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## SMART Plans

Good Morning! I suppose you are all very curious to learn all about our new criteria for the development of SMART Plans. This supposes that you now what the acronym SMART stands for. So lets see who among you has done some homework in preparation for this discussion. Let's have a...

# SMART Plans

## Pop Quiz

SMART Plans is an acronym that stands for which of the following:

- a. **S**imply **M**agnificent **A**nd **R**evolutionary Transportation (Plans)
- b. **S**implification **M**easures **A**nd **R**esourceful Techniques (for Plans)
- c. **S**aving **M**oney by **A**bstaining from **R**edundant and **T**edious (Plans)
- d. All of the Above

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POP Quiz! (Read Slide).

I would contend that the answer may prove to be “d”; however, the District that created this concept says its actually “b”.

## SMART Plans

*Not Criteria but a Philosophy:*

*To create a simple project's design plans package in a deliberative, concise, and non-traditional format.*

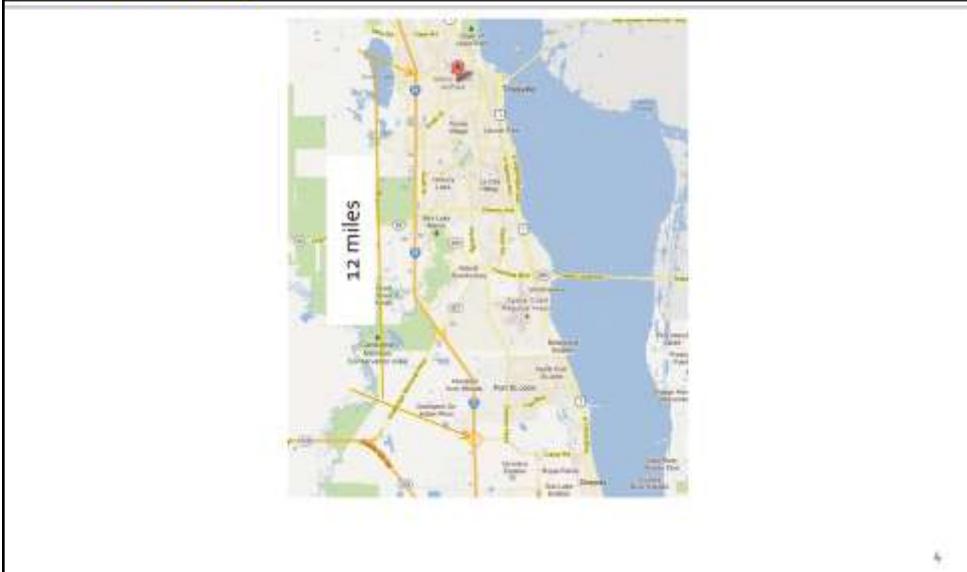
3

Those of you who came here to hear about the release or even drafting of new criteria for SMART Plans will be disappointed. At this time, we have no such criteria. All we have so far are guidelines for a process to create them. We have also surmised what types of projects be may be best suited for SMART Plans.

For right now, SMART Plans is a production philosophy that *creates a simple project's design plans package in a concise, deliberative and non-traditional format*. That's the philosophy.

Now, is this a new idea? Yes and No. There have been predecessors. To best explain SMART Plans let's look at how it got started.

## I-95: SR 406 to Port St. John Parkway



In the Fall of 2008, a 12-mile section of I-95 between Port St. John Parkway and SR 406 in the vicinity of Titusville was identified for resurfacing in 2012. It is a 4-lane interstate with an AADT of 42,500 of which 9% are trucks.

## I-95 (Southbound) at Titusville



The District began developing the project scope in spring/summer 2009. During field reviews, it was noted that several isolated locations within the outside lane between SR 50 and SR 406 were exhibiting severe distresses. These distresses included severe alligator cracking in the outside wheel path and spalling of the roadway surface. In many places, limerock base was observed to have pumped up through the cracks to the roadway surface.

## I-95 (Southbound) at Titusville



Patching was also noted in several areas. Here you see the exit ramp at SR-50.

District Five management discussed how the emergency repairs should be done – should the job be let as a maintenance contract, or should it go through design and construction. In the end, it was decided that the quantities involved were bigger than the District wanted to do through a maintenance job.

## I-95 (Southbound) at Titusville



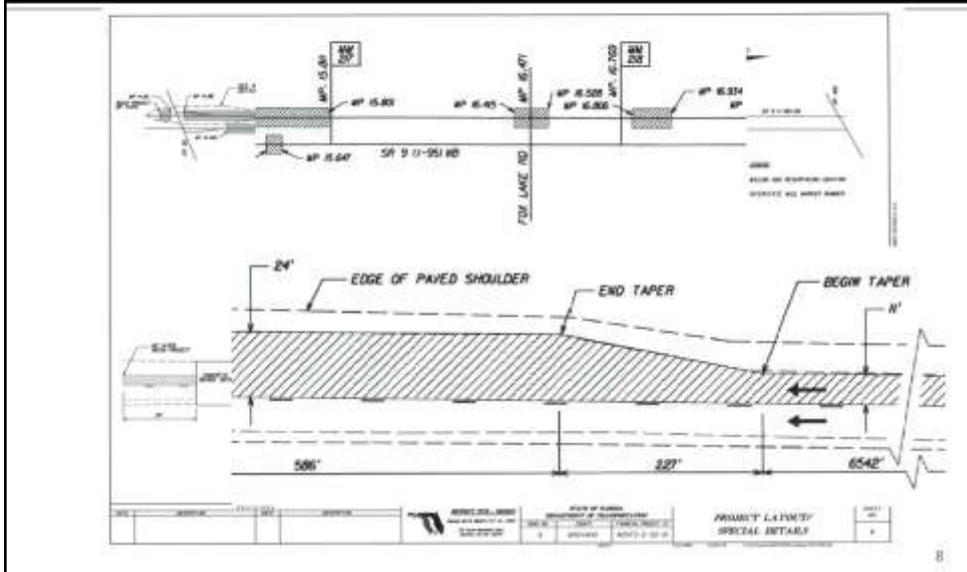
To produce a set of documents that could be let for construction, a plan set would have to be developed. What would you include in the construction plans for this resurfacing project? The scope would include milling and resurfacing, pavement marking and replacement of some guardrail shown here. A construction detour would also be necessary at the interchange.

Would it make sense to design the emergency repair project to meet the requirements of Chapter 25 of the PPM?

What was needed was a basic plan set that accomplished the goals of the emergency repairs with minimal design and drafting time. Amir Asgarinik, who was in charge of scope development for District Five at that time, had worked in Roadway Design for many years and recalled that FDOT used to have "Mini Plans." The guidance for these 8 ½" x 14" size plans was published in the 1985 PPM. The chief advantage of these Mini Plans was that they conveyed the scope through narrative and descriptive wording rather than through drafted pictures. But Mini Plans were phased out in 1992.

Based on the Mini Plans concept, here is what Amir and his designer, John Fowler, came up with.

# Project Layout



Two Plan Views. One which shows regions of lane resurfacing in the typical 4- lane configuration and another at the SR 50 ramp taper and gore area.

Note that:

1. (Click) Longitudinal start and end are tied to mile markers (not stationing – no survey!).
2. (Click) Width of resurfacing shown hereupon.

# Construction Notes

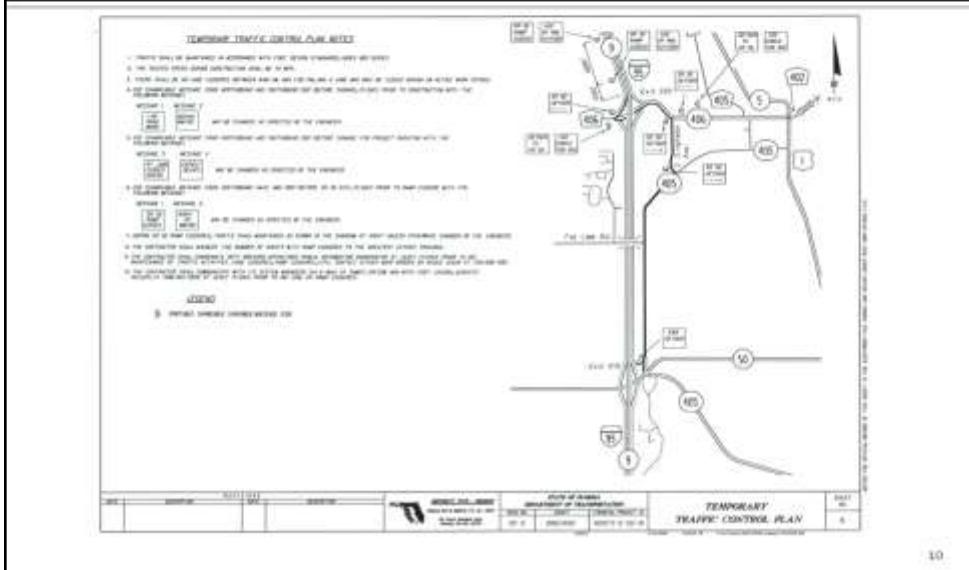
<p>PROJECT LOCATION</p> <p><u>PROJECT LOCATION</u></p> <p><u>SCOPE OF WORK</u></p> <p>THE PURPOSE OF THIS PROJECT IS TO PERFORM EMERGENCY REPAIRS TO RAPIDLY DETERIORATING PAVEMENT IN THE OUTSIDE TRAVEL LANES OF SR 9. THIS PROJECT CONSISTS OF MILLING AND RESURFACING AT VARIOUS LOCATIONS IN THE OUTSIDE TRAVEL LANE OF NORTHBOUND AND SOUTHBOUND SR 9 AND IN THE SB DECELERATION LANE TO SR 50. THE DETAILS OF THE MILLING AND RESURFACING LIMITS ARE SHOWN BELOW IN THE SUMMARY OF PAVEMENT REPAIR TABLE. THIS PROJECT ALSO INCLUDES GUARDRAIL UPGRADES AS SHOWN BELOW IN THE SUMMARY OF GUARDRAIL TABLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING AND REPLACING ALL EXISTING MILLING TABLE BELOW. ANY DISTURBED RPM'S</p> <p><u>MILLING AND RESURFACING PAVEMENT DESCRIPTION*</u></p> <p>SR 9 (I-95)</p> <p><u>TRAVEL LANE AND DECELERATION LANE MILLING</u> MILL EXISTING ASPHALT PAVEMENT (3" AVG. DEPTH)</p> <p><u>TRAVEL LANE AND DECELERATION LANE DECELERATING PAVED</u> TYPE SP STRUCTURE AND FRICTION</p> <p><u>NOTES</u></p> <p>PAVE MILL EXISTING FRICTION</p> <p>REGARDLESS OF THE THICKNESS OR WIDTH</p> <p>FRICTION SOURCE: FLS-3 176 1170 10-202</p>	
<p>DATE: 10/10/10</p> <p>BY: [Signature]</p>	<p>CONSTRUCTION NOTES</p> <p>9</p>

The details of the work to be accomplished were shown on this sheet. Here you see:

- (Click) Project Location: a general description again tied to mile markers.
- (Click) Scope of Work: A simple 6 sentence description of milling & resurfacing, guardrail upgrades & pavement marking activities.
- 3 Tables listing the extent of each activity.
- (Click) 4 Statements on what depth is the shoulder and lane milling, and what type and thickness the shoulder and lane paving shall be.
- (Click) Two notes on matching existing cross-slope and milling off all shoulder friction course in the work areas shown.
- 10 General Notes on miscellaneous facts the contractor needs to be aware of (such as utilities and survey markers) or project-specific requirements (such as work restrictions).

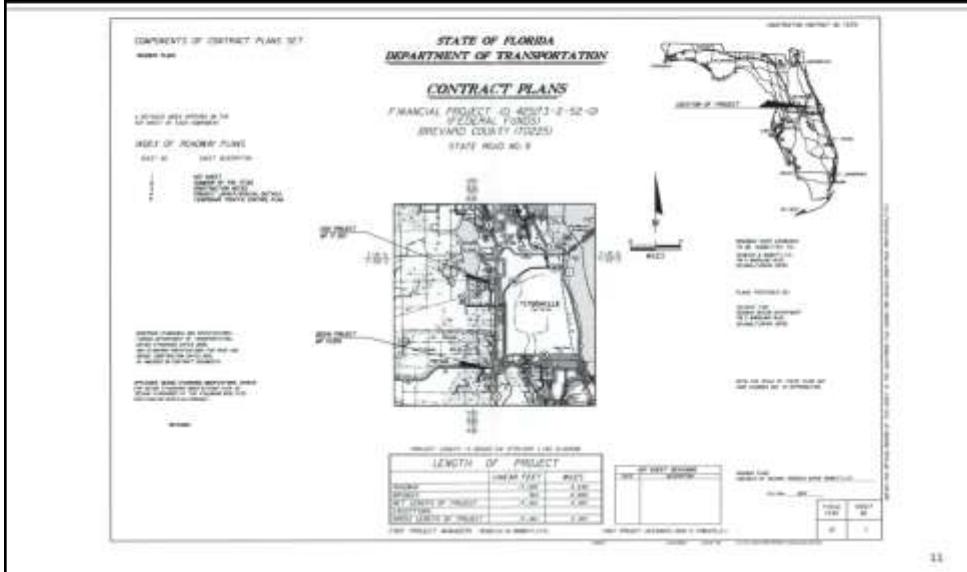
Note that pavement markings were to “Match Existing.” Pretty Simple.

# Traffic Control Plan



Because resurfacing the ramp at SR 50 would require its closure, a detour route was shown on a third sheet with TCP notes. These three sheets were essentially all that this emergency repair project required.

# Key Sheet



But of course there are some requirements that our Plans Review required including a “Key Sheet.” All this standard information was essentially covered in the “Project Location” note on the second sheet I showed you two slides ago. But the system is unforgiving in this regard.

# Summary of Pay Items

ITEM NO.	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
ITEM NO. 1	LUMP SUM AMOUNT, AS NOT SHD	1.000		1.000
ITEM NO. 2	LUMP SUM AMOUNT, AS NOT SHD	1.000		1.000
				2.000

They also had to include this sheet – a Summary of Pay Items for the project’s two Lump Sum Items, the project and its initial contingency amount.

So what is missing from this set of SMART Plans that would ordinarily have been in a PPM-Volume II set of plans?

1. Typical Sections
2. Roadway Profiles
3. Cross-Sections
4. Boring Logs
5. Signing & Pavement Marking Plans Set

## Project Results



Oldcastle Southern  
On Time  
No Claims  
On Time: 40 days  
At Price: \$382,760  
No Claims



The total design time took about three months, from about July 2009 to October 2009. The project was let in January 2010 and constructed in April 2010.

At the end of construction the project finished on-time with no claims.

Around the time that the emergency repair project got let, a capacity job for this section of I-95 got funded, and the RRR job scheduled for two years later was dropped. That capacity job began construction in March 2011. Not only were the repairs in place for a year before the capacity job began construction, but they were used to handle traffic during construction. The SMART plans allowed us to get needed repairs out on the road quickly with a minimum of drafting and design time.

## 2012 SMART Plans Lettings

DISTRICT	COUNTY	FPO	LOCATION	ROAD TYPE	LENGTH (Miles)	LETTING DATE
1	Polk	425250-1	US 98 from West of Ridge Road to Mt. Zion Church Road	2-lane rural resurfacing	2.38	12-15-12
2	Dixie	424483-1	SR 55 from the Suwannee river to the east side of Old Town	4-lane rural, principal arterial	3.870	June 2012
	Alachua	423396-1	SR 24 from the Levy County Line to SR 45	2-lane rural	2.762	June 2012
3	Gulf	426957-1	East of Pine Street to Bay County Line (runs E to W)	2-lane rural	2.889	May 2012
4						
5	Orange	424899-1	SR 424 from S. of Par St. to S. of SR 434	3R Urban Arterial	2.560	4/25/12
	Volusia	427267-1	SR 44 from W. of SR 415/CR 415 to Jungle Rd/Hidden Pines	3R Rural Arterial	6.978	9/26/12
6	Dade	431902-1	SR 112/SULLA TUTTLE WB EXIT RAMP AND EB ON RAMP AT BISCAYNE BLVD	Pavement Only	0.62	11/29/12
	Dade	431934-1	SR 9A/I-95 NB AND SB RAMP AT NW 62 STREET	Pavement Only	0.32	11/29/12
7	Citrus	427148-1	SR 45 (US 43): Hernando/Citrus Co/L to S Rip Terrace	2-Lane Rural	6.127	October, 2012
	Pinellas	427163-1	SR 580 (Main Street) E of Enterprise Dr. to E. of Countryside Blvd.	6-Lane Curb and Gutter	0.996	August, 2012

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Because SMART Plans is currently only a philosophy with a draft process, we are piloting the concept in the districts on numerous projects of varying scope. Here are at least the 10 projects that will be let between May and December of this year.

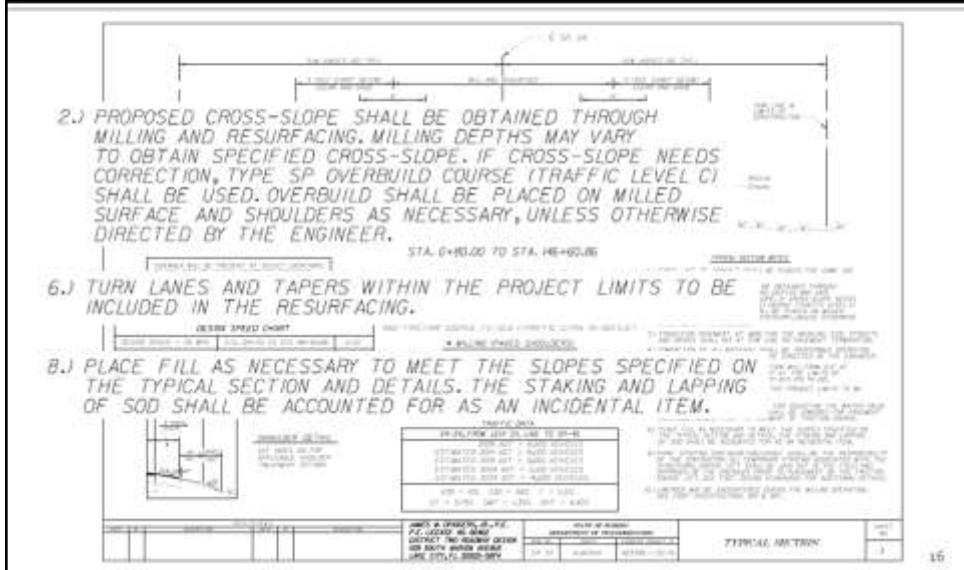
## Alachua County Project (423396)

- SR 24 through Archer
- General Scope:
  - 2.76 mile mill & resurfacing project
  - 520' right turn 6' widening for bike lane key hole
- Lump Sum Construction
- 7 Production Sheets
- District 2 In-House Design  
(Jamey Driggers is the EOR)

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One of the first districts to submit a new SMART Plans project was District 2. Their project is on SR 24 in Alachua County through and just west of Archer. It is about 2  $\frac{3}{4}$  mile of milling and resurfacing. It also calls for a shoulder widening of 6' to better incorporate a bicycle key hole into an existing right turn lane. This project was let this month using a lump sum contract. Excluding the key sheets and summary of pay items sheet, only 7 sheets were created to convey the scope of the construction. This was an in-house design.

# SR 24, Alachua County



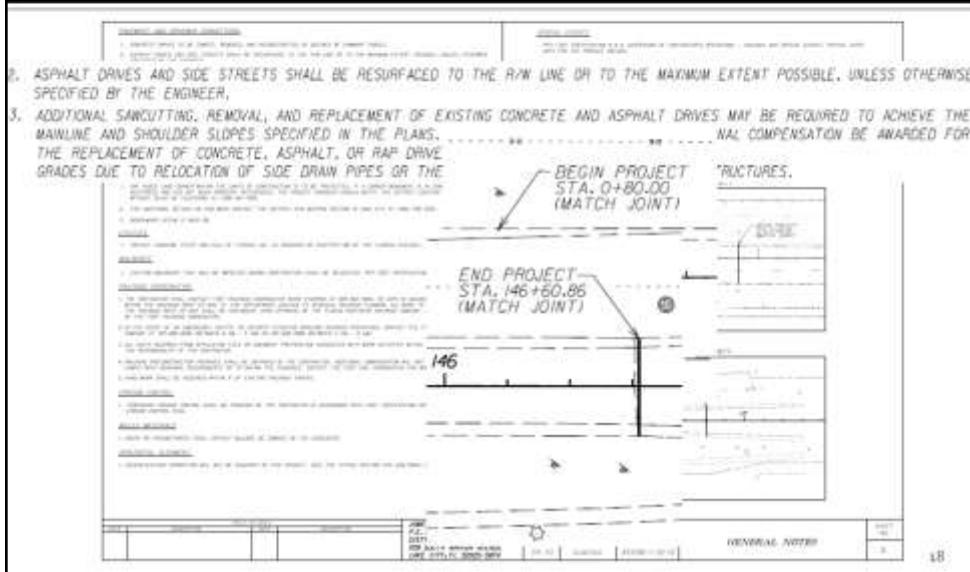
The Typical Section sheet provides the Contractor with the following construction requirements:

- Milling will be to an average depth of 2" in all travel & turn lanes and tapers. Milling in the shoulders will be to an average ½" depth.
- The structural course in the travelway will be 1.5" thick and a friction course (FC-12.5) will then be applied that is also 1.5" thick. A cross-slope of 2% is specified (not "match existing").
- The shoulders will be resurfaced with only the 1.5" thick friction course. This will place them 1" higher theoretically than before.
- (Click) With regard to cross-slope correction, Note #2 states, "Propose cross-slope shall be obtained through milling and resurfacing. Milling depths may vary to obtain specified cross-slope. If cross-slope needs correction, Type SP overbuild course shall be used."
- (Click) Note 6 states, "Turnlanes and tapers within the project limits to be included in the resurfacing." There are NO plan views that show the width or locations of these.
- (Click) Note #8 states, "Place fill as necessary to meet the slopes specified on the typical section and details (lower left)."

Admittedly, this is going where, "No FDOT project has gone before." However, with the tools now available on the internet, is a "plan view" of the project's turn lanes and tapers really necessary? There are also as-built plans on the previous project that are available. With regard to cross-slope, the district knew that they met the range of acceptable cross-slope to meet the latest PPM so that even "match existing" would result in an acceptable as built project.



# SR 24, Alachua County



Now I know you cannot read this General Notes sheet at all, but I present it to you only to show that it is full of written scope and very short on drawings. This is typical. Included herein are what you would normally do:

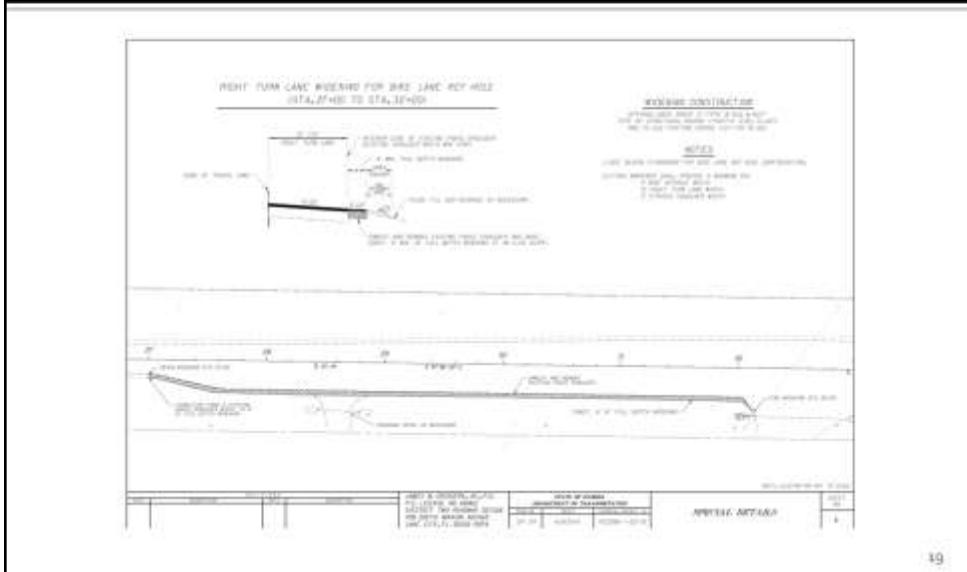
1. Utilities/OneCall
2. Mailbox relocations
3. Railroad Coordination
4. Erosion Control
5. Sodding type
6. Special Event Work Suspension (UF Games)
7. Survey notes on monumentation damage, ROW maps available & datum (which is strange as there are no elevations in the plans).

SMART notes include:

- Driveway Connections, "Asphalt drives and side streets shall be resurfaced to the ROW line or to the maximum extent possible, unless otherwise specified by the engineer." and
- "Additional saw-cutting, removal, and replacement of existing concrete and asphalt drives may be required to achieve mainline and shoulder slopes specified in the plans. Under no circumstances will additional compensation be awarded for the replacement of concrete, asphalt or RAP drives."
- Drainage Structures, "Excavation work will be required to provide a smooth alignment/transition to match existing ditch alignments and ditch grades due to relocation of side drain pipes or the placement of proposed drainage structures." This note may be removed in the future as this construction is covered by the specifications.

Also note the two figures on the right. These specify the begin/end of the project by stationing identified at an existing pavement joint.

# SR 24, Alachua County

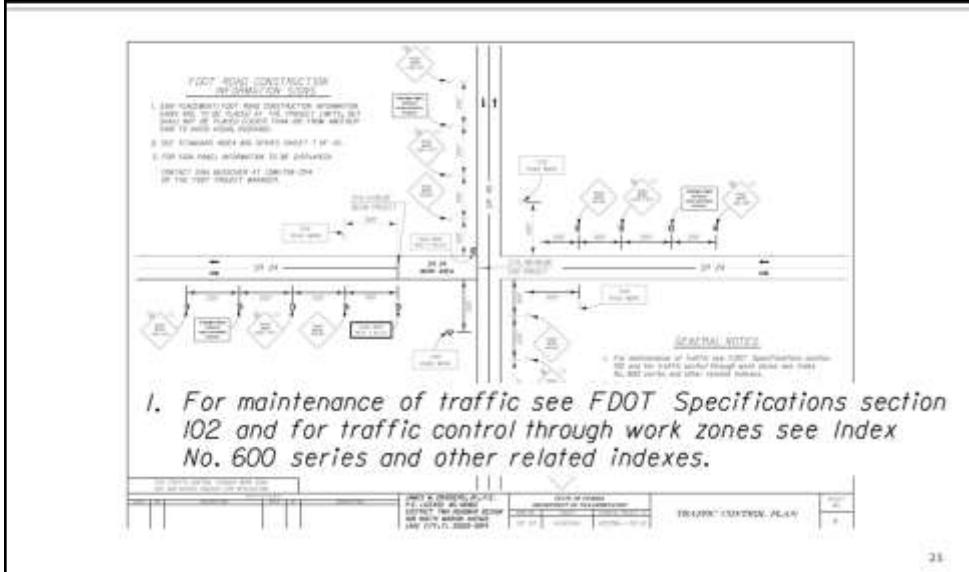


The Special Details sheet shows how the shoulder on the existing turn lane is to be modified to include the bicycle lane key hole. There is a:

- Simple plan view with stationing,
- Typical section
- A description of the materials to be used
- And notes on how to mark the lane.



# SR 24, Alachua County



Another sheet provided is a Traffic Control Plan. This principally details how the public is to be informed of construction ahead especially since the project ends near the intersection of another State Highway - #45. In the work zone itself, Index Series 600 still applies.

# SR 24, Alachua County

**SIGNING AND PAVEMENT MARKING NOTES**

1. THE NOTES HEREON ARE PROVIDED ONLY FOR THE PURPOSE OF DESCRIBING THE WORK TO BE PERFORMED AND ARE NOT TO BE CONSIDERED AS PART OF THE CONTRACTOR'S OBLIGATION TO FURNISH MATERIALS AND TO PROVIDE CONSTRUCTION DETAILS.

2. ALIGNMENT OF PROPOSED PAVEMENT MARKINGS SHALL MATCH EXISTING PAVEMENT MARKINGS AT THE PAVEMENT MARKING LIMITS OF CONSTRUCTION.

NOTE: THE CONTRACTOR SHALL DOCUMENT THE EXISTING PAVEMENT MARKING CONFIGURATION AND LOCUS. THE DOCUMENTATION SHALL BE SUBMITTED TO THE CHIEF ENGINEER FOR APPROVAL PRIOR TO ANY WORK ACTIVITIES BEING PERFORMED.

**2. ALIGNMENT OF PROPOSED PAVEMENT MARKINGS SHALL MATCH EXISTING PAVEMENT MARKINGS AT THE PAVEMENT MARKING LIMITS OF CONSTRUCTION.**

THE OBJECT OF THESE SPECIFICATIONS IS TO PROVIDE THE USER WITH THE NECESSARY INFORMATION TO BE PLACED IN THE CONTRACT DOCUMENTS TO BE USED BY THE CONTRACTOR.

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL MATERIALS AND LABOR NECESSARY FOR THE PROVISION OF THE WORK DESCRIBED IN THESE SPECIFICATIONS.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL MATERIALS AND LABOR NECESSARY FOR THE PROVISION OF THE WORK DESCRIBED IN THESE SPECIFICATIONS.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL MATERIALS AND LABOR NECESSARY FOR THE PROVISION OF THE WORK DESCRIBED IN THESE SPECIFICATIONS.

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5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL MATERIALS AND LABOR NECESSARY FOR THE PROVISION OF THE WORK DESCRIBED IN THESE SPECIFICATIONS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL MATERIALS AND LABOR NECESSARY FOR THE PROVISION OF THE WORK DESCRIBED IN THESE SPECIFICATIONS.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL MATERIALS AND LABOR NECESSARY FOR THE PROVISION OF THE WORK DESCRIBED IN THESE SPECIFICATIONS.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL MATERIALS AND LABOR NECESSARY FOR THE PROVISION OF THE WORK DESCRIBED IN THESE SPECIFICATIONS.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL MATERIALS AND LABOR NECESSARY FOR THE PROVISION OF THE WORK DESCRIBED IN THESE SPECIFICATIONS.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL MATERIALS AND LABOR NECESSARY FOR THE PROVISION OF THE WORK DESCRIBED IN THESE SPECIFICATIONS.

STATION			
EAST BOUND		WEST BOUND	
BEGIN	END	BEGIN	END
0+50	2+00	180+00	20+00
0+50	44+00	71+00	88+00
52+00	57+00	57+00	20+00
58+00	88+00	84+00	0+00

AWTAIN AMBET

The final sheet of these SMART Plans describes the signing and pavement marking requirements. Pavement marking is essentially “match existing” for alignment and supplemented by the no passing lines by station shown in the table. The schematic at the bottom are new signs being added to the project. All existing signs are being removed and donated to the County.

And that’s it.

## SR 24, Alachua County

### CURRENT STATUS:

- June Letting
    - FDOT Estimate: \$944,600
    - 3 Bids, Low \$985,600 (+4%)
  - One contractor requested cross-sections & plan view for:
    - Overbuild quantities
    - Travel lane, turn lane & taper locations
    - FC-2 milling locations
- (Did not bid project)

## SMART Plans Are NOT Intended:

1. To minimize our commitment to upgrading highway safety – project scoping cannot exempt safety challenges out.
2. To be used on all projects whose scope seems simple - only those that truly are.
3. To reduce project engineering - only perceived unnecessary detailing.

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At this time we can better define what SMART Plans are NOT better than what they ARE.

1. SMART Plans are not intended to reduce our commitment to upgrading highway safety. Fundamental to the selection of projects to be SMART Plans candidates is a thorough scoping of all projects. Those with demonstrated safety challenges will still need to be corrected but oftentimes these correction can themselves be described in a set of SMART Plans.
2. SMART Plans are not intended to be used on all projects whose scope seems simple – only those that truly are. Surveying should be minimized as project location and control can be tied to known fixed reference points (benchmarks, mileposts, bridge abutment backwalls, headwalls, etc.). Geotechnical investigations should also be minimal.
3. SMART Plans are not intended to reduce project engineering. The SMART Plans Process requires the EOR to be “smart” in his presentation of the work required. More engineering judgment especially during scoping and design effort may be necessary to clearly organize and present the project’s requirements in as concise a manner as possible.

## SMART Plans Project Scopes:

- Rural Interstate Resurfacings (reducing the complexities that ramps could inject)
- Rural 3R including shoulder additions/widening (but excluding frequent changes in typical section and reconstruction areas)
- Traffic Operations and Access Management (excluding turn lanes which require surveying, geotechnical investigation and cross-sections as well as reconstruction of shoulder pavement, embankment, ditches, utilities, etc.)
- Minor Sidewalks (where they can be tied to a fixed control point such as back of curb and not separate alignment)
- Skid-hazard Safety (friction course reconstruction)
- Signing and/or Pavement Marking
- Pavement Only Projects
- Emergency Repairs
- Guardrail

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Right now, several more projects have design plans under production. An overall approach to was provided to the districts that contained general guidelines and recommended project types. These project types included:  
(read list):

So what is the Department doing right now?

# Future SMART Plans Projects

DISTRICT	COUNTY	FPOID	LOCATION	ROAD TYPE	LENGTH (Miles)	LETTING DATE
1	Sarasota	201275-2	Sumter Blvd resurfacing within the I-75 L/A Right of Way Limits	2-lane suburban/rural	0.50	2-27-13
	Manatee	430928-1	US 301 Overpass over US 41 Friction Course Safety Project	4-lane suburban	0.241	4-24-13
3	Holmes	426958-1	SR 10 (US 90) from East of CSX Railroad to Washington County Line	2-lane rural	6.6	January 2014
	Washington	428748-1	SR 10 (US 90) from East of St. Mary's Road to Holmes County Line	2-lane rural	3.133	July 2014
	Santa Rosa	426972-1	SR 281 (Avalon Boulevard) from Garcon Pointe Bridge to SR 8 (I-10)	2-lane rural	6.784	January 2015
4						
5	Volusia	428689-1	SR5 (US1) from N of Hernandez Ave to N of SR 5A (Nova	3R, Rural Arterial in urbanized area	1.2	1/29/2014
	Volusia	428945-1	I-95, Brevard/Volusia Co. Line to N of Pavement Change at MM 6.8	3R, Rural Interstate	6.8	3/26/2014
	Brevard	428862-1	SR 407 from SR 528 to SR 405	2 lane Limited Access 3R		
6	Dade	427515-1	SR 9A/I-95 (SB) FROM S OF BRDG OVER SR 922 TO N OF BRDG OVER BISC.CANAL	Rigid Pavement Rehab	8.7	2/27/13

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The Districts have also committed to produce SMART Plans for at least these 9 additional projects.

From these projects we expect to have many Lessons Learned from which we can draft better criteria for the process. However, we anticipate that these will be more guidelines than criteria as each project type and location are different. Overall, the Department has the goal to eventually produce all of our simple projects with this SMART Plans philosophy.

## Summary



A yellow speech bubble with a black outline, containing the text "Got any SMART Questions?".

Got any SMART  
Questions?