along the R/W frontage of future developments. This sidewalk width will be narrower than the proposed 14' wide pathways. The Design Engineer for the roadway, FDOT and Brevard County representatives to coordinate early in the PD&E process to best accomplish construction of pathway design as part of the new development approval process. This will prevent removal and replacement when the FDOT roadway plans moving forward. Placement will be required to confirm sufficient width and roadway separation is available.

5.2.4 Tree Plantings for the Shared Use Pathways – Shade and Buffering Opportunities

Street Trees adiacent Subdivision and Park

Shade considerations along shared use pathways is desired to provide comfort for pedestrians and bicyclists. Rule of thumb is to provide shade nodes at one quarter mile increments.

The local jurisdiction will require landscape improvement within the property boundaries for the future development projects. This will assist in providing shade to the pathways versus on relying solely on the FDOT project. Refer to "Shared Use Pathways" above.

Based on optimal shade and roadway aesthetics, the DLA to consider tree placement between the roadway and pathways. This best takes advantage of angle of shade, to create a buffer to adjacent residential uses and a greater distance from the overhead power lines. These locations allowing larger canopy diameter without significant pruning and a greater chance to mature naturally. Consider selection of understory trees adjacent to the over-head power lines.

Consideration of canopy and understory tree placements for greatest opportunity of providing shade to pathways.

Coordinate with Engineer and Document for future design.

Coordinate with the Engineer areas of landscape placements and document for future design phase.

5.2.5 Retention Ponds – Enhancement of Open Area

Soften edges of retention ponds with wetland tree species. Coordinate with the Drainage Engineer to determine the Design Storm Water elevations to avoid placement of vegetation and trees below normal high-water elevations and avoidance of maintenance berms.

5.2.6 Subdivision Entrances – Mitigate Impacted Vegetation

Although no significant landscape entrance improvements were observed, should any subdivision or commercial developments plantings be impacted by the roadway improvements, mitigate is appropriate. In addition, some communities may request new improvements.

6.0 PRESERVATION OF EXISTING VEGETATION

Power Line Pruning

Preserve existing trees to greatest extent possible. Currently, existing street trees are only located on the north side of the roadway. Some are between the sidewalk and roadway.

Many facing the major overhead power line have been significantly pruned causing one half of a canopy diameter being removed. These one-sided canopy trees provide for unhealthy long term growth condition due to impacted structural integrity and continued pruning.

Remaining canopy, including that overhanging within the R/W, should be pruned to provide horizonal clearance above the pathways.

The DLA should evaluate and recommend preserving or removal based on location, tree size, canopy shape and diameter, health and extent of root zone. Consider option of shifting pathway alignment to maintain trees. For those remaining, determine optimal size of undisturbed existing grades around the tree roots to remain without restricting drainage flow or volume. Coordinate with the Engineer.

Much of the existing trees outside the R/W on the south side will be removed due to future developments. Future trees, however, are to be installed due to these future developments and should be considered as part of the pathway shade opportunities.

Although very little existing natural vegetation within the R/W will remain, ensure removal of all voluntary understory shrub, exotic vegetation, dead or dying is cleared as part of the roadway project.

Landscape will be as a Stand-Alone installation project. Incorporate clearing & grubbing and pruning of overhanging canopy into the Roadway Plans under the direction of a DLA

7.0 PROPOSED PLANT SPECIES

Consistent with the “Design Criteria and Considerations”, develop a Planting Chart listing location and recommended species based on the Priority Design locations. Native plants should be given priority. Selections to consider:

- Strong or striking accent trees
- Diameters of canopy trees to consider avoidance of improvements and shade
- Appropriate wetland species as needed.

Shrubs should be used minimally with the exceptions of center of the roundabouts, mitigation of disturbance at community plantings or where the community request additional landscape at their entrances and supported by FDOT.

Capitalize on shade from existing canopy to remain and those that will be provided along future development property frontages.

8.0 SOIL ENHANCEMENT

Consider soil replacement within the roundabout and medians during the Roadway Plan design Phase to avoid interruption after the improvements

The roundabouts and median planting will be where existing pavement is present. Underlying elements of limerock and high % compaction will negatively impact plant root growth, inhibit plant establishment, reduce water infiltration and increasing run-off. Greater soil excavation and enhancements will be necessary beyond FDOT Spec 580 landscape soil criteria. Suggest the DLA make recommendations for depths of excavation and composite for soil replacement for various planting types as determined by site conditions.

Select plant species that can thrive in the ultimate conditions. Provide documentation to the Project Manager or DLA justifying the need for soil enhancements.

9.0 WATERING SOURCES

A viable watering on a regular and timely basis for plant material ensuring healthy growth and thrive during the two-year establishment period is paramount. Potable water is available along the north side of SR 524. It is highly recommended that a temporary irrigation system.

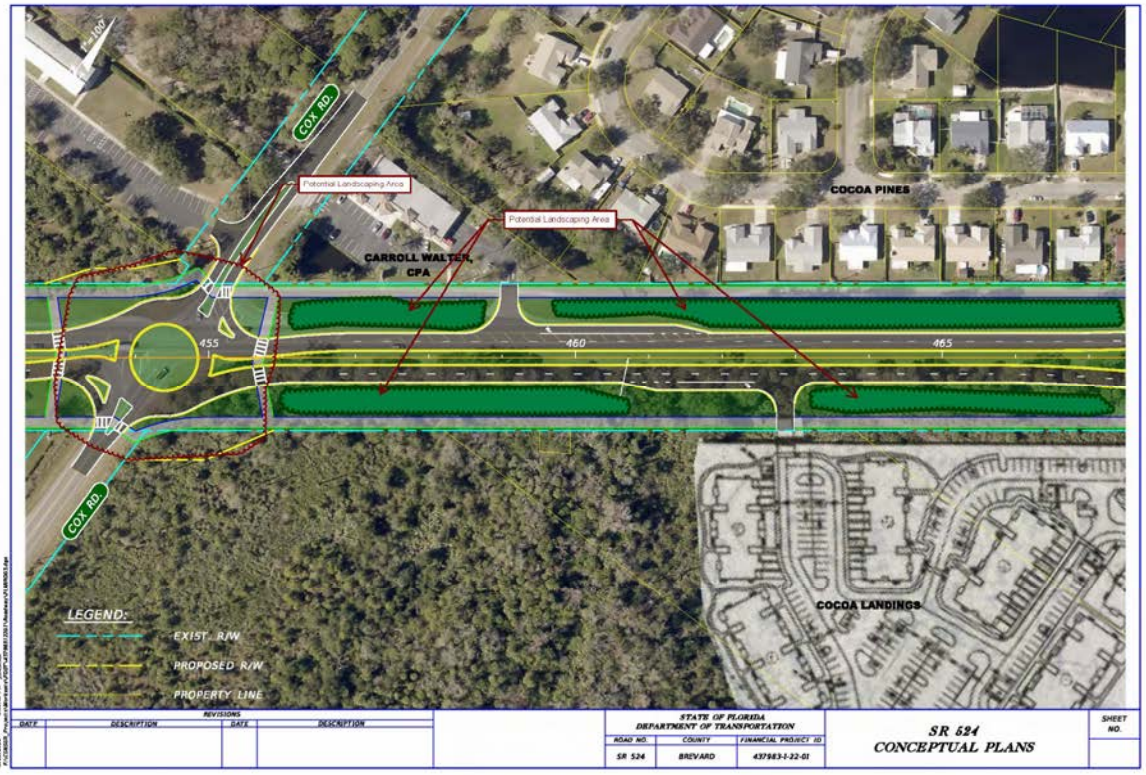
10.0 MAINTENANCE

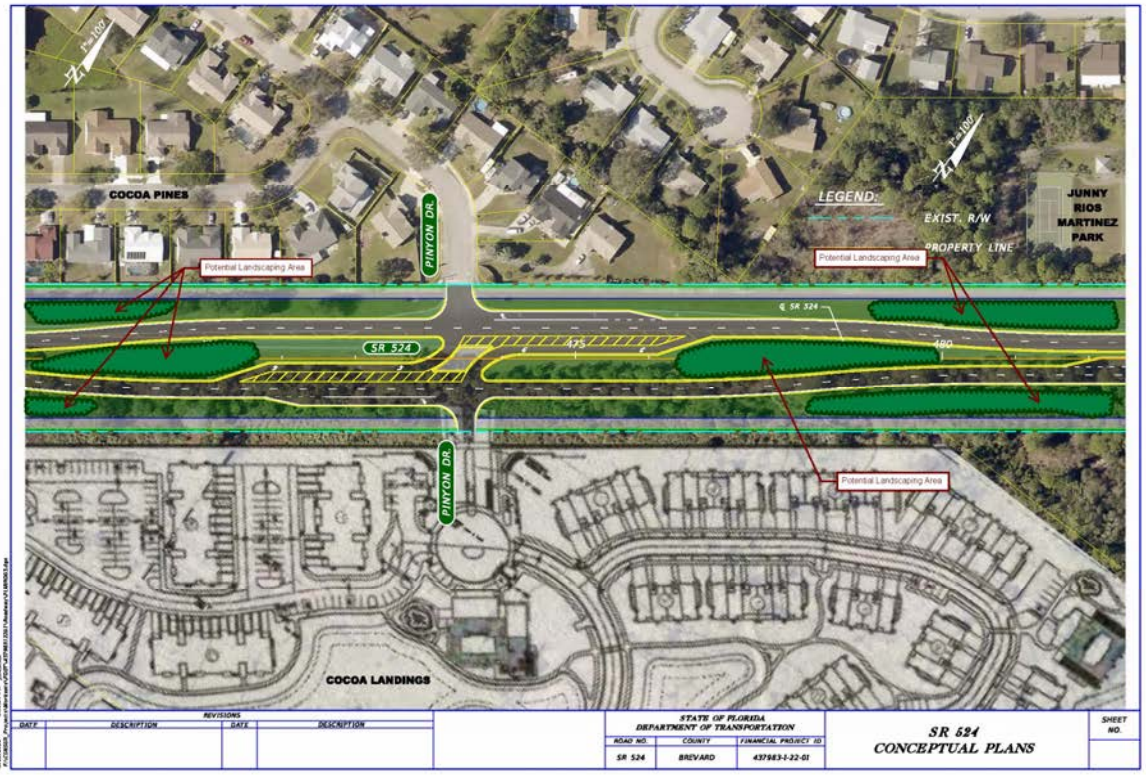
All plants will require maintenance and require minimal frequency for pruning to ensure preservation of vehicle sight line and horizontal distance requirements.

Identify early the agency or group responsible for maintaining the landscaping and develop formal agreements. If FDOT is responsible for maintenance, the landscape design should consist of only hardy, drought tolerant and low maintenance plant materials or hardscape items. If the County will be the maintaining authority, special requested materials can be considered.

ATTACHMENTS

Attachment “A” - “SR 524 Conceptual Plans – Landscape Potential Areas”


COX RD.
Potential Landscaping Area
Potential Landscaping Area
CARROLL WALTER, CPA
COCOA PINES
455
460
465
COX RD.
COCOA LANDINGS
LEGEND:
EXIST. R/W
PROPOSED R/W
PROPERTY LINE
REVISIONS
DATE
DESCRIPTION
DATE
DESCRIPTION
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
FINANCIAL PROJECT ID
SR 524
BREVARD
437983-1-22-01
SR 524
CONCEPTUAL PLANS
SHEET NO.


COCOA PINES
PINYON DR.
Potential Landscaping Area
LEGEND:
EXIST. R/W
PROPERTY LINE
JUNNY RIOS MARTINEZ PARK
Potential Landscaping Area
SR 524
SR 524
475
480
Potential Landscaping Area
PINYON DR.
COCOA LANDINGS
REVISIONS
DATE
DESCRIPTION
DATE
DESCRIPTION
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
FINANCIAL PROJECT ID
SR 524
BREVARD
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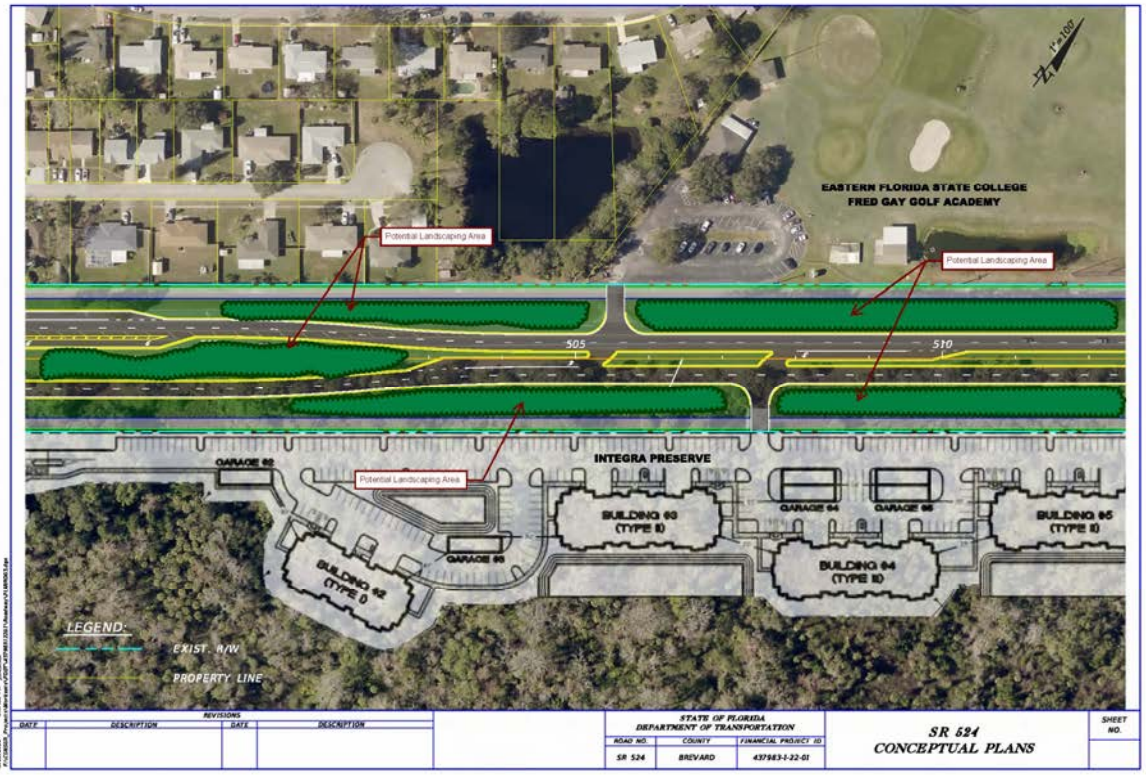
SR 524
CONCEPTUAL PLANS
SHEET NO.


JUNNY RIOS MARTINEZ PARK
WESTMINSTER DR.
JUNNY RIOS MARTINEZ PARK
LANCE BLVD.
Potential Landscaping Area
Potential Landscaping Area
485
490
Potential Landscaping Area
INTEGRA PRESERVE
GARAGE 01
CLUBHOUSE, POOL FITNESS CENTER
BUILDING 01 (TYPE II)
1"=100'
LEGEND:
EXIST. R/W
PROPERTY LINE
REVISIONS
DATE
DESCRIPTION
DATE
DESCRIPTION
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
FINANCIAL PROJECT ID
SR 524
BREVARD
437983-1-22-01
SR 524 CONCEPTUAL PLANS
SHEET NO.


EASTERN FLORIDA STATE COLLEGE FRED GAY GOLF ACADEMY
1"=100'
Potential Landscaping Area
Potential Landscaping Area
505
510
INTEGRA PRESERVE
GARAGE 02
Potential Landscaping Area
BUILDING 03 (TYPE II)
GARAGE 04
GARAGE 05
BUILDING 05 (TYPE II)
BUILDING 02 (TYPE I)
GARAGE 06
BUILDING 04 (TYPE II)
LEGEND:
EXIST. R/W
PROPERTY LINE
REVISIONS
DATE
DESCRIPTION
DATE
DESCRIPTION
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
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FINANCIAL PROJECT ID
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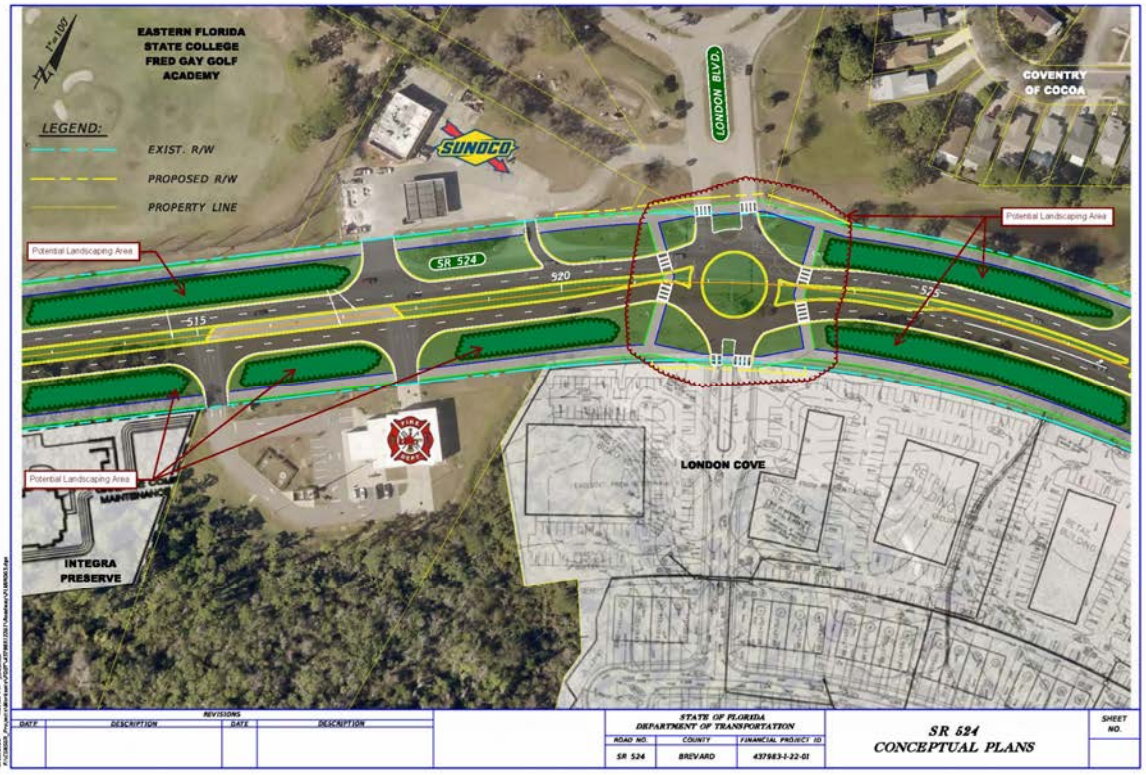
EASTERN FLORIDA STATE COLLEGE FRED GAY GOLF ACADEMY
LEGEND:
EXIST. R/W
PROPOSED R/W
PROPERTY LINE
SUNOCO
LONDON BLVD.
COVENTRY OF COCOA
Potential Landscaping Area
SR 524
515
520
525
LONDON COVE
INTEGRA PRESERVE
REVISIONS
DATE
DESCRIPTION
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
FINANCIAL PROJECT ID
SR 524
BREVARD
437983-1-22-01
SR 524 CONCEPTUAL PLANS
SHEET NO.


COVENTRY OF COCOA
COVENTRY CT.
CIRRUS DR.
CVS
POND 3A
POND 3B
530
535
540
Potential Landscaping Area
RETAIL BUILDING
LONDON COVE
COCOA VETERINARY HOSPITAL
PNC BANK
Community Bank of the South
Publix
LEGEND:
EXIST. R/W
PROPERTY LINE
REVISIONS
DATE
DESCRIPTION
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
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SR 524
BREVARD
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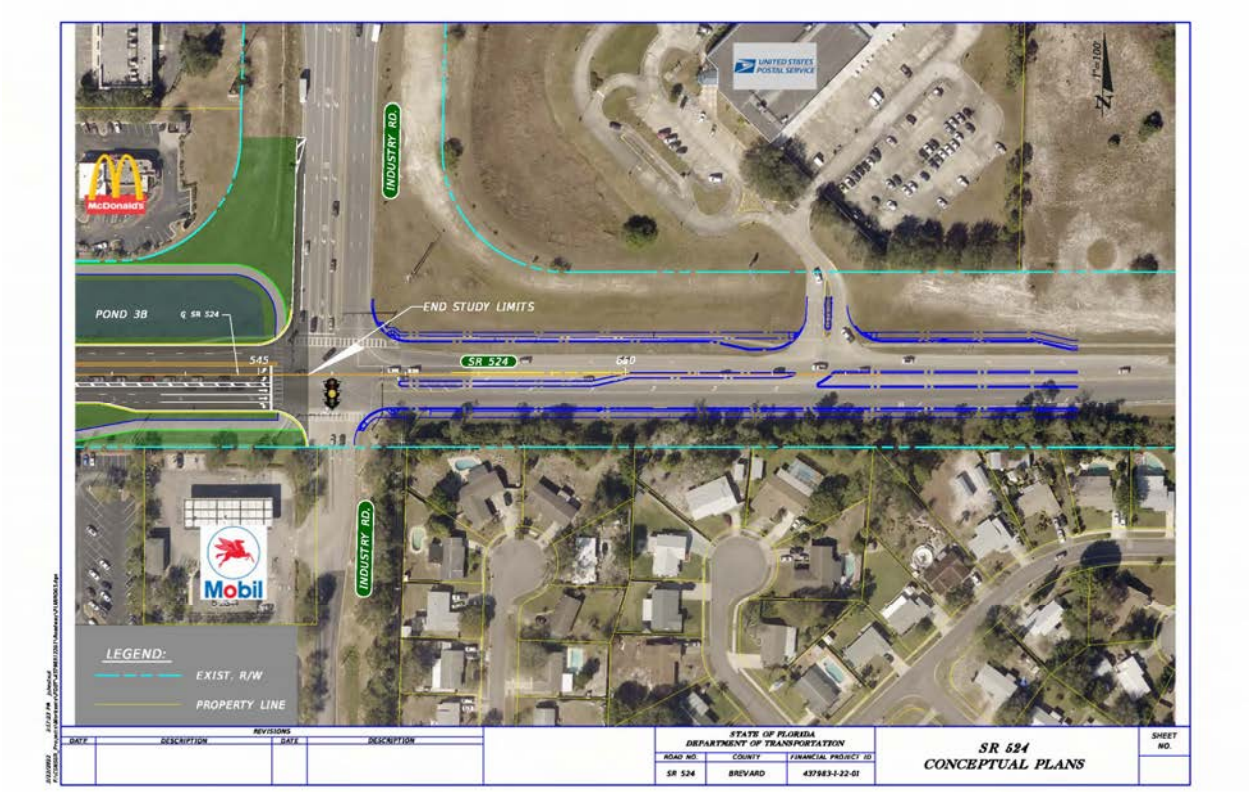
INDUSTRY RD.
McDonald's
POND 3B
℄ SR 524
END STUDY LIMITS
545
SR 524
660
INDUSTRY RD.
Mobil
LEGEND:
EXIST. R/W
PROPERTY LINE
REVISIONS
DATE
DESCRIPTION
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO.
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Attachment “B” - List of Agency Criteria and Guidelines

Develop landscape designs that are consistent with the following documents:

- Subsection 334.044(26), Florida Statutes (F.S.) – Department powers and duties
- Section 335.167, F.S. – State highway construction and maintenance; Florida Friendly landscaping
- Section 373.185, F.S. – Local Florida-friendly landscaping ordinances
- Florida-Friendly Best Management Practices for Protection of Water Resources
- Highway Beautification Policy, Topic Number 000-650-011
- FDOT’s Landscape Architecture Program, https://www.fdot.gov/designsupport/highwaybeautification/default.shtm
    - Florida Design Manual, 2021 FDOT Design Manual Specifically, the following Chapters but not limited to:
        a. 213 – Modern Roundabouts
        b. 215 – Roadside Features
        c. 224 - Shared Use Paths
        d. 228 – Landscape Design
        e. 229 - Selective Clearing and Grubbing Design
        f. 323 – Selective Clearing and Grubbing Plans
        g. 329 – Landscape Plans
- Brevard Land Development Code